

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

ADDENDUM NO. 1

TO

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

October 4, 2022

To all concerned:

The original Contract Documents issued September 14, 2022, shall be amended as noted herein. This Addendum No. 1 shall hereby become part of the Contract Documents. **Bidders that elect to submit their numeric bid in paper format (hardcopy) must acknowledge this Addendum in the space provided on the signature page of the Bid forms.**

Amendment No. 1: Pre-bid meeting minutes (attached below).

* * * * *

CONTRACT NO. CMLF-C19-06R2
Addendum No. 1; Amendment No. 1

Pre-Bid Meeting Minutes

A non-mandatory pre-bid meeting, followed by a site visit, was held on September 27, 2022, at 11:00 a.m. local time at the Cape May-Lewes Ferry Terminal, 1200 Lincoln Blvd., North Cape May, New Jersey 08204. The following persons representing the DRBA were in attendance:

Colleen Parris – Engineering Dept.
Greg Suchanoff - Engineering Dept.
Caroline Walker – Procurement Dept.

Representatives from the following firms were in attendance at the pre-bid meeting and site visit:

Aliano Brothers
Calvi Electric Company

Discussion items:

The scope of work was reviewed.

Attendees were reminded each bid must be accompanied with a bid guaranty in the form of a cashier's check or bid bond.

Attendees were reminded to submit all questions via CapEx and to reference the section or subsection to expedite the answering process.

Attendees were reminded that **the Bid opening will occur in-person inside the New Castle Administration Building**. Bidders were reminded that if they choose to hand-deliver hardcopy Bid Documents, they can be brought to the Administration Building during normal business hours as stated in the Bid documents.

Schedule:

The proposed schedule for the start and completion of the contract was reiterated.

Award Recommendation: The DRBA intends make its recommendation to award the contract at the November 2022 meeting of the Board of Commissioners.

Award of contract: Contract will be awarded within one hundred twenty (120) calendar days after Bids are opened.

Notice to Proceed: Within ten (10) calendar days following final execution of the Contract, the Contractor shall furnish to the Authority a progress schedule including all relevant activities, satisfactory to the Authority, shop drawing submittals and long-lead delivery materials and dates.

* * * * *

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

ADDENDUM NO. 2

TO

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

October 18, 2022

To all concerned:

The original Contract Documents issued September 14, 2022, shall be amended as noted herein. This Addendum No. 2 shall hereby become part of the Contract Documents. **Bidders that elect to submit their numeric bid in paper format (hardcopy) must acknowledge this Addendum in the space provided on the signature page of the Bid forms.**

Amendment No. 1: Written Questions/Answers (see below).

* * * * *

**CONTRACT NO. CMLF-C19-06R2
Addendum No. 2; Amendment No. 1**

Questions/Answers

- Q1. The Bid Form does not list the alternate to replace the carpeting in Squad Room 109. Please advise.
- A1. Carpeting replacement in Squad Room 159 is not part of the Bid. If changes are made during the contract, they will be negotiated per Section 104.06 Differing Site Conditions of the Authority's Standard Specifications. Bidders cannot submit any unauthorized additions, omissions, limitations, provisions, alterations, or conditions along with the Bid submission.

DELAWARE RIVER AND BAY AUTHORITY



Standard Specifications for Road and Bridge Construction

DECEMBER 15, 2014

TABLE OF CONTENTS

DIVISION 100 – GENERAL PROVISIONS

Section 101 - General Information, Definitions, and Terms

- 101.01.0 General
- 101.02.1 Abbreviations
- 101.02.2 to 101.92.0 Definitions of Terms

Section 102 - Bidding Requirements and Conditions

- 102.01 Qualification of Bidders
- 102.02 Contents of Bid
- 102.03 Advertisement for Bid
- 102.04 Interpretation of Quantities in Bid Forms
- 102.05 Examination of Plans, Specifications, Contract Documents, and Site of Work
- 102.06 Preparation of Bid
- 102.07 Irregular Bids
- 102.08 Bid Guaranty
- 102.09 Delivery of Bids
- 102.10 Withdrawal of Bids
- 102.11 Opening of Bids
- 102.12 Disqualification of Bidders
- 102.13 Rejection of Bid
- 102.14 Materials Guaranty
- 102.15 Non-Collusion Certification
- 102.16 Online System Failure

Section 103 - Award and Execution of Contract

- 103.01 Consideration of Bids
- 103.02 Award of Contract
- 103.03 Cancellation of Award
- 103.04 Return of Bid Guaranty
- 103.05 Contract Performance and Payment Bonds
- 103.06 Execution and Approval of Contract
- 103.07 Failure to Execute Contract
- 103.08 Escrow of Bid Documentation
- 103.09 Withdrawal of Bid
- 103.10 Insurance

Section 104 - Scope of Work

- 104.01 Intent of Contract
- 104.02 Signs

- 104.03** Bus Stops
- 104.04** Accident Notification
- 104.05** Changes in the Character of Work
- 104.06** Differing Site Conditions
- 104.07** Suspension of Work/Annulment of Contract
- 104.08** Notification of Differing Site Conditions and Extra Work
- 104.09** Maintenance and Protection of Traffic
- 104.10** Rights In and Use of Materials Found on the Work
- 104.11** Restoration of Surfaces Opened by Approval
- 104.12** Value Engineering Proposals (VEP) by the Contractor
- 104.13** Final Cleaning of Project Site
- 104.14** Contractor's Responsibility for Work

Section 105 - Control of Work

- 105.00** Authority of the Executive Director
- 105.01** Authority of the Engineer
- 105.02** Authority and Duties of Inspectors
- 105.03** Inspection of Work
- 105.04** Plans and Working Drawings
- 105.05** Conformity with Plans and Specifications
- 105.06** Coordination of the Plans, General Provisions, Standard Specifications, Supplemental Specifications, and Special Provisions
- 105.07** Cooperation by the Contractor
- 105.08** Cooperation Between Contractors
- 105.09** Utilities
- 105.10** Construction Stakes, Lines & Grades
- 105.11** Removal of Defective and Unauthorized Work
- 105.12** Load Restrictions
- 105.13** Maintenance During Construction
- 105.14** Opening Sections of the Project to Traffic
- 105.15** Claims for Adjustment and Disputes
- 105.16** Executive Director's Decision
- 105.17** Dispute Resolution
- 105.18** Subcontractor/Materialmen Payments
- 105.19** Claims
- 105.20** Project Acceptance
- 105.21** Claims for Delay Damages
- 105.22** Contractor's Responsibilities

Section 106 - Control of Material

- 106.01** Source of Supply and Quality Requirements
- 106.02** Samples, Tests, and Referenced Specifications
- 106.03** Certification of Compliance

- 106.04** Manufacturing Plant Inspection
- 106.05** (Intentionally Omitted)
- 106.06** (Intentionally Omitted)
- 106.07** Storage and Handling of Materials
- 106.08** Unacceptable Materials
- 106.09** Disposal of Unacceptable Materials
- 106.10** Authority Furnished Material

Section 107 - Legal Relations and Responsibility to the Public

- 107.01** Laws, Ordinances and Regulations
- 107.02** Permits, Licenses and Taxes
- 107.03** Patented Devices, Materials, and Processes
- 107.04** Contractor's Responsibility for Utility Property and Services
- 107.05** Federal Aid Participation
- 107.06** Construction Safety, Health, and Sanitary Standards
- 107.07** Public Convenience and Safety
- 107.08** Use of Explosives
- 107.09** Protection and Restoration of Property
- 107.10** Responsibility for Damage Claims
- 107.11** Furnishing Right-of-Way
- 107.12** No Personal Liability
- 107.13** No Waiver of Legal Rights
- 107.14** Hazardous Material
- 107.15** Ownership and Use of Documents; Confidentiality
- 107.16** Equal Employment
- 107.17** Labor Relations
- 107.18** Security

Section 108 - Prosecution and Progress

- 108.01** Subletting of Contract
- 108.02** Notice to Proceed
- 108.03** Performance and Progress
- 108.04** Progress Schedules
- 108.05** Traffic Requirements and Contractor's Operations
- 108.06** Character of Workers and Equipment
- 108.07** Extension of Contract Time
- 108.08** Failure to Complete on Time
- 108.09** Schedule of Liquidated Damages
- 108.10** Default of Contract
- 108.11** Termination of Contract
- 108.12** Termination of Contractor's Responsibility

Section 109 - Measurement and Payment

- 109.01** Measurement of Quantities
- 109.02** Scope of Payment
- 109.03** Compensation for Altered Quantities
- 109.04** Payment for Differing Site Conditions, Major Changes, Extra Work and Force Account
- 109.05** Basis of Payment for Fixed Quantity Items
- 109.06** Eliminated Items
- 109.07** Partial Payment
- 109.08** Payment for Material
- 109.09** Retainage of Funds
- 109.10** Final Payment
- 109.11** Source of Supply and Carrier Rates on Construction Materials
- 109.12** (Intentionally Omitted)
- 109.13** (Intentionally Omitted)

DIVISION 100

GENERAL PROVISIONS

Section 101 - General Information, Definitions, and Terms

101.01.0	General	101.22.0	County
101.02.1	Abbreviations	101.23.0	Culvert
101.02.2	Alternate Pay Items	101.24.1	Days
101.03.0	Addendum	101.24.2	DBE
101.04.0	Additional Work	101.24.3	DeIDOT
101.05.0	Adjustment (or Contract Adjustment)	101.24.4	DeIDOT Supplemental Specification
101.06.1	Advertisement for Bid (or Advertisement)	101.25.0	Department
101.06.2	Authority	101.26.1	Differing Site Conditions
101.07.1	Award	101.26.2	Dispute
101.07.2	Awarded Contract Value	101.26.3	Director
101.08.1	Base Bid	101.27.0	District
101.08.2	Bid	101.28.0	District Engineer
101.08.3	Bid Bond	101.29.0	Easement
101.08.4	Bidder	101.30.0	Embankment
101.09.0	Bid Documentation	101.31.0	Engineer (Chief Engineer)
101.10.0	Bid Forms	101.32.1	Equipment
101.11.1	Bid Guaranty	101.32.2	Executive Director (or Director)
101.11.2	Bid Pages	101.33.0	Extra Work
101.11.3	Blue Book	101.34.0	Falsework
101.12.0	Bridge	101.35.0	Final Inspection
101.13.1	Calendar Day	101.36.0	Force Account
101.13.2	Chairperson	101.37.0	Formwork
101.14.0	Change Order	101.38.1	General Notices
101.15.1	Channel	101.38.2	General Provisions
101.15.2	Chief Operating Officer	101.39.0	Holidays
101.16.1	Completion	101.40.0	Inspector
101.16.2	Consent of Surety	101.41.1	Joint Venture Statement
101.17.1	Contract	101.42.0	Laboratory
101.17.2	Contract Agreement	101.43.0	Limits of Construction
101.17.3	Contract Bond (Contract Payment and Performance Bond)	101.44.0	Liquidated Damages
101.18.0	Contract Documents	101.45.1	Lump Sum
101.19.0	Contract Item (Pay Item)	101.45.2	Maintenance Bond
101.20.0	Contract Time	101.46.1	Major Items and Minor Items
101.21.1	Contractor	101.46.2	Manuals
101.21.2	Contractor's Release of Lien	101.47.0	Materials
		101.48.1	MBE
		101.48.2	Median

101.48.3	Non-Collusion Affidavit	101.84.0	Surety
101.49.0	Notice of Award	101.85.1	(Intentionally Omitted)
101.50.0	(Intentionally Omitted)	101.85.2	Total Price
101.51.0	Notice to Proceed	101.86.1	Traveled Way
101.52.0	Pavement Structure	101.86.2	TWIC
101.53.0	Pay Item	101.87.0	Unbalanced Bid, Materially
101.54.0	Plans	101.88.0	Unbalanced Bid, Mathematically
101.55.0	Profile Grade		
101.56.0	Project	101.89.1	Unit Price
101.57.0	Project Resident	101.89.2	VEP
101.58.0	Qualification Questionnaire	101.89.3	Vice-Chairperson
101.59.0	(Intentionally Omitted)	101.89.4	WBE
101.60.0	Responsive Bid	101.90.0	Work
101.61.0	Responsible Bidder	101.91.0	(Intentionally Omitted)
101.62.0	Right-of-Way	101.92.0	Working Drawings
101.63.0	Roadbed		
101.64.0	Roadside		
101.65.0	Roadside Development		
101.66.0	Roadway		
101.67.0	Scaffolding		
101.68.0	Schedule of Items		
101.69.0	Schedule of Work		
101.70.0	(Intentionally Omitted)		
101.71.0	Section		
101.72.0	Shoulder		
101.73.1	Sidewalk		
101.73.2	Special Provisions		
101.74.0	Specifications		
101.75.1	Standard Construction Details		
101.75.2	Standard Specifications		
101.76.0	State		
101.77.0	Structures		
101.78.0	Subcontractor		
101.79.0	(Intentionally Omitted)		
101.80.0	Substructure, Bridge		
101.81.0	Superintendent		
101.82.0	Superstructure, Bridge		
101.83.1	Supplemental Agreement		
101.83.2	Supplemental Specifications		
101.83.3	Supplier		

101.01.0 General. The titles and headings of the Sections, Subsections, and subparts herein are intended for convenience of reference and shall not be considered as having bearing on the interpretation of these Specifications.

Where a publication is referenced, the reference applies to the most recent date of issue as of the date bids are advertised, including interim publications, unless the reference includes a specified date or year. All references to Federal, State, Society, Institute and Association standards, specifications and codes shall unless otherwise noted, be understood to refer to the issues in effect on the date of the Advertisement for Bids.

Portions of these Specifications are written in the imperative mode. In sentences using imperative mode, the subject “the Contractor” is implied. Also implied in the language are “shall” or “shall be” or similar words and phrases. In all instances where “the Contractor” and “shall” or “shall be” are implied, the actions specified are solely the responsibility of the Contractor. In the referenced material sections, the subject may also be a vendor, fabricator, manufacturer, or combination thereof, who may be supplying the material, products, or equipment for the Project. The word “will” generally applies to decisions or actions of the Authority, Executive Director, or Engineer.

In the Contract as defined in Subsection 101.17.1, the following words: contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, satisfactory, unsatisfactory, sufficient, insufficient, rejected, condemned, or words with similar intent; mean by or to the Authority, subject in each case to the determination of the Authority, and subject to further review, as permitted by law or permitted elsewhere in these Specifications.

In the Contract, the words “or equal”, referring to a product, material, or process, mean “equal as determined by the Authority”.

In the Contract, the words “as indicated” or “indicated” mean “as indicated or indicated by the Contract”.

All references in the Standard Specifications to terms defined in this Section 101 in the plural shall also mean the singular and to the singular shall also mean the plural, unless the context otherwise requires.

101.02.1 Abbreviations. Wherever the following abbreviations, terms or pronouns are used in the Contract, the intent and meaning shall be interpreted as follows:

AA	Aluminum Association
AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AED	Associated Equipment Distributors
AGC	Associated General Contractors of America

AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ARA	American Railway Association
AREMA (AREA)	American Railway Engineering and Maintenance-of-Way Association
ARTBA	American Road and Transportation Builders Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CFR	Code of Federal Regulations
COMDTPUB	Coast Guard Commandant Publication
DRBA	Delaware River and Bay Authority
FHWA	Federal Highway Administration
FSS	Federal Specifications and Standards
MIL	Military Specifications
MUTCD	Manual on Uniform Traffic Control Devices (For Streets and Highways)
NEC	National Electrical Code
NIST	National Institute of Standards and Technology
NLRB	National Labor Relations Board
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PTI	Post Tensioning Institute
SAE	Society of Automotive Engineers
SSPC	Steel Structures Painting Council
UL	Underwriters Laboratory, Incorporated

101.02.2 Alternate Pay Items. Additional or alternative Pay Items included in the Schedule of Items. The amount bid for an Alternate Pay Item is not included in the value of the Base Bid but is included in the value of the Total Price. The Bidder is notified at the time of Award of the Authority's decision to include or exclude an Alternate Pay Item. No additional compensation is to be made for the deletion of an alternative from the Contract and the Pay Item bid for such work shall be deleted from the Total Price.

101.03.0 Addendum. Contract revisions issued after advertisement of the Contract Documents and before bid opening.

101.04.0 Additional Work. Work for which a Contract item is already provided by the Contract.

101.05.0 Adjustment (or Contract Adjustment). A revision to the Project cost or time provided in accordance with Subsections 108.07 and 109.04.

101.06.1 Advertisement for Bids (or Advertisement). The public announcement stating that the Authority is inviting Bids for the work to be performed under the Contract and providing the time and place for the submission of the Bid.

101.06.2 Authority. The Delaware River and Bay Authority and shall include its authorized representative, the Executive Director.

101.07.1 Award. The Authority's acceptance of a Bid.

101.07.2 Awarded Contract Value. Base Bid plus the value of any Alternate Pay Items included in the Contract by the Authority.

101.08.1 Base Bid. The Total Price bid less the cost of the Alternate Pay Items.

101.08.2 Bid. The prepared Bid Forms furnished by the Authority, properly filled out and executed by a Bidder and submitted as his, her or its bid for the performance of the Project.

101.08.3 Bid Bond. The portion of the Bid Guaranty furnished in the form of a surety bond.

101.08.4 Bidder. An individual or legal entity acting directly or through a duly authorized representative, legally submitting a Bid.

101.09.0 Bid Documentation. All writings, working papers, computer printouts, charts, and data compilations that contain or reflect information, data, or calculations used by the Bidder to prepare the Bid submitted, including but not limited to material relating to the determination and application of:

- A. Equipment rates
- B. Overhead rates and related time schedules
- C. Labor rates
- D. Efficiency or productivity factors
- E. Arithmetic extensions
- F. Subcontractor and material supplier quotations

Any manuals standard to the industry used by the Bidder in determining the Bid are also considered bid documentation. These manuals may be included in the Bid Documentation by reference and shall show the name and date of the publication and the publisher.

The term "Bid Documentation" does not include documents provided by the Authority for the Bidder's use in the preparation of the Bid.

101.10.0 Bid Forms. The approved forms on which the Authority requires formal bids to be prepared and submitted for the work, generally including but not limited to: Bid Pages, Consent of Surety, Non-Collusion Affidavit, Qualification Questionnaire, Joint Venture, and Bid Bond.

101.11.1 Bid Guaranty. The security furnished with a Bid to ensure that the Bidder will enter into the Contract if the Contract is awarded.

101.11.2 Bid Pages. The bid sheets furnished by the Authority to be completed by the Bidder.

101.11.3 Blue Book. The Rental Rate Blue Book published by Machinery Information Division of K-III Directory Corporation, 1735 Technology Drive, Suite 410, San Jose, CA 95110.

101.12.0 Bridge. A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of the roadway of more than 20' (6.096 m) between undercopings of abutments or extreme ends of openings for multiple boxes.

101.13.1 Calendar Day. Each and every day shown on the calendar, beginning and ending at midnight.

101.13.2 Chairperson. The Chairperson of the Authority, acting either directly or through a duly authorized representative.

101.14.0 Change Order. A written order issued by the Authority to the Contractor for a change to the Contract. Changes to the Contract are extra work, increases or decreases in Contract item quantities, or alterations to the Contract, and are within the scope of the Contract. A change order also establishes the basis and amount of payment for the change to the Contract and provides for any time extension necessitated by the change to the Contract.

101.15.1 Channel. A natural or artificial water course.

101.15.2 Chief Operating Officer. The Chief Operating Officer of the Authority acting either directly or through a duly authorized representative.

101.16.1 Completion. Completion of the Project occurs when the Work has been satisfactorily concluded under the Contract and the Contractor has satisfactorily executed and delivered to the Authority all documents, certificates, and proofs of compliance required by the Contract.

101.16.2 Consent of Surety. A form of agreement included in the Contract Documents pursuant to which a Surety agrees to provide certain bonds required under the Contract.

101.17.1 Contract.

The Contract shall include the Bid along with the fully executed Contract Agreement and Contract Bond, also generally including but not limited to the following: Advertisement for Bids, Specifications, Plans and any Addenda, Change Orders, Supplemental Agreements and other documents specifically issued in connection with the Project, all of which are to be treated as one instrument.

The Contract shall not be modified, altered, or otherwise changed by any oral promise, statement, or representation made either by the Authority or Contractor, unless such modification, alteration, or change is reduced to writing in accordance with the Contract.

101.17.2 Contract Agreement. The written Agreement between the Authority and the Contractor setting forth the obligation of the parties for the performance of the Work.

101.17.3 Contract Bond (Contract Payment and Performance Bond). The approved form of security furnished by the Contractor and the Contractor's Surety or Sureties to guarantee payment and performance of all obligations incurred by the Contractor on the Contract.

101.18.0 Contract Documents. The documents and forms, provided to the Contractor for bidding, as applicable to the specific Project, generally including but not limited to: Advertisement for Bids, Bid Pages, Consent of Surety, Non-Collusion Affidavit, Qualification Questionnaire, Joint Venture, Bid Bond, Contract Agreement, Contract Bond, Maintenance Bond, Contractor's Release of Liens, Specifications, Plans, State of Delaware prevailing wages, Federal prevailing wages (if applicable) and reference drawings.

101.19.0 Contract Item (Pay Item). A specifically described item of work for which a price is provided in the Contract.

101.20.0 Contract Time. The number of Days allowed for the completion of the Contract. When a calendar date of completion is specified, the work shall be completed on or before that specified completion date. Calendar day contracts shall be completed on or before the day indicated even when that date is a Saturday, Sunday, or holiday.

101.21.1 Contractor. The individual or legal entity named as such in the Contract, acting directly or through agents or employees and primarily liable for the acceptable performance of the Project and for the payment of all debts pertaining to the Project.

101.21.2 Contractor's Release of Lien. A form of agreement included in the Contract pursuant to which the Contractor certifies prior to final payment that all liens, claims and other demand arising in connection with the Work have been fully satisfied.

101.22.0 County. The county in which the work is to be performed.

101.23.0 Culvert. Any structure which provides an opening under any roadway, but is not classified as a bridge.

101.24.1 Days. Unless otherwise specified, Days as used in the Contract means Calendar Days.

101.24.2 DBE. A Disadvantaged Business Enterprise as defined by 49 CFR Part 26, certified by the Delaware Department of Transportation (DeIDOT) DBE Program, New Jersey Department of Transportation (NJDOT) DBE Program, New Jersey Transit DBE Program, and/or Port Authority of New York/New Jersey DBE Program.

101.24.3 DeIDOT. The Delaware Department of Transportation.

101.24.4 DeIDOT Supplemental Specifications. See Supplemental Specifications.

101.25.0 Department. Any reference to Department throughout the specifications shall mean Authority.

101.26.1 Differing Site Conditions. Subsurface or latent physical conditions encountered at the site that 1) differ materially from those indicated in the Contract, or 2) are unknown physical conditions of an unusual nature, differing materially from those conditions ordinarily encountered and generally recognized as inherent in the work provided for in the Contract.

101.26.2 Dispute. For purposes of Subsection 105.17, any claim, dispute or other matter in question.

101.26.3 Director. See Executive Director

101.27.0 District. Any reference to the District shall be the Authority.

101.28.0 District Engineer. Any reference to the District Engineer of the Authority shall mean the Engineer.

101.29.0 Easement. A right acquired by the Authority to use or control property for a designated purpose.

101.30.0 Embankment. A structure constructed of material as described in Standard Specifications Section 202, between the existing ground and sub-grade.

101.31.0 Engineer. The Chief Engineer of the Authority acting either directly or through a duly authorized representative.

101.32.1 Equipment. All machinery, tools, and apparatus, together with necessary supplies for upkeep and maintenance necessary for the construction and completion of the Project.

101.32.2 Executive Director (or Director). The Executive Director of the Authority, acting either directly or through a duly authorized representative.

101.33.0 Extra Work. Work not included in the Contract, but within the scope of the Contract and desired by the Authority for the satisfactory completion of the Project.

101.34.0 Falsework. Any temporary construction work used to support the weight of a permanent structural element until it becomes self-supporting. Falsework would include steel or timber beams, girders, columns, piles and foundations, and any proprietary equipment including modular shoring frames, post shores, and adjustable horizontal shoring.

101.35.0 Final Inspection. The inspection, conducted by the Engineer, to determine if the Project, or any substantial portion thereof, has been satisfactorily completed, in accordance with Contract requirements.

101.36.0 Force Account. Prescribed work paid on the basis of actual costs and appropriate additives.

101.37.0 Formwork. A temporary structure or mold used to retain the plastic or fluid concrete in its designated shape until it hardens. Formwork must have enough strength to resist the fluid

pressure exerted by plastic concrete and any additional fluid pressure effects generated by vibration.

101.38.1 General Notices. Federal and State regulations contained in the Contract Documents which govern Contract operations.

101.38.2 General Provisions. The Authority's Section 100 that is part of the Standard Specifications and replaces Section 100 of the most current edition of DelDOT Standard Specifications for Road and Bridge Construction.

101.39.0 Holidays. If any holiday falls on Sunday, the Monday following shall be the holiday. If any holiday falls on Saturday, the Friday preceding shall be the holiday.

The following days shall be recognized as holidays:

- New Year's Day
- Martin Luther King Jr. Day
- President's Day
- Good Friday
- Memorial Day
- Independence Day
- Labor Day
- Veteran's Day
- Thanksgiving Day
- Friday after Thanksgiving Day
- Christmas Day

The holidays defined in this Article of the Standard Specifications are intended for use only in connection with normal work scheduling (Monday to Friday) and traffic protection requirements during this period.

101.40.0 Inspector. The authorized representative of the Authority assigned to perform inspection of work and materials.

101.41.1 Joint Venture Statement. A statement to be executed and signed by Contractors submitting a Bid where the Bidder is a joint venture between or among such Contractors.

101.42.0 Laboratory. A firm or individual selected by the Authority for the inspection and testing of the materials to be used in the Project.

101.43.0 Limits of Construction. An area with established boundaries, identified within the Right-of-Way or Easements, where the construction is permitted. When not specifically identified, limits of construction shall be the Right-of-Way and easement.

101.44.0 Liquidated Damages. An amount due and payable to the Authority by the Contractor for additional costs incurred by the Authority resulting from either the Bidder's failure to execute the Contract in accordance with Subsection 103.07, the Contractor's failure to complete the specified work within the Contract Time or as otherwise specified in the Contract Documents.

101.45.1 Lump Sum. The single price submittal by a Contractor as a single amount for a complete Contract item.

101.45.2 Maintenance Bond. The approved form of security furnished by the Contractor and the Contractor's Surety or Sureties to guarantee the Contractor's Work for a specified period of time.

101.46.1 Major Items and Minor Items. Any scheduled Pay Item of the Bid which amounts to more than fifteen percent (15%) of the Awarded Contract Value, based on the original quantity of that item multiplied by the unit price bid, is considered a Major Item. All other original Contract Items are considered Minor Items.

101.46.2 Manuals. The current manual entitled "Manual of Uniform Traffic Control Devices for Street and Highways" issued by the FHWA and the current "Traffic Control Manual for Streets and Highway Construction" published by DeIDOT.

101.47.0 Materials. Any substances, other than equipment, used in the construction of the Project.

101.48.1 MBE. A Minority-owned Business Enterprise certified by the Delaware Office of Management and Budget, Office of Supplier Diversity or the New Jersey Department of the Treasury.

101.48.2 Median. The portion of a divided highway separating the traveled ways for traffic in opposite directions.

101.48.3 Non-Collusion Affidavit. A form of affidavit disclaiming any collusion or other restraint on free, competitive bidding included in the Contract Documents.

101.49.0 Notice of Award. A written notice to the selected Bidder stating that the Bid has been accepted by the Authority and that the selected Bidder is required to execute the Contract Agreement and furnish bonds required by the Contract along with proof of insurance satisfactory to the Authority.

101.50.0 (Intentionally Omitted)

101.51.0 Notice to Proceed. Written notice to the Contractor to begin the Work. When applicable, the notice will include the starting date of Contract Time.

101.52.0 Pavement Structure. The combination of sub-base, base course, and surface course placed on a sub-grade to support the traffic load.

1. Base Course. The layer or layers of specified or selected material of designated thickness placed on a sub-base or a sub-grade to support a surface course.
2. Sub-base. One or more layers of specified material thickness placed on a sub-grade to support a base course (or in the case of rigid pavement, the Portland cement concrete slab).
3. Sub-grade. The top surface of the roadbed upon which the pavement structure is constructed.
4. Sub-grade Treatment. Modification of roadbed material by stabilization.

5. **Surface Course.** Layer(s) of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. The top layer is sometimes called the "Wearing Course".

101.53.0 Pay Item - See Contract Item.

101.54.0 Plans. The official plans, profiles, cross sections and any supplemental drawings or exact reproductions thereof furnished by the Authority, which show the location, character, dimensions and details of the work to be done.

101.55.0 Profile Grade. The trace of a vertical plane intersecting the top surface, usually along the longitudinal centerline of the surface course. Profile grade means elevation of such trace.

101.56.0 Project. The entire work to be performed under the Contract.

101.57.0 Project Resident. The field representative of the Engineer having direct supervision of the administration of the Contract.

101.58.0 Qualification Questionnaire. An Authority-approved form submitted as part of a Bid, on which various questions are asked by the Authority, the answers of which being used to determine the responsibility of a Bidder.

101.59.0 (Intentionally Omitted)

101.60.0 Responsive Bid. A Bid that complies with all terms, conditions, and requirements of the Contract Documents.

101.61.0 Responsible Bidder. A Bidder, as determined by the Authority, who possesses the financial, managerial, technical, and ethical capacity to perform successfully under the terms and conditions of a proposed Contract. In making Responsible Bidder determinations, the Authority may also consider all relevant factors, including but not limited to, a Bidder's past performance, experience, manpower, record of timely completion of projects, bonding capacity, record of M/W/DBE commitment achievement, past or current legal issues, or use of questionable subcontractors.

101.62.0 Right-of-Way. That property which is secured for, acquired by or possessed by the Authority for the Project.

101.63.0 Roadbed. The graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

101.64.0 Roadside. The areas between the outside edges of the Shoulders and the Right-of-Way boundaries. Unpaved Median areas between inside Shoulders of divided highways and infield areas of interchange are included.

101.65.0 Roadside Development. Those items necessary for the preservation or replacement of landscape materials and features that may include suitable plantings and other improvements or ground cover to preserve and enhance the appearance and stability of the highway Right-of-Way or acquired easements for scenic improvements.

101.66.0 Roadway. The portion of a highway, including shoulders, for vehicular use. A divided highway has two or more Roadways.

101.67.0 Scaffolding. An elevated work platform used to support workers, materials, and equipment, but not intended to support the structure.

101.68.0 Schedule of Items. The list of Contract Items of Work in the Contract Documents on which Bidders submit their bid prices.

101.69.0 Schedule of Work. The approved base line schedule submitted by the Contractor containing dates of commencement and completion of the various items of Work within the Contract Time.

101.70.0 (Intentionally Omitted)

101.71.0 Section. When referring to the Specifications, a numbered article or group of related articles forming a part of the Specifications.

101.72.0 Shoulder. The portion of the Right-of-Way adjacent to the Traveled Way for accommodation of stopped vehicles for emergency use, and for lateral support of the pavement structure.

101.73.1 Sidewalk. That portion of the road primarily constructed for the use of pedestrians.

101.73.2 Special Provisions. Specific directions, provisions, or requirements particular to the Project under consideration, but not sufficiently covered by the Standard Specifications including:

Part I – Amendments to General Provisions of the Standard Specifications

Part II – Additional Specific Terms and Conditions (Additional General Provisions)

Part III – Amendments to Technical Specifications

Part IV - Additional Technical Specifications

Additional Parts – Additional Project Specific Specifications not covered above (as needed)

101.74.0 Specifications. The compilation of provisions and requirements for the performance of the prescribed work:

1. Standard Specifications.
2. Special Provisions.

101.75.1 Standard Construction Details (DeIDOT Standard Construction Details). Drawings of standard construction details which have been adopted by the Delaware Department of Transportation, current as of the date of the advertisement, for miscellaneous items of work and which are a part of the Contract Documents.

101.75.2 Standard Specifications. The Authority's General Provisions - Section 100 and Sections 200 through 800 of the Standard Specifications for Road and Bridge Construction, current edition, prepared by the Delaware Department of Transportation (DeIDOT Standard Specifications) along with the DeIDOT Supplemental Specifications for Division 200 through Division 800, current as of the date of the Advertisement for Bids, as published on the Delaware Department of Transportation's website.

101.76.0 State. Where reference is made to the State it shall be taken as the Authority.

101.77.0 Structures. Bridges, culverts, storm sewer appurtenances, slope and retaining walls, sign support structures, and other similar items.

101.78.0 Subcontractor. An individual or legal entity contracting with the Contractor, with the approval of the Authority, to perform any part of an item of work of the Contractor's Contract with the Authority.

Exceptions to this definition are suppliers limited to delivering and depositing, but not incorporating material, suppliers of services that transport material, and persons or entities performing work which does not advance the completion of the Contract and is not considered as an item of Work.

All references to Subcontractors in the Contract shall apply equally to all subcontractors at any tier.

101.79.0 (Intentionally Omitted)

101.80.0 Substructure, Bridge. All of the structure below the bearings of simple and continuous spans, skewbacks of arches, and tops of footings of rigid frames, including backwalls, and wingwalls.

101.81.0 Superintendent. The Contractor's authorized representative in responsible charge of the Work.

101.82.0 Superstructure, Bridge. Approach slabs and the entire structure except the Substructure.

101.83.1 Supplemental Agreement. A written agreement made and entered into by and between the Contractor and the Authority, covering work not otherwise provided for, or revisions in or amendments to the original terms of the Contract.

101.83.2 Supplemental Specifications (DelDOT Supplemental Specifications). Approved DelDOT additions and revisions to Sections 200 through 800 of the Standard Specifications for Road and Bridge Construction, current edition, prepared by the Delaware Department of Transportation (DelDOT Standard Specifications), which are current as of the date of the Advertisement for Bids and which are part of the Contract Documents.

101.83.3 Supplier. Any individual, firm or corporation who contracts with the Contractor to manufacture, supply or sell Materials, or Equipment for the Contract, for or on behalf of the Contractor.

101.84.0 Surety. When applying to the Bid Guaranty, it refers to the corporate body which engages to be responsible in the execution of a satisfactory Contract by the Bidder. When applying to the Contract Bond, it refers to the corporate body which is bound with and for the Contractor and which contracts responsibility for the Contractor's acceptable performance of the Project and for the payment of all obligations pertaining thereto.

101.85.1 (Intentionally Omitted)

101.85.2 Total Price. The total amount bid, including Alternate Pay Items, if any, for any project.

101.86.1 Traveled Way. The portion of the Right-of-Way designated for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

101.86.2 TWIC. Transportation Worker Information Credentials

101.87.0 Unbalanced Bid, Materially. A Bid that generates a reasonable doubt that award to the Bidder submitting a mathematically unbalanced bid will result in the lowest ultimate cost to the Authority.

101.88.0 Unbalanced Bid, Mathematically. A Bid containing Contract Items that do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs.

101.89.1 Unit Price. The price provided by the Contractor in the Bid for one (1) unit of a Contract Item.

101.89.2 VEP. Value Engineering Proposal.

101.89.3 Vice-Chairperson. The Vice-Chairperson of the Authority, acting either directly or through a duly authorized representative.

101.89.4 WBE. A Woman-owned Business Enterprise certified by the Delaware Office of Management and Budget, Office of Supplier Diversity; or the New Jersey Department of the Treasury.

101.90.0 Work. The furnishing of all labor, Materials, Equipment, and other incidentals necessary to complete the Contract.

101.91.0 (Intentionally Omitted)

101.92 Working Drawings. Stress sheets, shop drawings, erection plans, false-work plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data which the Contractor is required to submit to the Engineer for approval.

Section 102 - Bidding Requirements and Conditions

102.01 Qualification of Bidders

102.02 Contents of Bid

102.03 Advertisement for Bid

102.04 Interpretation of Quantities in Bid Forms

102.05 Examination of Plans, Specifications, Contract Documents, and Site of Work

102.06 Preparation of Bid

102.07 Irregular Bids

102.08 Bid Guaranty

102.09 Delivery of Bids

102.10 Withdrawal of Bids

102.11 Opening of Bids

102.12 Disqualification of Bidders

102.13 Rejection of Bid

102.14 Materials Guaranty

102.15 Non-Collusion Certification

102.16 Online System Failure

102.01 Qualification of Bidders. Each Bidder will be required to complete and execute the Qualification Questionnaire included with the Contract Documents attesting to his, her or its financial ability, adequacy of Equipment, organization, prior experience and other matters. Other pertinent data relating to the Bidder's qualifications may also be attached to the Qualification Questionnaire to supplement the information given thereon. Failure to submit the executed Qualification Questionnaire together with the Contract Documents at the time of bidding shall be just cause for rejection of the Bid.

If a group of contractors submit a single bid for a Contract, acting under the terms of a joint venture, each such contractor shall complete and execute a separate Qualification Questionnaire and shall also execute their portion of a Joint Venture Statement. If a Joint Venture Statement form is not included with the Contract Documents issued by the Authority, Bidders wishing to enter into a joint venture for the Project shall secure a copy of this form from the Authority for execution and attachment to the Bid. Failure of joint Bidders to include the executed statement with their Bid shall also be just cause for rejection of the Bid.

102.02 Contents of Bid. The Bid will state the location and description of the contemplated construction, show the estimate of the various Pay Item quantities, and show the kinds of Work to be performed and/or Materials to be furnished. A schedule of items for which Unit Prices are invited will be included along with the specified time in which the Work must be completed, amount of the Bid Guaranty, and the date, time, and place of the opening of Bids. If the method of Bid comparison to be utilized by the Authority is to be something other than comparing the Base Bids of all Bidders, an alternative Bid comparison basis will be defined in the Contract Documents. The Contract Documents will also include or designate any Special Provisions and any other specifications or requirements that vary from or are not contained in the Standard Specifications.

All papers bound with, attached to or otherwise submitted with the Bid are considered as part of the Bid. The Plans, Specifications, and other documents designated in the Contract Documents will be considered a part of the Bid whether attached or not.

102.03 Advertisement for Bid. The Authority reserves the right to refuse to accept a Bid from a Bidder for any of the reasons stated in Subsection 102.12.

In accordance with the Advertisement for Bids, Bids are invited to be submitted for the performance of the Project, the designation of which is stated in the Advertisement for Bids.

The Authority will consider only those Bids received from parties who have obtained Contract Documents directly from the Authority. Contract Documents are not transferable to other parties for bidding purposes. Bids received from firms whose names are not recorded by the Authority as having secured Contract Documents for this Contract will be rejected.

Bids are requested on the items stated in the Contract Documents for the Project. The prices bid shall cover all costs of any nature, incidental to and growing out of the Work, including labor, Material, Equipment, transportation and all else necessary to perform and complete the Project in the manner and within the time required, all incidental expenses in connection therewith, all costs of account of loss by damage or destruction of the Project and any additional expenses for unforeseen difficulties encountered, for settlement of damages and for replacement of defective Work and Materials. No separate or additional payment will be made for any Materials furnished, Work performed, services provided or other expense incurred in complying with the requirements of the Standard Specifications and any Special Provisions unless otherwise specifically provided.

102.04 Interpretation of Quantities in Bid Forms. The quantities appearing in the Bid Forms are estimates used for the bid comparison. Payment to the Contractor will only be made for the actual quantities of authorized Work performed and accepted, or for Materials furnished in accordance with the Contract.

102.05 Examination of Plans, Specifications, Contract Documents, and Site of Work. It shall be the responsibility of the Bidder to examine the work site to assure himself, herself or itself of the degree of work to be completed, the conditions, including subsurface conditions, of the site and all Work required by the Contract. The Bidder warrants that, before submitting his, her or its Bid, the Bidder is familiar with the Plans and Specifications and other documents that form part of the Contract, that the Bidder investigated in detail the site of the Project and the available means of access and that the Bidder made such examination thereof as necessary to satisfy himself, herself or itself, in regard to the character and amount of Work involved. The Bidder also warrants that he, she or it can secure the necessary labor and Equipment and that the Materials he, she or it proposes to use will conform to the requirements therefor and can be obtained by he, she or it in the quantities and at the times required. The submission of a Bid shall be considered conclusive evidence that the Bidder has made examination of the aforementioned conditions.

It is the obligation of the Bidder to ascertain all the facts concerning conditions to be found at the location of the Project including all physical characteristics above, on and below the surface of the ground, to fully examine the Plans and Specifications, to consider fully these and all other matters which can in any way affect the Work under the Contract, and to make the necessary investigations relating thereto, and to agree to this obligation in the signing of the Contract. In ascertaining the conditions of the Work preparatory to submitting Bids, Bidders shall also familiarize themselves with the conditions of the site as well as its effect on maintenance of traffic and control of Work, and any other pertinent characteristics of the site or operation that may affect their Work. The Authority assumes no responsibility whatsoever with respect to ascertaining for the Contractor such facts concerning physical characteristics at the site of the Project. The Contractor agrees that he, she or it will make no claim for additional payment or extension of time for completion of the Work or any other concession because of any misinterpretation or misunderstanding of the Contract, on his, her or its part, or of any failure to fully acquaint himself, herself or itself with all conditions relating to the Work.

Bidders must make a request, in writing, to the Authority for any interpretation or any item designated in the Contract Documents or correction of any apparent ambiguity, inconsistency or error that may be found in the Contract Documents, no less than six (6) business days prior to the Bid opening date. Interpretations or explanations made by the Authority in response to such requests will be issued as an Addendum and shall become part of the Contract Documents and will be provided to all prospective Bidders in writing before the time set for opening of the Bids. Only the interpretation or correction issued by the Authority by Addendum shall be binding. Prospective Bidders are advised that no other source is authorized to give information concerning or to explain or interpret the Contract Documents. If a Bidder, prior to the submission of his, her or its Bid, fails to call the Authority's attention to the existence of an apparent ambiguity, inconsistency or error in the Contract Documents, that Bidder's Bid will be conclusively presumed to have been based upon the interpretation of such ambiguity or inconsistency or directions correcting such error which may subsequently be given by the Authority.

Before submitting his, her or its Bid, the Bidder shall ascertain from the Authority the status of Right-of-Way acquisitions, if any, and shall ascertain the provisions of agreements between the

Authority and property owners that may relate to the Bidder's Bid or to the Work to be performed. The Contractor shall also confer with the Authority on the above-mentioned matter immediately after award of the Contract and at such other times thereafter as may be necessary or advisable. The Contractor shall be governed by the provisions of the above-mentioned Right-of-Way agreements.

It is the obligation of the Bidder to make his, her or its own investigation of subsurface conditions prior to submitting a Bid. Borings, test excavations and other subsurface investigations, if any, made prior to the construction of the Project, the records of which will be made available to Bidders, are intended for use as a guide for design. Said borings, test excavations and other subsurface investigations are provided for informational purposes only and are not warranted to show the actual subsurface conditions. The Contractor agrees that he, she or it will make no claims against the Authority if in carrying out the Project the Contractor finds that the actual conditions encountered do not conform to those indicated by said borings, test excavations and other subsurface investigations.

Any estimate or estimates of quantities shown on the Plans or in the Bid Forms, based on said borings, test excavations and other subsurface investigations, are in no way warranted to indicate the true quantities. The Contractor agrees that they will make no claims against the Authority, if the actual quantity or quantities do not conform to the estimated quantity or quantities, except when compensation therefor is justified in accordance with Subsection 104.05.

The Authority will not be bound by any statement or representation concerning conditions or descriptions of the Work unless they are included or designated in the Contract Documents. Oral explanations or instructions given before the bid of the Contract by Authority employees or agents will not be binding.

102.06 Preparation of Bid. Bids shall be submitted on the Bid Forms furnished by the Authority, properly filled out in ink and shall be duly executed. The Bidder shall state in the Bid the price per unit of measure or lump sum price for each scheduled item of work for which the Bidder will agree to carry out the Work. Unless expressly stated otherwise by the Authority, prices shall be given by the Bidder for all scheduled items of work listed on the Bid Forms. The Bidder shall also state the Base Bid and the Total Price Bid (if applicable) for the performance of the Project, as determined by multiplying each estimated quantity by the price per unit of measure bid therefor and adding together the resulting amounts and any lump sum prices required. For the purpose of comparison of bids received, the Base Bid, correctly computed, stated in the Bid will be considered to be the amount bid for the Project and shall serve as the basis of Bid comparison for award.

Where there is a discrepancy in any item between the unit or lump sum price written in figures and that written in words, the written words will govern.

If, during the tabulation of bids, the price on any Bid is found to be incorrectly computed, the Authority reserves the right to make such changes as are necessary in the extended amounts and price on the basis of the unit and lump sum prices given and the approximate quantities stated for the scheduled items therein.

When the Bid is made by an individual, his post office address shall be stated and the individual shall sign the Bid; when made by a legal entity, its full legal name and post office address shall be stated and the Bid shall be signed by a duly authorized representative of such legal entity, with corporate seal affixed and signatures notarized in all cases. Before the Contract will be executed

with a successful Bidder not a resident of the State or one of the States in which the work is to be done, such Bidder shall designate a proper agent(s) in the non-residing state or states on whom service of process can be made in the event of litigation.

As stated in Subsection 102.01, any group of Bidders wishing to submit a single Bid as part of a joint venture will be required to complete and execute the joint venture statement included with the Contract Documents.

Any Bidder submitting a Bid for a contract must also submit Bids for each portion of the Work.

102.07 Irregular Bids. Bids shall be considered irregular and may be rejected for the following reasons:

- (a) If the Contract Documents furnished by the Authority are not used or are altered.
- (b) If there are unauthorized additions, omissions, limitations, provisos, alterations, conditions, alternate bids not called for, or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.
- (c) If the prices contained in the Bid are obviously unbalanced, either in excess of or below the reasonable cost analysis values.
- (d) If the Bid fails to contain a unit or lump sum price for every Pay Item indicated except in the case of authorized optional Alternate Pay Items.
- (e) If any documents necessary for bidding purposes are not completed, are improperly executed or are missing (including both forms of the Bid Guaranty) or if the Bid is submitted by Bidders whose names are not recorded by the Authority as having secured Contract Documents for the Contract.
- (f) If the Authority, in its sole discretion, deems it advisable to do so in its best interest.
- (g) If specific MBE/WBE/DBE information regarding the good-faith effort documentation and written assurances that the MBE/WBE/DBE goals set forth in the Contract Documents will be met is required, but is not provided at the time of bid.

The Authority reserves the right to waive any or all irregularities and technicalities in the submission of Bids, including the Bid Guaranty.

102.08 Bid Guaranty. The Bid, when submitted, unless otherwise noted in the Special Provisions, shall be accompanied by two forms of Bid Guaranty as follows:

- (a) A cashier's check, made payable to "The Delaware River and Bay Authority", in the sum of not less than one percent (1%) of the Total Price, except that the amount of the check need not exceed \$20,000 and shall not be less than \$2,000; and
- (b) A Bid Bond, on the form to be furnished by the Authority and included in the Contract Documents, for a sum of not less than ten percent (10%) of the Total Price.

Cashier's checks submitted as part of the bid guaranty will be returned to all unsuccessful Bidders within fourteen (14) Days following the bid opening.

102.09 Delivery of Bids. Bidders may submit the numerical portion of the Bid electronically using the Authority's online project management system or may incorporate a hard copy of the numerical portion of the Bid, along with all of the other required forms as provided by the Authority. In addition to the numerical portion of the Bid (whether submitted electronically or via hard copy), all Bidders must submit Bids upon complete forms as provided by the Authority, including the signed Bid, Consent of Surety, Non-Collusion Affidavit, Joint Venture Statement (if applicable) and Bid Bond.

Each Bidder must also complete and execute a Qualification Questionnaire, included with the Contract Documents, in which he, she or it shall give information relating to his, her or its prior experience and performance records and the size and capacity of the organization. Subcontractors performing twenty percent (20%) or more of the total value of the Work must also submit a Qualification Questionnaire on the approved Authority form. Bids will be accepted at the place and until the time stated in the Advertisement for Bids. Mailed Bids shall be sent according to the directions stated in the Contract Documents and must be received by the Authority prior to the time set for opening Bids, if they are to be considered.

The Consent of Surety shall assure that satisfactory arrangements have been made between the Surety and the Bidder by which the Surety agrees to furnish the Bidder with a Contract Bond (Performance and Payment) and a Maintenance Bond in the form required. A Maintenance Bond shall be furnished at the conclusion of the Work. The Consent of Surety shall be executed by an approved surety company authorized to do business in the States of Delaware and/or New Jersey, as the location of the work dictates.

Bidders must submit their complete Bid (other than their numerical bid if submitted on-line) in a sealed envelope. The Bid must be printed as one-sided documents. Two-sided documents shall not be permitted. The envelope containing the Bid must bear the name and address of the Bidder along with the designation of the Project as named in the Contract Documents.

If the Bidder has submitted its numerical bid via the Authority's on-line procurement system the envelope shall also be marked: "NUMERICAL BID SUBMITTED ONLINE." If the Bidder has submitted the numerical portion of his, her or its Bid both online and in hard copy format, the hard copy shall supersede the online submission unless the hard copy version has been specifically withdrawn by the Bidder in accordance with Subsection 102.10.

102.10 Withdrawal of Bids. A Bid, after having been submitted, may be withdrawn by the Bidder prior to the opening of any bid on that Project upon immediate execution by such Bidder of the appropriate withdrawal form furnished by the Authority.

102.11 Opening of Bids. Bids will be opened and read at the place designated by the Authority on the date and hour set in the Contract Documents and is open to all who wish to attend in person. Bids received after the time set for the Opening of Bids will not be considered to be a Responsive Bid.

102.12 Disqualification of Bidders. Any one or more of the following causes shall be considered as sufficient for the disqualification of a Bidder and the rejection of a Bid or Bids.

- (a) The Bidder is not properly qualified, in the sole opinion of the Authority, to undertake the Project, based on the information given in the Qualification Questionnaire and/or

any other information available to the Authority relative to the qualifications of the Bidder.

- (b) More than one Bid for the same work from an individual or legal entity under the same or different names.
- (c) Evidence of collusion among Bidders. Participants in such collusion will not be considered for future Bids until re-qualified by the Authority.
- (d) Unsatisfactory performance record as shown by past work for the Authority, judged from the standpoint of workmanship and progress.
- (e) Uncompleted work which, in the judgment of the Authority, might hinder or prevent the prompt completion of additional work if awarded.
- (f) Failure to pay or satisfactorily settle all bills due for labor and material on former contracts in force at the time of letting.
- (g) The Bidder has failed to execute a contract following Award as set forth in Subsection 103.07 or has defaulted on previous contract(s).

102.13 Rejection of Bid. Refer to Subsections 102.07 and 102.12.

102.14 Materials Guaranty. Before the Contract is awarded, the successful Bidder may be required, upon specific request by the Authority, to furnish a complete statement of the origin, composition and manufacture of any or all of the Materials to be used in the Contract, together with such samples as may be requested by the Authority for the purpose of advance testing.

102.15 Non-Collusion Certification. Every Bid submitted to the Authority shall contain a fully executed Delaware River and Bay Authority Non-Collusion Affidavit as provided in the Contract Documents.

102.16 Online System Failure. In the event that that the Authority's online project management system experiences a system failure up to one hour before the scheduled opening of Bids as referenced in Subsection 102.11, the Authority, in its' sole discretion reserves the right to postpone and reschedule the opening of Bids. This Subsection shall not apply to computer or other electronic system failures or other technical issues produced or caused by a Bidder's equipment, software or hardware.

Section 103 - Award and Execution of Contract

103.01 Consideration of Bids

103.02 Award of Contract

103.03 Cancellation of Award

103.04 Return of Bid Guaranty

103.05 Contract Performance and
Payment Bonds

103.06 Execution and Approval of Contract

103.07 Failure to Execute Contract

103.08 Escrow of Bid Documentation

103.09 Withdrawal of Bid

103.10 Insurance

103.01 Consideration of Bids. After the Bids are opened and read, the Authority will compare the Bids on the basis of the summation of the products of the quantities and the Unit Prices unless otherwise defined in the Contract Documents. The tabulation of bids received and the decision of Award, if made, will be available to the public. In the event of a discrepancy between Unit Prices and extensions, the Unit Price shall govern. The Authority reserves the right to reject any or all Bids, waive irregularities on technicalities, proceed to do the work otherwise, abandon the work or advertise for new Bids, if in the judgment of the Authority its best interests be will promoted thereby. Unit Prices may also be affected by maximum price provisions noted elsewhere in these Specifications.

103.02 Award of Contract. The Contract will be awarded or all bids rejected within one hundred twenty (120) Calendar Days from the date of opening Bids. By mutual consent, the Authority and the lowest Responsible Bidder can agree to extend the time within which the Authority may make an Award.

Unless the Bid is rejected pursuant to Subsection 102.07 or the Bidder is disqualified pursuant to Subsection 102.12, Award will be to the Responsible Bidder who submits the lowest Responsive Bid. The award will be made to the Responsible Bidder with the lowest Base Bid.

The Award shall not be binding upon the Authority until the Contract has been executed by the Chairperson, Vice-Chairperson and Executive Director, nor shall any Work be performed on account of the proposed Contract until such execution.

103.03 Cancellation of Award. The Authority reserves the right to cancel the Award of any contract before final execution without liability.

103.04 Return of Bid Guaranty. The Bid Guaranties of all but the Responsible Bidder submitting the lowest Responsive Bid will be returned within fourteen (14) Days of the Bid opening. The Bid Guaranty of the Responsible Bidder submitting the lowest Responsive Bid will be returned when the Contract has been executed by the Authority, or, if not executed, when other disposition of the matter shall have been made by the Authority, except that in the event the award of Contract is annulled because the Bidder to whom the award is made fails to execute and have delivered on time the Contract and other prescribed documents, the cashier's check of such Bidder shall be forfeited and his, her or its Bid Bond shall become operative, as provided in Subsection 103.07.

103.05 Contract Performance and Payment Bonds. Within ten (10) Days of the date of official notice of Award of the Contract, the Bidder to whom the Contract is awarded shall furnish and deliver a Contract Bond, on the form furnished by the Authority, in the sum not less than the cost of the Base Bid for the Project plus any Alternate Pay Items that the Authority elects to include in the Contract.

The Surety shall be acceptable to the Authority and legally authorized to do business in the States of Delaware and/or New Jersey, as the location of the work dictates. In the event of insolvency of the Surety, the Contractor shall forthwith furnish and maintain another Surety satisfactory to the Authority.

In the event it is necessary for more than one Surety to underwrite the total required amount of the Contract Bond, the bond form shall be amended to indicate to what maximum amount each Surety is liable, and to state that in the event the Authority must proceed against the Sureties for

the completion of the work, each Surety will be liable for an amount proportionate to his, her or its maximum liability.

The Contract Bond shall be maintained in effect by the Contractor and Surety until the Project is finally accepted by the Authority and the final payment to the Contractor is made.

103.06 Execution and Approval of Contract. Within ten (10) Days of the date of official notice of Award of the Contract, the Bidder to whom the Contract is awarded shall deliver the following documents to the Authority:

- (a) The executed Contract Agreement;
- (b) The Contract Bond, as prescribed in Subsection 103.05;
- (c) Proof satisfactory to the Authority, of the authority of the person or persons executing the Contract Agreement and Contract Bond on behalf of the Contractor; and
- (d) Satisfactory evidence of all insurance coverage, as prescribed in Subsection 103.10 and the Special Provisions.

Each of the documents listed above shall be furnished in the number of copies requested by the Authority.

The Contract will not be considered effective until it has been fully executed by all parties to the Contract.

103.07 Failure to Execute Contract. Failure upon the part of the Bidder to whom the Contract has been awarded to execute and deliver the Contract Agreement and all other documents listed in Subsection 103.06 in the manner and within the time prescribed therein shall be just cause for annulment of the Award and for the exclusion of the Bidder from bidding on subsequent projects for such period as the Authority may deem appropriate.

It is understood and agreed by said Bidder that if the Award is annulled for the above reasons, the Bid Guaranty, as described in Subsection 102.08, shall become the property of the Authority, not as a penalty but as Liquidated Damages and that the Authority may proceed to recover under the terms and provisions of the Bid Bond, at the discretion of the Chairperson.

103.08 Escrow of Bid Documentation. For the Award of a Project equal to or greater than Twenty Million Dollars (\$20,000,000) in value, or if required by the Specifications, the Contractor shall submit to the Authority legible copies of the Bid Documentation.

Scope and Purpose. The purpose of escrowing the Bid Documentation is to preserve the Contractor's bid documents for use by the Contractor and the Authority in the resolution of any disputes, claims, arbitration proceeding, or litigation arising from the Contract. The submitted Bid Documentation shall be placed in escrow with a banking institution or other bonded document storage facility selected by the Authority and preserved by that institution as specified in the following subparts:

A. **Submittal and Return of Bid Documentation.** Within twenty-four (24) hours of the execution of the Contract, the Contractor shall submit the Bid Documentation in a sealed container as per the custody agreement form. The container shall be clearly marked "Bid Documentation" and shall show on the face of the container the Contractor's name and address, the date of submittal, the Contract number, and the Project designation.

B. **Affidavit.** In addition to the Bid Documentation, the Contractor shall submit an affidavit, signed under oath by a representative of the Contractor authorized to execute Bids, listing each bid document submitted by author, date, nature, and subject matter. The affidavit shall attest that 1) the affiant has personally examined the Bid Documentation, 2) the affidavit lists all of the documents relied upon by the Contractor in preparing its Bid for the Project, and 3) all such Bid Documentation is included in the sealed container submitted to the Authority.

C. **Duration and Use.** The Authority and the Contractor will jointly deliver the sealed container and affidavit to a banking institution or other bonded document storage facility selected by the Authority for placement in a safety deposit box, vault or other secure accommodation. The document depository agreement shall reflect that the Bid Documentation and affidavit will remain in escrow during the life of the Contract or until the Contractor and the Authority jointly agree to remove such Bid Documentation, or the Contractor notifies the Authority of its intention to initiate a claim against the Authority related to the Contract. Notification of the Contractor's intention to initiate a claim against the Authority will be sufficient grounds for the Authority to obtain the release and custody of the Bid Documentation. If the Bid Documentation is not removed from escrow, upon completion of the Contract and provided that the Contractor has signed the final standard release form, the Authority will instruct the document depository to release the sealed container to the Contractor. In accordance with the Contractor's representation that the sealed container placed in escrow contains all of the materials relied upon in preparing its Bid, the Contractor agrees to waive the right to use any bid documentation other than that placed in escrow to resolve all disputes arising out of the Contract.

D. **Refusal or Failure to Provide Bid Documentation.** Failure to provide Bid Documentation will render the Bid non-responsive, and the Bid Guaranty will be forfeited in accordance with Subsection 103.07.

E. **Confidentiality of Bid Documentation.** The Bid Documentation and affidavit in escrow are, and will remain, the property of the Contractor. The Authority has no interest in, or right to, the Bid Documentation unless mutually agreed by the Contractor and the Authority or upon notification of the intention to file claim is received between the Authority and Contractor. In the event of such notification, the Bid Documentation and affidavit shall become the property of the Authority until complete resolution of the claim is achieved. These materials, and all copies made by the Authority, shall be returned to the Contractor upon execution of a final release. The Authority shall make every reasonable effort to ensure that the Bid Documentation it has gained access to will remain confidential within the Authority and will not be made available to anyone outside the Authority or used by a former Authority employee.

F. **Cost and Escrow Instructions.** The cost of the storage of the Bid Documentation will be borne by the Authority. The Authority will provide escrow instructions to the document depository consistent with this clause.

G. **Payment.** There will be no separate payment for the cost of compilation of data, the sealed container, or verification of the Bid Documentation. All costs shall be included in the Bid price.

103.09 Withdrawal of Bid. If, at any time, after the acceptance of bids by the Authority and before full execution of the Contract the Responsible Bidder with the lowest Responsive Bid determines a need to withdraw his, her or its bid, he, she or it shall put the request in writing to the Authority representative stating the reason(s) for such withdrawal. The Authority reserves the right to accept or reject the Bidder's request to withdraw upon review of the merits. The Authority reserves the right to retain the Bid Guaranty in full or in part as Liquidated Damages.

The Authority may then proceed to the next lowest Responsive Bid, or reject all Bids and re-advertise for new Bids.

103.10 Insurance. The Bidder to whom the Contract is awarded will be required to provide insurance of the prescribed types and minimum amounts as set forth in the Special Provisions of the Contract Documents to provide adequate protection for the various parties involved in the Contract. To the extent permitted by law, all policies are to have a waiver of subrogation in favor of the Authority.

Within ten (10) Days after the date of official notice of Award of the Contract, the Contractor shall furnish to the Authority insurance certificates for all the insurance required under the Contract and subrogation waivers related thereto. Thereafter, renewal certificates of insurance shall be deposited with the Authority not less than ten (10) Days before the expiration dates of the related policies. The Contractor also agrees to provide the Authority with current certificates of insurance every six (6) months during the term of the Contract. Notwithstanding the foregoing, the Authority reserves the right to request evidence of insurance at such additional intervals as it determines in its sole discretion. In the event of cancellation or termination (whether by the insurer or the Contractor) of such policy(ies) or in the event the coverage thereof is altered below the limits required by the Contract, Contractor shall provide the Authority with ten (10) Days prior written notice of such expiration, termination or alteration. In addition, the Contractor shall procure new or additional insurance, as applicable, satisfying the requirements set forth in the Special Provisions and shall supply the Authority with certificates of insurance for such new or additional insurance not less than five (5) Business Days before the expiration, termination or alteration of the prior policy(ies).

All required insurance shall be maintained with insurance carriers licensed or approved to do business in the states of New Jersey or Delaware, as required by the location of the Project, or as otherwise approved by the Authority. All companies are to be rated by Best's at least A-VIII, unless otherwise approved by the Authority.

Neither approval by the Authority nor a failure to disapprove insurance certificates furnished by the Contractor shall release the Contractor from full responsibility for all liability as set forth in the indemnification clause stated in Subsection 107.10.

The Contractor is responsible for any loss or damage to the Work from any cause whatsoever, until final acceptance by the Authority. If the Contractor has any property insurance covering the Work, the policy is to include a waiver of subrogation in favor of the Authority, and the Authority is to be named loss payee. The Contractor is responsible for any deductible, and holds the Authority harmless for any deductible. If the Contractor is self-insured, the Contractor will not claim against the Authority for any loss or damage.

If Coverage is on a "claims made" form, the retro date must be prior to or concurrent with the date of execution of the Contract; and certification must continue for at least one year after termination or expiration of the Contract.

Section 104 - Scope of Work

- 104.01** Intent of Contract
- 104.02** Signs
- 104.03** Bus Stops
- 104.04** Accident Notification
- 104.05** Changes in the Character of Work
- 104.06** Differing Site Conditions
- 104.07** Suspension of Work/Annulment of Contract
- 104.08** Notification of Differing Site Conditions and Extra Work
- 104.09** Maintenance and Protection of Traffic
- 104.10** Rights In and Use of Materials Found on the Work
- 104.11** Restoration of Surfaces Opened by Approval
- 104.12** Value Engineering Proposals (VEP) by the Contractor
- 104.13** Final Cleaning of Project Site
- 104.14** Contractor's Responsibility for Work

104.01 Intent of Contract. The Work required of the Contractor comprises the performance and completion of the Project, including the furnishing of all Materials, Equipment, transportation, labor and all else necessary therefor and incidental thereto, final cleaning up as provided in Subsection 104.13, the payment of all due obligations as provided in Subsection 109.10 and the replacement of defective Work and Materials as provided in Subsection 105.20, all in accordance with the Contract or as ordered by the Authority.

The Plans forming a part of the Contract Documents show the location, general character, limits, dimensions and details of the Work to be performed under the Contract.

The title sheet of the Plans for each Contract bears the designation "Delaware River and Bay Authority," the Contract number and the title of the Project.

The Plans and Specifications for each Contract are intended to fully prescribe the Work to be done, the Materials to be furnished, the manner of accomplishing the Work, the time within which the Work is to be completed and the means of payment to the Contractor.

The Plans and Specifications are further intended to complement and supplement each other. Any Work required by either one shall be performed. Should any Work be required which is not denoted in the Specifications or on the Plans but which is nevertheless necessary for the proper performance of the Project, such Work shall be performed as fully as if it were described and delineated.

If any discrepancy is found on the Plans between a figured dimension and a scaled dimension, the figured dimension shall govern. The Authority shall have the right to correct apparent errors or omissions in the Plans and Specifications and to make such interpretations as deemed necessary for the proper fulfillment of the intent of the Contract.

Within ten (10) Days after the execution of the Contract, the Authority will furnish to the Contractor, without charge, five (5) copies of the Special Provisions and five (5) sets of prints of the Plans.

At least one (1) complete set of the Plans and Specifications (including Standard Specifications) shall be kept at all times at the site of the Project by the Contractor.

104.02 Signs. The Contractor shall, with the Authority, inventory all signs (e.g., traffic, bus stops, street names, etc.) within the limits of the Contract. Necessary bus stops and traffic signs shall be maintained in operation during construction, and all other signs shall be properly stored. The Contractor is responsible for any loss or damage to signs.

104.03 Bus Stops. Bus stops shall be maintained as close as possible to the original location by use of temporary roadway materials during construction activity.

104.04 Accident Notification. The Contractor shall immediately notify the Authority Police of any accident at (302) 571-6342 or (302) 571-6343. Subsequent to notification of the Authority police, the Contractor shall notify the Chief Engineer.

104.05 Changes in the Character of Work. The Authority reserves the right to, at any time prior to the completion of the Contract, issue plan revisions, make adjustments in Contract

Item quantities, or make such other alterations considered necessary to satisfactorily complete the Contract. This change shall be accomplished by a written Change Order, and will not require the Authority's notice to the Surety. The Contractor will be required to comply with such changes upon receipt of the Change Order. If the Contractor should refuse to accept such Change Order, the Contractor may be declared in default as provided in Subsection 108.10.

Such changes do not invalidate the Contract or release the Surety.

If, as a result of such changes, the Contractor requires additional time to complete the Contract, adjustments in the Contract Time will be made under Subsection 108.07.

Payment for changes will be made as provided in Subsections 109.03 or 109.04. Payment shall exclude any amount for loss of anticipated profits, or consequential losses alleged to result from the change.

When such changes result in increases or decreases in the quantities of Contract items scheduled in the Bid, payment for the revised quantities of work actually done will be made solely at the established Unit Prices for such items, except as provided below:

- (a) When such change results in an increase or decrease of twenty-five percent (25%) in the actual Project cost compared to the Awarded Contract Value of the Project, only the price for those individual Pay Items whose quantities have increased or decreased by more than twenty five percent (25%) will be eligible for price negotiation. If the total cost of the Project is increased twenty-five percent (25%) or more, for each Pay Item whose quantity has increased by more than twenty-five percent (25%), only the quantity in excess of one hundred twenty-five percent (125%) of the original Bid quantity will be subject to the negotiated price. If the total cost of the Project is decreased twenty-five percent (25%) or more, each Pay Item whose quantity has decreased by twenty-five percent (25%) or more, the entire actual Pay Item quantity will be subject to the negotiated price.
- (b) When any such change results in an increase or decrease of more than 25% in the actual quantity of any Major Item, as defined in Subsection 101.46.1 of the General Provisions, then the Contract price for the Major Item will be eligible for price negotiation. If the change is an increase, only the quantity of that Major Item in excess of 125% of the original Bid quantity will be subject to the negotiated price. If the change is a decrease, the entire actual quantity of that Major Item will be subject to the negotiated price.

Supplemental Agreements between the Authority and the Contractor will be required to cover the mutually agreed upon terms of all such price negotiations.

When changes involve the addition of Work of a different character than that prescribed under any of the original items scheduled in the Contract or involve Work of a similar character but under conditions substantially different than those contemplated for the original items, payment for such additional Work will be made on the basis of a negotiated price or prices and the mutually agreed upon terms of such negotiations shall be included in a Supplemental Agreement.

Change Orders and/or Supplemental Agreements may also include appropriate changes in the terms of the Contract such as extensions of time, if authorized. Supplemental Agreements may also include all necessary specifications and/or drawings that may be necessary to cover the additional work.

If negotiation proves unsuccessful and payment for the Work cannot be agreed upon by the Contractor and the Authority prior to starting such Work, the Authority may direct the Contractor to perform the Work under the Force Account provisions of Subsection 109.04. The Contractor will proceed immediately with the Work. Such direction shall neither invalidate the Contract nor release the Surety, but Work shall go forward and shall not be held up, or delayed, as a result of such price negotiations.

The elimination of any Minor Item will not be considered as a basis for a claim for additional payment for anticipated profits, except for such actual Work as may have been done and Materials actually purchased with the permission of the Authority prior to notification of the elimination of the item. The omission of any Major Item will be subject to the conditions of negotiation as outlined above.

Unless otherwise set forth herein, Work shall not proceed on any portion of the Project affected by a proposed change by the Authority, after the Contractor is advised of such change, until a Change Order is issued by the Authority. If the change is to be accompanied by a Supplemental Agreement, the Supplemental Agreement shall be executed by both parties and the Surety notified of the change before the affected Work shall proceed. The requirements of this paragraph may be waived if, in the opinion of the Authority, the circumstances are of such emergency or other critical nature that it would be impractical or more expensive to delay action until formal approval by the Authority; in such event, the Authority may authorize the change verbally, subject to subsequent written confirmation by a Change Order and, if necessary, a Supplemental Agreement at a later date.

Changes in the extent of Work shall not operate as a waiver of any conditions of the Contract not specifically stated in the Change Order and/or Supplemental Agreement.

If, in the opinion of the Authority, the proposed increases in or additions to the original scope of Work are of such magnitude as to warrant an extension in time or times of completion, such extension of time will be authorized by the Authority in accordance with the provisions of Subsection 108.07. This will be the exclusive remedy to the Contractor, and there shall be no right to anticipated profits or consequential damages.

104.06 Differing Site Conditions. If differing site conditions are encountered at the Work site, the Contractor shall promptly notify the Authority as specified in Subsection 104.08. No further disturbance of the site or performance of the affected Work is to be done after the alleged differing site conditions are noted unless the Contractor is directed to do so, in writing by the Authority.

Upon written notification, the Authority will investigate the conditions and determine if they differ materially as defined in Subsection 101.26.1. If so, and the conditions cause an increase or decrease in the cost or time required for the Contractor to perform the Work, an adjustment, excluding loss of anticipated profits, will be made and the Contract modified in writing accordingly. The Authority will notify the Contractor of its determination, whether or not an adjustment of the Contract is warranted.

No Contract adjustment resulting in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice as specified in Subsection 104.08.

Adjustments in the Contract price will be made under Subsection 109.04, and adjustments in Contract Time will be made under Subsection 108.07.

104.07 Suspension of Work / Annulment of Contract. The Authority may suspend the Work in whole or in part by written order to the Contractor, for any reason or condition which would be in the best interest of the Authority.

The Authority may also suspend the Work when the Contractor fails to perform any provisions of the Contract. The Contractor shall immediately comply with the written order of the Authority to suspend the Work wholly or in part. The Work shall be resumed when conditions are favorable as determined by the Authority or when methods are corrected as approved in writing by the Authority.

If the Contractor considers the delay resulting from the written suspension order unreasonable, the Contractor shall submit a written request to the Authority providing the reasons and justification for any Contract adjustment considered necessary as a result of the suspension. The justification for a time extension shall follow the notification and documentation procedures defined in Subsection 108.07. The written request for the Contract adjustment must be submitted to the Authority in writing seven (7) Calendar Days following receipt of the Authority's notice to resume Work. An adjustment will not be considered unless the request has been submitted within the prescribed time.

There will be no adjustment under the provisions of this Subsection if the Work performance would have been suspended or delayed by any other cause, under any other terms or conditions of the Contract, or under applicable law.

The request for an adjustment will be reviewed by the Authority. If there is agreement that 1) there has been an increase in the Contract performance cost or time as a result of the suspension, and 2) the suspension was caused by conditions beyond the control and not the fault of the Contractor or those parties for whom the Contractor is responsible, adjustments in the Contract price, excluding profit and/or consequential losses, will be made according to Subsection 109.04. Any adjustments to Contract Time will be made according to Subsection 108.07.

When Work is suspended as above provided, payments for the completed parts of the Work will be made as provided in Subsection 109.07 and a suitable extension of time for completing the suspended Work will be granted. No other compensation or allowance will be made on account of such suspension, unless such suspension shall be for more than ten (10) Calendar Days. Should the suspension be for more than ten (10) Calendar Days and should the Contractor be put to additional expense on account thereof, the Contractor shall have the right to file with the Authority a statement showing the character and amount of such additional expense, excluding profit and consequential losses, and if the Authority deems it a proper charge, the Contractor will be reimbursed therefor. However, the Contractor shall have no claim for additional expense for the first ten (10) Calendar Days of said suspension and any claim allowance as above provided shall be filed, in writing with the Authority, before the expiration of the first ten (10) Calendar Days of suspension. No payment will be made for Work done by the Contractor on suspended Work.

If the suspension extends for one (1) year and the value of the suspended Work, based on bid prices and estimated quantities, exceeds twenty-five (25) percent of the Awarded Contract Value, the Authority will, at the Contractor's request, annul the Contract as provided below. When said value is twenty-five (25) percent or less and the suspension extends for one (1) year, the Authority will, at the Contractor's request, by Change Order as provided in Subsection 104.05, omit the suspended Work from the Contract.

If, in the event of a national or state-wide emergency, construction is stopped, either directly or indirectly, by a Federal or State agency or when the Executive Director deems it advisable in the interest of the Authority, the Executive Director may annul the Contract, without liability, on thirty (30) Calendar Days' prior written notice to the Contractor.

If the Contractor is not in default, payments will be made for completed Work as provided in Subsection 109.10 for all Work done under the terms and conditions of the Contract, except that payments will be made in such amounts as the Authority may consider just and proper for such parts of the Work that are not fully completed and for that reason not susceptible to classification under the bid prices and for expenditures in connection with the preparing for and moving Equipment to and from the Work for which the Contractor is not otherwise compensated. It is understood and agreed, however, that no payments shall be made for any claim for loss of anticipated profits.

When the Contract is annulled as above provided, the Contractor shall, if so required by the Authority, remove promptly any or all of his, her or its Equipment and supplies from the site of the Project or other property of the Authority, failing which the Authority may remove such Equipment and supplies at the expense of the Contractor.

104.08 Notification of Differing Site Conditions and Extra Work. The Contractor shall immediately notify the Authority of alleged changes to the Contract due to differing site conditions, extra work, altered work beyond the scope of the Contract, or action(s) or lack of action(s) taken by the Authority that have allegedly changed the Contract terms and conditions.

A. No further Work is to be performed or Contract costs incurred on the change after the date the change occurs unless directed otherwise by the Authority.

B. Within seven (7) Days of the initial notification, the Contractor shall provide the following applicable information to the Authority in writing:

1. The date of occurrence and the nature and circumstances of the occurrence that constituted the alleged change.
2. Name, title, and activity of each Authority representative knowledgeable of the alleged change.
3. Identify any documents and the substance of any oral communications involved in the alleged change.
4. Basis for an allegation of accelerated schedule performance, if applicable.
5. Basis for an allegation that the work is not required by the Contract, if applicable.
6. Particular elements of Contract performance for which additional compensation may be sought under this Subsection including:

- a. Contract Item(s) that have been or may be affected by the alleged change.
- b. Labor or materials, or both, that will be added, deleted, or wasted by the alleged change and what equipment will be idled or required.
- c. Delay and disruption to the manner and sequence of performance that has been or will be caused by the alleged change.
- d. Estimated adjustments to Contract price(s), delivery schedule(s), staging, and Contract Time necessary due to the alleged change.
- e. Estimate of the time within which the Authority must respond to the notice to minimize cost, delay, or disruption of performance.

The failure of the Contractor to provide required notice in accordance with this Subsection shall constitute a waiver of any and all entitlement to adjustments in the Contract price or Contract Time as a result of the alleged change.

C. Within ten (10) Days after the receipt of notice, the Authority will respond in writing to the Contractor to:

1. Confirm that a change occurred and, when necessary, direct the method and manner of further performance;
2. Deny that a change occurred and, when necessary, direct the method and manner of further performance; or
3. Advise the Contractor that additional time is required to evaluate the allegation or adequate information has not been submitted to decide whether this Subsection 104.08 C1 and/or C2 above applies, and indicate the needed information and date it is to be received by the Authority for further review.

Any adjustments made to the Contract shall not include increased costs or time extensions for delays resulting from the Contractor's failure to provide requested additional information in accordance with this Subsection.

104.09 Maintenance and Protection of Traffic.

Highway Traffic. Except where the Plans or Specifications specifically permit the closing of a portion or all of an existing Roadway normally open to traffic, the Work shall be so planned as to maintain a continuous flow of traffic at all times along all existing Roadways within and adjacent to the Project limits, with the absolute minimum amount of interruption of or interference with such traffic. Roadways or portions of Roadways to remain open to traffic shall be completely free from obstructions, including spillages from trucks, and shall be in a smooth riding condition. The Contractor shall provide for allaying dust as specified in Subsection 107.07.

Pedestrian traffic shall be protected at all times. Temporary walkways shall be provided where necessary or directed in order to maintain routes of access.

Within ten (10) Calendar Days after execution of the Contract, the Contractor shall submit, in writing, for the approval of the Authority, a plan of the methods, facilities and devices proposed to be used for the maintenance and protection of traffic.

The Contractor shall erect or place and maintain in good condition barricades, temporary warning and directional signs, lights, flares, approved electric flasher units, traffic cones and other warning and danger signals and devices, appropriate and adequate for the specific needs and subject to the Authority's approval, at working sites, closed roads, intersections, open excavations, and locations of Material storage, standing Equipment and other obstructions, at points where the usable traffic width of the road is reduced, at points where traffic is deflected from its normal courses or lanes, and at other places of danger to vehicular or pedestrian traffic or to completed Work.

The Contractor shall provide all necessary illumination, floodlighting and additional traffic protection measures as necessary for the orderly performance of Work at night.

The cost for premium pay for night work, illumination, additional traffic protection and incidentals in connection therewith shall be deemed to have been included in the Contractor's Unit Prices bid for the various items listed in the Contract Documents.

The Contractor shall furnish, erect and maintain traffic control devices in conformance with the current Manuals, and in accordance with the provisions shown on the Plans or as ordered by the Authority and as directed by the Authority's Police. Maintenance and protection of traffic shall be considered as an integral part of this Subsection.

Signs, barricades, traffic cones, guide posts, flares and electric flasher units shall be established, relocated, repaired and replaced in such manner and at such times and places as may be necessary for adequate protection of vehicular and pedestrian traffic, subject to approval of the Authority.

The Contractor shall provide Certified Traffic Control Supervisor(s) and shall take all other precautions, including any which may be ordered by the Authority that may be necessary for the safety of the public and protection of the Work. The Certified Traffic Control Supervisor(s) shall patrol hourly and replace missing or damaged flares and other lighting units or devices.

The Contractor shall not perform any construction work over vehicular or pedestrian traffic unless there is an explicit provision therefor in the Specifications, or a specific written permission by the Authority. Subject to such provision or permission, the Contractor shall provide the necessary devices and means to protect such traffic from falling construction Materials and other objects and from painting operations during the time that construction work is carried on above traffic.

When the Contract provides for the construction of a temporary detour road, the Contractor shall construct the detour in accordance with the requirements given for the corresponding operations of permanent construction, and payment therefor will be made under the usual items for such construction operations unless otherwise specified in the Specifications. The Contractor shall furnish and erect all necessary signs and other traffic protective devices for such detour and provide Certified Traffic Control Supervisor(s) as may be required. The Contractor shall be responsible for maintaining the pavement and devices in good condition throughout the period the detour is in use, except when the Specifications specifically require that the detour is to remain in service following the termination of the Contract, in which case the Contractor shall leave all protective devices in place and the Contractor's responsibility for maintaining the devices and payment will terminate with the Contract. Otherwise, the detour road and all devices shall be removed when no longer needed and the site occupied thereby restored to its original condition.

When the Contractor wishes to temporarily reroute traffic along existing Roadways or along detour roads not specifically required to be constructed under the Contract, the Contractor shall first obtain approval therefor from the Authority and consent of the appropriate parties having jurisdiction. The route shall be properly signed and delineated. The cost of all such work shall be borne by the Contractor.

All traffic protective devices shall at all times remain the property of the Contractor and shall be removed from the site when no longer needed, except when the Contract specifically states that the devices are to remain in place and become the property of the Authority.

Existing roads and streets that are proposed to be dead-ended or abandoned shall not be closed to traffic until so authorized by the Authority.

Work which closes or alters the use of existing roads and streets shall not be undertaken until adequate temporary or permanent provisions for traffic have been provided or arranged for by the Contractor and such provisions have been approved by the Authority.

Railroad Traffic. Where the Project includes Work across, over, under or adjacent to railroad tracks or railroad rights-of-way, the Contractor shall safeguard the traffic, tracks and appurtenances and other property of the railroad affected by the Work. The Contractor shall comply with the regulations of the railroad company relating to the Work, shall keep the tracks clear of obstruction, shall provide barricades, warning signs, lights, flares and other danger signals and means of protection and shall arrange with the railroad company for the furnishing of watchmen and flagmen and other protective services that may be required by the railroad company. The Contractor shall arrange with the railroad company for direct payment to the company for watchmen, flagmen and other protective service which it may require.

When so specified in the Special Provisions, the Contractor shall provide railroad protective liability insurance in the prescribed limits to cover the Work to be performed on, over, under or adjacent to railroad property.

Marine Traffic. For all operations to be performed in the Delaware River and Delaware Bay, the Contractor shall comply with all governmental regulations and permitting requirements pertaining to the Work and shall secure all permits necessary for the performance of such Work.

All Work shall be conducted so that the free navigation of the waterway shall not be unreasonably interfered with and the present navigable depths shall not be impaired. The channel shall be promptly cleared of all pilings or other temporary or movable obstructions placed therein or caused by the operations of the Contractor when, in the opinion of the District Engineer of the Department of the Army, there is no further need for such obstructions or their presence creates a hazard to marine traffic.

Under no circumstances shall excavated material be dumped into the Delaware River, Delaware Bay or waters of the United States.

Any Work of a temporary nature required by the Department of the Army, the United States Coast Guard and/or any other agency having jurisdiction, including but not limited to the placement of lights, signals, buoys, etc., to protect navigation during construction operations, shall be provided by the Contractor at his, her or its own expense.

104.10 Rights In and Use of Materials Found on the Work. The Authority may authorize the Contractor's use of Materials found in the excavation. Payment will be made to the Contractor for the excavation of such Materials at the corresponding Contract Unit Price.

The removed Material shall be replaced if necessary with acceptable Material at no cost to the Authority. The Contractor shall not excavate or remove any Material from within the highway location that is not within grading limits without written authorization from the Authority.

104.11 Restoration of Surfaces Opened by Approval. The right to construct or reconstruct any utility service or to grant approval to construct or reconstruct is, at any time during construction, hereby expressly reserved by the Authority. The Contractor shall not be entitled to any damages for unauthorized digging or any delay occasioned thereby.

Any individual, firm, or corporation wishing to make an opening must secure approval from the Authority. The Contractor shall allow parties bearing such approval, and only those parties, to make openings. When ordered, the Contractor shall make all necessary repairs due to such openings and such necessary work will be subject to the same Contract conditions as the original Work performed.

104.12 Value Engineering Proposals ("VEP") by the Contractor. Any cost savings generated to the Contract as a result of VEP offered by the Contractor and approved by the Authority will be shared by the Contractor and the Authority on a 50-50 basis.

Bid prices shall not be based on the anticipated approval of a VEP. If the VEP is rejected, the Contract is to be completed at the Contract bid prices.

If the Authority determines that the time for response indicated in the submittal under 104.12 subpart B below is insufficient for review, the Contractor will be promptly notified. Based on the additional time needed by the Authority for review and the effect on the Contractor's schedule occasioned by the added time, the Authority will evaluate the need for a time extension to the Contract. The Contractor shall have no claim against the Authority for delays to the Contract based on the failure to respond within the time indicated in 104.12 subpart B below if additional information is needed to complete the review. Until the proposal is accepted by the Authority, the Contractor shall remain obligated to the terms and conditions of the existing Contract.

A. **General.** VEP contemplated are those that could produce a savings to the Authority without impairing essential functions and characteristics of the facility, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance, and safety.

B. **Submittal of VEP.** If the Contractor intends to submit a VEP, the subsequent steps shall be followed:

1. Submit a conceptual proposal that includes a description of the difference between the existing Contract and the proposed changes, and the cooperative advantages and disadvantages of each, including effects on Contract schedule, service life, economy of operations, and ease of maintenance, desired appearance, and safety.

If the VEP was previously submitted on another project, indicate the Contract number and the action taken by the Authority.

2. Upon approval of the concept by the Authority, submit for review and approval a complete set of Plans and Specifications showing the proposed revisions relative to the original Contract features and requirements.

Provide a statement detailing the effect the VEP will have on the time for completing the Contract.

Submit a complete analysis indicating the final estimated costs and quantities to be replaced by the VEP compared to the new costs and quantities generated by the VEP.

Provide a statement specifying the date by which a Change Order adopting the VEP must be executed to obtain the maximum cost reduction during the remainder of the Contract.

C. Conditions. A VEP will be considered only when all of the following requirements are met:

1. A VEP, approved or not approved by the Authority, applies only to the ongoing Contract(s) referenced in the VEP and becomes the property of the Authority. The VEP shall contain no restrictions imposed by the Contractor on its use or disclosure. The Authority shall have the right to use, duplicate, and disclose in whole or in part any data necessary for the use of the VEP. The Authority retains the right to use any VEP or part thereof on other projects without obligation to the Contractor. This provision is not intended to deny rights provided by law with respect to patented materials or processes.
2. If the Authority is already considering certain revisions to the Contract or has approved certain changes in the Contract for general use that are subsequently incorporated in a VEP, the Authority will reject the VEP and may proceed without obligation to the Contractor.
3. The Contractor shall have no claim against the Authority for costs or delays due to the Authority's rejection of a VEP, including but not limited to development costs, loss of anticipated profits, and increased material or labor costs.
4. The Authority will be the sole judge as to whether a VEP qualifies for consideration and evaluation. The Authority may reject any VEP that requires excessive time or costs to review, evaluate, or investigate, or that is not consistent with the Authority's design policies and criteria for the Project.
5. The Authority will reject all or any portion of Work performed under an approved VEP if unsatisfactory results are obtained. The Authority may direct the removal of such rejected Work and require the Contractor to proceed in accordance with the original Contract requirements without reimbursement for Work performed under the proposal, or for its removal. Where modifications to the VEP are approved to adjust to field or other conditions, reimbursement will be limited to the total amount payable for the Work at the Contract bid prices as if it were constructed under the original Contract requirements. The rejection or limitation of reimbursement shall not constitute the basis of any claim against the Authority for delay or for other costs.
6. The proposed Work shall not contain experimental features but shall be proven features that have been used under similar or acceptable conditions on other projects or locations acceptable to the Authority.

7. A VEP will not be considered if equivalent options are already provided in the Contract. The VEP must be sufficient to warrant a review and processing.
8. Additional information needed to evaluate a VEP will be provided in a timely manner. Untimely submittal of additional information will result in rejection of the VEP. Where design changes are proposed, the additional information could include results of field investigations and surveys, design computations, and field change sheets.

D. **Payment.** If the VEP is approved, the changes and payment will be authorized by a Change Order. Reimbursement will be made as follows:

1. The changes will be incorporated into the Contract by changes in quantities of unit bid items and/or new agreed price items, as appropriate, under the Contract.
2. The cost of the Value Engineering Work as determined from the changes will be paid directly. In addition, the Authority will pay the Contractor fifty percent (50%) of the savings to the Authority as reflected by the difference between the cost of the revised Work and the cost of the related construction required by the original Contract computed at Contract bid prices.
3. The Contractor's costs for development, design, and implementation of the VEP are not eligible for reimbursement.
4. The Contractor may submit a VEP for an approved Subcontractor. Subcontractors may not submit a VEP except through the Contractor.

104.13 Final Cleaning of Project Site. Before the final acceptance of the Project by the Authority, the Contractor shall remove from the site all Equipment, temporary work, unused and useless Materials, rubbish and temporary buildings; shall repair or replace, in an acceptable manner, fences or other private or public property which may have been damaged or destroyed on account of the prosecution of the Work; shall fill all depressions and water pockets on public and private property caused by the Contractor's operations; shall remove all obstructions from waterways caused by their Work; shall clean all drains and ditches within and adjacent to the site of the Project which have been obstructed by his, her or its operations and shall leave the site of the Project and adjacent public and private property in a neat and presentable condition wherever the Contractor's operations have disturbed conditions existing at the time of starting Work.

The Contractor shall procure and submit to the Authority signed statements from property owners affected that he, she or it has fulfilled his, her or its obligations in the matters enumerated above with regard to their respective properties.

104.14 Contractor's Responsibility for Work. In case of the suspension of Work the Contractor shall be responsible for the Project and shall take such precautions as may be necessary to prevent damage to the Project, provide for normal drainage and normal traffic operations, and erect any necessary temporary structures, signs, or other facilities. During such period of suspension of Work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings and soddings furnished under the Contract, and shall take adequate precautions to protect new tree growth and other vegetative growth against injury.

Before starting any Work that will change the loadings on an existing or proposed structure, the Contractor shall inform the Authority of the proposed loadings (e.g., axle spacing, axial

loads, stock-piling and Equipment locations) including quantity of and type of construction Equipment and vehicles it proposes to use. The loading that the Contractor's Equipment will apply to the structure shall be evaluated and certified by a professional engineer, obtained by the Contractor, showing that the proposed loadings will not adversely affect the structure. Any proposed loading shall be subject to the approval of the Authority. The Authority's approval does not relieve the Contractor of its responsibility for the safe performance of the Work or for carrying out the Work in full accordance with the Plans and the requirements of the Specifications. If at any time the Contractor's upcoming operations would result in a change to the loading and/or the location of the loading on a structure, the Contractor shall submit the proposed loadings for approval by the Authority prior to changing the loading. No Work shall be done that will change the loadings on any structure within the Contract limits until the Authority's approval has been obtained.

The Contractor assumes full responsibility for Materials and Equipment employed in the construction of the Project and agrees to make no claim against the Authority for damages to such Materials and Equipment from any cause whatsoever, whether arising from the execution or non-execution of the Work. Until final acceptance of the Work, the Contractor shall be responsible for damage to or destruction of the Project, or to any part thereof, due to any cause except as otherwise hereinafter specified, shall rebuild, repair, restore or compensate for injuries and/or damages to any portion of the Work occasioned by any of the above causes before its completion and acceptance and shall bear the expense thereof or it shall be deducted from monies due him, her or it or to become due him, her or it under the Contract.

The Authority will remove snow, when and to the extent necessary, from Roadways open to traffic and within its jurisdiction. The state and local governing agencies will remove snow from other Roadways open to traffic. The Contractor will not be responsible for damage to the Project caused by the operation of snow plows or other snow removal or de-icing operations carried on by or under the supervision or direction of others. The Contractor will be responsible for removing snow from other areas within the Project limits as may be necessary for the proper prosecution of his, her or its Work.

Section 105 - Control of Work

- 105.00** Authority of the Executive Director
- 105.01** Authority of the Engineer
- 105.02** Authority and Duties of Inspectors
- 105.03** Inspection of Work
- 105.04** Plans and Working Drawings
- 105.05** Conformity with Plans and Specifications
- 105.06** Coordination of the Plans, General Provisions, Standard Specifications, Supplemental Specifications, and Special Provisions
- 105.07** Cooperation by the Contractor
- 105.08** Cooperation Between Contractors
- 105.09** Utilities
- 105.10** Construction Stakes, Lines & Grades
- 105.11** Removal of Defective and Unauthorized Work
- 105.12** Load Restrictions
- 105.13** Maintenance During Construction
- 105.14** Opening Sections of the Project to Traffic
- 105.15** Claims for Adjustment and Disputes
- 105.16** Executive Director's Decision
- 105.17** Dispute Resolution
- 105.18** Subcontractor / Materialmen Payments
- 105.19** Claims
- 105.20** Project Acceptance
- 105.21** Claims for Delay Damages
- 105.22** Contractor's Responsibilities

105.00 Authority of the Executive Director. The Executive Director shall serve as a non-binding mediator in an effort to resolve any claim or dispute brought by the Contractor on any and all questions arising out of or in any way relating to the Contract or the performance or breach thereof, including, without limitation, any questions concerning the interpretation of Plans and Specifications, the acceptability, quality and quantity of Materials or machinery furnished and Work performed, the classification of Materials, the execution of the Work and the determination of payment due or to become due.

105.01 Authority of the Engineer. The Engineer is the administrator of the Contract and not a supervisor of the Work. All Work shall be performed to the satisfaction of the Engineer, but in no case shall the Contractor be relieved of complete responsibility for the Work. The Engineer will decide all questions which may arise as to the quality and acceptability of Materials furnished and Work performed and as to the manner of performance and rate of progress of the Work. At the preconstruction meeting the Engineer will communicate to the Contractor the chain of command and the extent to which various Authority personnel have authority.

The Engineer has the authority to suspend the Work, wholly or in part, due to the failure of the Contractor to correct conditions unsafe for the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for such periods as may be deemed necessary due to conditions the Engineer considers unsuitable for the prosecution of the Work; or for any other condition or reason deemed to be in the public interest.

The Engineer's authority to impose any Contract sanction, including suspension of the Work, withholding payments, or the like, will not relieve the Contractor of sole and absolute responsibility for the Project, performance of the Work, and the safety of workers and the general public. The Contractor holds the Authority harmless pursuant to Subsection 107.10 for any violation, breach, or omission of this Subsection 105.01.

105.02 Authority and Duties of Inspectors. Inspectors, acting under the authority of the Engineer, are administrators of the Contract and not supervisors of the Work. Inspectors employed by or designated by the Authority are authorized to inspect all Work done and all Material furnished. Such inspection may extend to all or any part of the Work and to the preparation, fabrication, or manufacture of the Materials to be used. The Inspector is not authorized to revoke, alter, or waive any requirements of the Plans or Specifications. The Inspector may call the attention of the Contractor to any failure of the Work or Materials to conform to the requirements of the Contract and shall have the authority to reject Materials or suspend the Work until any questions at issue can be referred to and decided by the Authority. Such inspection will not relieve the Contractor from the obligation to perform the Work in accordance with the requirements of the Contract.

The Inspector shall in no case act as foreman or perform other duties for the Contractor, nor interfere with the management of the Work by the latter. Any advice which the Inspector may give the Contractor shall in no way be construed as binding the Authority in any way or releasing the Contractor from fulfilling all of the terms of the Contract.

If the Contractor refuses to suspend operations on verbal order, a written order giving the reason for shutting down the Work shall be issued. After placing the order in the hands of the Contractor's representative(s) in charge, the Inspector shall immediately leave the job, and in such cases Work done during the absence of the Inspector will not be paid for and may not be accepted.

105.03 Inspection of Work. All Materials and each part or detail of the Work shall be subject at all times to inspection by the Engineer. Such inspection may include mill, plant, or shop inspection, and any Material furnished under these Specifications is subject to such inspection. The Engineer will be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

- (a) If a portion of the Work is covered contrary to the Authority's request or to requirements specifically expressed in the Contract, it must, if required in writing by the Authority, be uncovered for the Authority's observation and be replaced at the Contractor's expense without change in the project schedule.
- (b) Any Work done or Materials used without supervision or inspection by the Authority representative may be ordered removed and replaced at the Contractor's expense.
- (c) It is the Contractor's responsibility to obtain authorization from the Authority prior to covering any Work.

When any unit of government or political subdivision or any railroad corporation is to pay a portion of the cost of the Work covered by this Contract, its respective representatives shall have the right to inspect the Work. Such inspection shall not make any unit of government or political subdivision or any railroad corporation a party to this Contract, and shall in no way interfere with the rights of either party hereunder.

105.04 Plans and Working Drawings. Plans consisting of general drawings and showing such details as are necessary to give a comprehensive understanding of the Work specified will be furnished by the Authority. The Contractor shall furnish working drawings as may be required by the Engineer. Working drawings shall not incorporate any changes from the requirements of the Contract unless the changes are specifically denoted, together with justification, and are approved in writing by the Engineer. Any change from the requirements of the Contract shall be signed and sealed by a professional engineer registered in the State of Delaware and/or New Jersey, as applicable, based on the location of the Work. Working drawings and submittals shall be identified by the Contract number. Items or component Materials shall be identified by the specific Contract Item number and Specification reference in the Contract.

The Contractor is responsible for the preparation of all working drawings.

Detailed shop or working drawings will be reviewed and returned for correction, as promptly as the conditions will permit. The Contractor shall order no Materials and do no Work relating to said drawings before completion of the Authority's review, with no exceptions taken. The carrying out of the Work or the ordering of the Materials before completion of the review may constitute a cause for rejection of such Work or Materials. No deviations from final reviewed working drawings shall be made without the written approval of the Authority.

By submitting shop or working drawings, product data, samples and similar submittals, the Contractor represents that the Contractor has determined and verified Materials, field measurements and field construction criteria related thereto or will do so and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

Working drawings for steel structures shall consist of shop, erection and other drawings, showing details, dimensions, sizes and other information necessary for the complete fabrication and erection of the metalwork. Working drawings for concrete structures shall consist of any additional detailed drawings, sketches and data sheets as may be required for the prosecution of the Work, such as reinforcing bar lists, bending diagrams, drawings of falsework, bracing, centering and formwork, cofferdams, supports for deck slab finishing machines and masonry layout diagrams. The Contractor shall check completely the details of reinforcement steel shown on the Plans and shall submit complete working drawings for the reinforcement steel to the Engineer for review. The Contractor shall also prepare drawings showing screed elevations for bridge deck slabs.

Working drawings for electrical and mechanical equipment and other systems shall consist of the manufacturer's catalog cuts, drawings, wiring diagrams, etc., and shall be submitted to the Engineer for review.

After all items of a particular system have been reviewed, the Contractor shall submit an "Operations and Maintenance Manual" specifically for the system. The "Operation and Maintenance Manual" shall contain an equipment list, a complete description of the equipment, the sequence of operation including inter-locking and protective features, the use of by-pass switches, and a detailed description of all wiring circuits. The manual shall also contain a recommended spare parts list, renewal parts bulletins, and instruction bulletins for the equipment furnished. Diagrams and drawings shall be of reduced size suitable for binding. A proper index listing all items shall be included. All diagrams and drawings shall be properly fastened and bound in a suitable leather or heavy plastic cover with a title clearly shown.

The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract by the Authority's review of shop or working drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Authority in writing that such deviation at the time of submittal and the Authority has given written concurrence with the specific deviation. The Contractor shall not be relieved of responsibility for errors and omissions in shop or working drawings, product data, samples or similar submittals by the Authority's review.

The Contractor shall direct specific attention in writing or on resubmitted shop drawings, product data, samples or similar submittals to revisions, including those requested by the Authority on previous submittals.

Prior to final inspection, five (5) copies of the "Operations and Maintenance Manual" shall be supplied to the Engineer. The manual must be available during the period when electrical and mechanical systems are being connected and energized, and the final bound copies must reflect any changes or adjustments made during this period.

Work shall not be performed or Materials ordered prior to completion of the Authority's review, with no exceptions taken. Working drawings marked with any suggested modifications or comments will be returned to the Contractor. The other sets will be retained by the Authority.

If the Contractor agrees with all Authority comments, the comments shall be incorporated, and the Contractor does not need to resubmit the drawings. If the Contractor does not agree with any Authority comments, then the Contractor shall state this in writing and submit this to the Authority within ten (10) Working Days after receipt of the comments.

The Authority does not review every detail of every working drawing or other submittal made by the Contractor. As a consequence, responsibility for the completeness, accuracy, and conformance to Contract requirements of all submittals rests with the Contractor. The Authority accepts no responsibility for the completeness and accuracy of reviewed submittals or the failure of reviewed submittals to conform to the requirements of the Contract.

Reviewed working drawings, submittals, or resubmittals will be transmitted to the Contractor within forty-five (45) Days from the date of receipt by the Authority. If a railroad, the U.S. Coast Guard, municipality, or other entity as specified in the Contract is required to review the working drawings, the reviewed working drawings will be returned within sixty (60) Days from the date of receipt by the Authority. If the working drawings are not returned by the time specified, no additional compensation will be allowed except that an extension of time in accordance with Subsection 108.07 will be considered, provided that it can be agreed that the schedule is directly affected. Upon completion of the Work, the original drawings of structural steel work shall be supplied to the Authority.

The Contractor shall furnish the Engineer with three (3) copies of the working drawings for review, after which one copy will be returned with corrections, if any. Any drawings returned for correction shall be resubmitted in triplicate. When accepted, seven (7) copies of each drawing shall be submitted to the Engineer.

Upon completion of the Project, the working drawings shall be furnished to the Engineer in PDF format. When specifically permitted by the Engineer, smaller details may be drawn on sheets 8½" x 11" in overall dimension.

The PDF file resolution shall be acceptable to the Engineer and appropriate for printing on 11" x 17" paper as well as 22" x 36" paper. At 22" x 36", the left margin shall be 1 ½" with ½" remaining margins.

A record set of "As-Built Drawings" shall be maintained by the Contractor. Prior to final acceptance of the Project, the "As-Built Drawings", in PDF format, shall be submitted to the Authority.

105.05 Conformity with Plans and Specifications. All Work performed and all Materials furnished shall be in reasonably close conformity with the lines, grades, cross-sections, dimensions, and Material requirements, including tolerances, shown on the Plans or indicated in the Specifications.

In the event the Engineer finds the Materials or the finished products in which the Materials are used are not within reasonably close conformity with the Plans and Specifications, but that reasonably acceptable Work has been produced, the Engineer will then make a determination if the Work shall be accepted and remain in place. In this event, the Engineer will document the basis of acceptance, which will provide for an appropriate adjustment in the Contract price for such Work or Materials if deemed necessary.

In the event the Engineer finds the Materials or the finished product in which the Materials are used or the Work performed are not in reasonably close conformity with the Plans and Specifications, and the result is an inferior or unsatisfactory product, the Work or Materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor. If there are provisions in the Contract for the acceptance of Materials or Work that are not in

full compliance with the minimum requirements stated, pay adjustment factors reflecting the payment to be made for the Work or Materials will be included in the applicable Sections.

105.06 Coordination of the Plans, General Provisions, Standard Specifications, Supplemental Specifications, and Special Provisions. The General Provisions, Standard Specifications, Supplemental Specifications, Plans, Special Provisions, and all supplementary documents are essential parts of the Contract and a requirement occurring in one is binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete Contract. In case of a discrepancy between these Contract components for Authority-funded Projects, the governing ranking will be:

1. Addenda (Including Pre-bid meeting minutes & Pre-bid Questions and Answers)
2. Pay Units in Bid Forms
3. Plans
4. Cross sections (When included as part of the Contract Documents)
5. Special Provisions
6. Supplemental Specifications
7. General Provisions
8. Standard Specifications (other than the General Provisions and Supplemental Specifications)

In case of a discrepancy between these Contract components for Projects that are not completely financed with Authority funds the governing ranking will be established by the requirements of the funding source which may be set forth in the Special Provisions.

The Contractor shall not take advantage of any apparent error or omission in the Contract. If the Contractor discovers an error or omission, the Engineer shall be promptly notified. The Engineer will make corrections and interpretations as necessary to fulfill the intent of the Contract. Scaled measurements shall not be used when the dimensions on the Plans are given or can be computed.

105.07 Cooperation by the Contractor. One copy of the Plans and Contract shall be kept at the Project site at all times. The Contractor shall give the Work constant attention necessary to facilitate progress and cooperate with the Engineer in every way possible.

The Contractor shall have on the Project site at all times a competent superintendent capable of reading and understanding the Contract and experienced in the type of Work being performed. The superintendent shall receive instructions, be authorized to act for the Contractor, and have full authority to execute orders or the directions of the Engineer without delay.

The Contractor shall furnish the Authority with every reasonable facility for ascertaining whether or not the Work is being done in accordance with the Contract.

The Contractor shall provide the Inspectors with adequate means of transportation across waterways and marshlands to and from the work sites as may be necessary for the inspection of the Work.

The Contractor shall also furnish, construct and maintain whatever may be necessary of walkways, platforms, ladders, stairways and other facilities of usual and suitable character and

adequate strength to provide properly for all operations of construction and inspection of Work under the Contract.

The Contractor is particularly advised of the Contractor's responsibilities in coordinating Work and storage of Materials within the Project site.

All Materials removed as part of the Work under this Contract shall, upon their removal, become the Contractor's property and shall be removed and legally disposed of by the Contractor away from Authority property unless stated otherwise in this Contract or on the Contract drawings.

By submission of the Bid and execution of the Contract, the Contractor accepts the relationship of trust and confidence established with the Authority pursuant hereto, and covenants with the Authority to furnish its best skill and judgment and to cooperate with the Authority and all design professionals, consultants, engineers, architects, contractors, suppliers, accountants, attorneys and other persons or entities retained by the Authority in connection with the Project. Contractor shall perform all such duties by the best and soundest means and methods and in the most expeditious and economical manner consistent with the interests of the Authority. The Contractor represents that its services shall be performed in accordance with best recognized professional standards.

The working force, Equipment and working site provided by the Contractor for the Project shall at all times be adequate and sufficient to insure the completion of the Project within the time stipulated therefor. When, in the opinion of the Authority, either the working force, the Equipment or the working site, or any or all of them are inadequate or insufficient to insure completion within said time, the Authority may order the Contractor to correct the deficiency and the Contractor shall comply with such order.

The Contractor and their Subcontractors shall not engage, on a full or part-time or other basis during the period of the Contract, any of the professional or technical personnel of the Authority or of any agency of any state, county or municipality, who are or have been at any time during the period of the Contract or for thirty (30) Days prior to the Award of the Contract, in the employ of such public agencies, except regularly retired employees, without the written consent of the public employer of such personnel.

The Contractor shall attend to the Work personally or through a competent, English-speaking superintendent of the Work authorized to receive and carry out instructions. The workmen shall be competent and shall perform their Work in a neat and workmanlike manner. Any workman not properly qualified for the Work or who is doing it in an unsatisfactory manner or contrary to the Specifications or the Authority's instructions, or who is disorderly, shall be discharged if so requested by the Authority and shall not be employed again on the Project except with the approval of the Authority. The superintendence and the number of workmen shall be sufficient, in the opinion of the Authority, to insure the completion of the Project within the time stipulated therefor.

The Contractor shall employ only competent and efficient laborers, mechanics or artisans. Whenever, in the opinion of the Authority, any employee is careless or incompetent, obstructs the progress of the Work, acts contrary to instructions or conducts himself or herself improperly, the Contractor shall, upon the request of the Authority, discharge the employee from the Work and shall not again employ the subject employee on the Project except with the written consent of the Authority.

Employment preference shall be given, other conditions being equal, to honorably discharged members of the Armed Services of the United States, but no other preference or discrimination among citizens of the United States shall be made.

105.08 Cooperation Between Contractors. The right is reserved by the Authority to do Work with its own employees or by other contractors and to permit public utility companies and others to do Work during the progress and within the limits of or adjacent to the Project and the Contractor shall conduct his, her or its Work and cooperate with such contractors, utility companies and others so as to cause as little interference as possible with their work. The Contractor shall allow other contractors, utility companies and their agents access to his, her or its work within the site of the Project. The Contractor shall and hereby does agree to make no claims against the Authority for additional payment due to delays or other conditions created by the operations of such other parties. If there be a difference of opinion as to the respective rights of the Contractor and others doing work within the limits of or adjacent to the Project, the Executive Director will decide as to the respective rights of the various parties involved in order to secure the completion of the Authority's work in general harmony and in a satisfactory manner. The Executive Director's decision shall be final and binding on and shall not be cause for claims by the Contractor.

Each Contractor will be held responsible for any damage done or caused by his, her or its Work or work forces and shall repair or make good any such damage in a manner satisfactory to the Authority and without cost to the Authority.

It will be the obligation of each Bidder to examine the Work site and make inquiries concerning the current construction schedules of contracts in progress, so as to ascertain the status and intended rate of progress of other contracts which may affect the Work under the Contract. The price Bid shall be considered to have reflected the effect the work of other contractors may have on the Work related to the construction required under the Contract.

105.09 Utilities. Bidders are hereby notified that within the limits of the work under this Contract, several utility lines may be encountered. The location of all utilities shown on the Plans or mentioned herein are approximate locations only.

Utilities, as referred to in this Subsection, shall be understood to mean utilities owned by the Authority as well as public utilities and other privately owned utilities.

Except as otherwise specifically provided, the Contractor shall be responsible for the safety, protection, maintenance and final restoration to as useful, safe and durable a condition as existed prior to construction, of all surface and subsurface utilities (together with all parts and appurtenances thereof), facilities, streets, waterways, structures and other properties at or near the site.

The Contractor shall not proceed with any Work until the Contractor has made diligent inquiry at the offices of the Engineer, the utility companies and municipal authorities or other owners to determine the exact utility location of any utilities on the Work site. The Contractor shall notify, in writing, the utility companies and municipalities or other owners involved of the nature and scope of the Project and of the operations that may affect their facilities or property.

Before the Contractor begins any Work or operations in the vicinity of subsurface structures, the Contractor shall carefully locate such structures and conduct his, her or its operations so as to avoid any damage to them.

The Contractor shall notify the owners of utilities or other properties well in advance of the time he, she or it proposes to perform any Work which would endanger their facilities or property and shall cooperate with the owners in protecting their facilities and property during construction operations.

The Contractor shall permit the owners of utilities and personnel engaged by he, she or its access to the site of the Work at all times in order to protect or relocate their facilities and the Contractor shall cooperate with them in performing this Work.

Unless otherwise specifically stated in the Supplemental Specifications or the Special Provisions, the Contractor shall be responsible for the continuity of service of all overhead, surface and subsurface utilities affected by their operations and shall maintain them in a safe and satisfactory operating condition.

The Contractor shall carry out the Work carefully and skillfully and shall support and secure utility structures so as to avoid damage to them. Flow-in drains and sewers shall be satisfactorily maintained. The Contractor shall not move any utility structures without the owner's written consent and at the completion of the Work, the condition of the utilities shall be as safe and permanent as before the completion of the Work.

The Contractor shall at his, her or its own expense make good any direct or indirect damage that may be done in the course of construction to any utility structure or property through or by reason of the prosecution of the Work. The liability of the Contractor under this covenant is absolute and is not dependent upon any questions of negligence on his, her or its part or on the part of his, her or its agent, servants, employees, Subcontractors or Suppliers and the neglect of the Authority to direct the Contractor to take any particular precaution or to refrain from doing any particular thing shall not excuse the Contractor of any such damage in any case.

When utility structures, facilities or equipment are damaged by the Contractor, the Contractor shall notify the owner(s) of the utilities, who may cause the damage to be repaired at the Contractor's expense. If the cost thereof is not paid by the Contractor within thirty (30) Days after repairs have been completed, the Authority may retain an amount sufficient to cover the cost from any monies due or that may become due the Contractor under the Contract.

It is understood and agreed that the Contractor has considered in his, her or its bid all of the permanent and temporary utility appurtenances in their present or relocated positions and that no additional compensation will be allowed for normal delays, inconvenience or damage sustained by the Contractor due to any interference from the said utility appurtenances or the operation of moving them.

105.10 Construction Stakes, Lines, and Grades. The Engineer will establish the following control points to enable the Contractor to properly reference and locate the Work:

- (a) For road work on land, the Authority will provide sufficient vertical and horizontal control to permit the contractor to lay out the Work.

- (b) For structures on land, both centerlines of each structure and a temporary benchmark adjacent to each structure.
- (c) For structures in waterways, sufficient triangulation from points on land to locate the centerlines of each structure and a centerline of the bridge roadway, as well as control benchmarks (land-based) for determining the elevations for each structure and bridge roadway.

The Contractor shall, at his, her, its own expense:

- (a) Establish with his, her or its own engineering force all lines and grades from the control points established by the Engineer, as may be necessary to perform his, her or its Work.
- (b) Furnish all stakes, templates and other Materials necessary to perform the engineering work required.
- (c) Maintain and protect all stakes and benchmarks provided by the Engineer.
- (d) Replace all stakes and benchmarks established by the Engineer which may be disturbed or destroyed by the Contractor.
- (e) Furnish such assistance to the Engineer as he, she or it may require in checking the layout of the Work and conformance to prescribed lines and grades.

The Contractor shall be solely responsible for all parts of the Work being in their exact positions with reference to the control points established by the Engineer.

105.11 Removal of Defective and Unauthorized Work. The Contractor shall use no Materials in the Work before they have been accepted, shall perform no Work before the lines, grades and benchmarks have been set and established and shall perform no Work not provided for in the Contract unless a Change Order or Supplemental Agreement therefor has been issued. Work performed and Materials furnished which do not conform to the requirements therefor will be rejected and shall be removed, replaced or repaired as the Authority may order and in a manner satisfactory to the Authority, at the Contractor's expense. Materials which have been rejected, the defects of which have been subsequently removed or corrected, shall not be used unless accepted by the Authority.

Failure of the Contractor to remove and properly dispose of rejected Work immediately after receiving formal notice to do so may be sufficient cause for annulment of the Contract, in which case the Authority may purchase Materials, tools and Equipment from, employ labor from, or contract with any other individual, firm or corporation to perform the Work. All costs and expenses incurred thereby shall be charged against the defaulting Contractor and the amount thereof deducted from any monies due or which may become due the Contractor, or shall be charged against the Contract Bond.

105.12 Load Restrictions. The Contractor shall comply with all legal and contractual load restrictions in the hauling of Materials or Equipment on public roads. A hauling permit or other special permit will not relieve the Contractor of liability for damage to public or private property which may result from the movement of such loads or Equipment.

105.13 Maintenance During Construction. The Contractor shall maintain the Work during construction and until the Project is accepted. This maintenance shall be performed continuously every day, and with adequate Equipment and workmen to keep the Roadway and structures in a satisfactory condition.

The Engineer will notify the Contractor if there is a failure to comply with these provisions. If the Contractor fails to remedy unsatisfactory maintenance within twenty-four (24) hours after receipt of the notice, the Engineer may proceed to maintain the Project. The entire cost of this maintenance will be deducted from monies due or to become due the Contractor.

If the Contract involves the placement of Material on or the use of a previously constructed subgrade, base course, pavement or structure, the previously constructed Work shall be maintained by the Contractor during construction operations.

The cost of maintenance work during construction and before the Project is accepted shall be incidental to the Contract.

In the event that the Contractor's Work is suspended for failure to comply with the provisions of the Contract, the Contractor shall maintain traffic, protect and maintain the roadway and structures, and provide ingress and egress for local residents as may be necessary during the period of suspended Work or until the Contract has been declared in default.

The Contractor shall mow all grass and weeds within the limits of the Contract, as directed by the Engineer and in compliance with Subsection 107.01.

105.14 Opening Sections of the Project to Traffic. The Engineer may order certain sections of Work to be opened to traffic or other use prior to completion or acceptance of the Work. Opening these sections shall not constitute acceptance of Work or waiver of any Contract provisions.

On those sections opened, the cost of establishing maintenance and protection of traffic, maintaining the Roadway or other work to accommodate traffic or other use, and repairing damage to the work that occurs after opening will be determined as follows:

A. If the Contract provided for total road closure, and the opening is not due to the fault or inactivity of the Contractor, the added costs will be at the Authority's expense. Compensation for these added costs will be in accordance with Subsection 109.04.

B. If the opening was designated as part of the Contract in "phased" or "staged" construction (only when defined as such in the Contract), then the added Work will be performed at the Authority's expense unless damage was reimbursed by Contractor's insurance. Compensation for this added Work will be in accordance with Subsection 109.04. This does not apply to Contracts that do not have defined "phased" or "staged" construction.

C. If the opening was due to the fault or inactivity of the Contractor, then the Work will be performed at no additional expense to the Authority. If the Contractor is dilatory in completing features of the Work according to the Contract or progress schedule, the Engineer will give written notification establishing a time period for completing these features. If the Contractor fails to complete or make a reasonable effort to complete the Work according to the written notification, the Engineer may order all or a portion of the Project opened to traffic. The Contractor shall not be relieved of liability or responsibility for maintaining the Work and shall

conduct the remaining construction operations, with minimum interference to traffic, at no additional expense to the Authority for any added cost of the Work.

105.15 Claims for Adjustment and Disputes. In any case (i) where the Contractor believes that extra compensation is due for Work or Material not clearly covered in the Contract or not ordered by the Authority as an extra, the Contractor feels that it has encountered unusual and unforeseen conditions beyond its control, as defined herein, not discoverable by reasonable inspection and diligence on the Contractor's behalf or any other claim, dispute or other matter in question between the Authority and the Contractor arising out of or in any way relating to the Contract or the performance or breach thereof, and (ii) where all other Contract provisions have been complied with, the Contractor shall notify the Engineer in writing of its intention to make claim within seven (7) Calendar Days following the date the Contractor begins the Work on which the claim is based. If written notification is not given within such period and the Engineer is not afforded proper facilities by the Contractor for keeping strict account of actual costs as required, then the Contractor waives his, her or its claim.

A. Contractor Written Notification. The written notification to the Engineer shall include:

1. The date of occurrence and the nature and circumstances of the occurrence that give rise to the claim;
2. The name and title of Authority representatives knowledgeable of the claim; and
3. If applicable, the particular elements of Contract performance for which additional compensation may be sought under this Subsection.

Such notice by the Contractor, and the fact that the Engineer has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim. Nothing contained in this Subsection shall be construed as establishing any claim contrary to the terms of Subsection 104.05 or any other provision of the Specifications.

B. Engineer Response. Within ten (10) Calendar Days after receipt of notice, the Engineer will respond in writing to the Contractor to:

1. Confirm that a change in Work occurred and that it shall be paid as an extra as provided herein; or
2. Direct the Contractor to follow the claims submittal procedure as outlined; or
3. Advise the Contractor that adequate information has not been submitted to decide whether above subparts B.1. or B.2. shall apply, and indicate the need for more information for further review. The Authority will respond to such additional information within ten (10) Calendar Days of receipt from the Contractor.

Any adjustments made to the Contract shall not include increased costs or time extensions for delay resulting from the Contractor's failure to provide requested additional information in accordance with this clause.

C. Claim Submittal. The Contractor must submit a formal claim in writing within sixty (60) Calendar Days after the Work giving rise to the claim has been completed. The Contractor can only recover, and the formal claim shall only consist of those items allowed under Subsection 105.19 and the claim shall contain:

1. The precise nature and basis for the claim;
2. Each fact upon which the Contractor relies to support the claim;

3. The precise reason the Contractor believes the claim should be granted;
4. The language in the Contract upon which the Contractor relies in support of the claim;
5. The amount of money or nature and extent of relief to which the Contractor believes it is entitled; and
6. Any other factors which the Contractor believes support the claim.

The Contractor agrees to follow the procedure described in this Subsection and that any claimed dollar amount and/or relief sought, not made pursuant to this Subsection within the time limits prescribed, shall be forever waived and not raised at any subsequent meeting or hearing dealing with the claim.

Claims and disputes submitted in accordance with this Subsection will be first reviewed fully at the Engineer's level. Within thirty (30) Calendar Days after receiving the claim submittal, the Engineer will respond, in writing, with the Authority's decision. If additional time is required by the Authority to review the claim, the Engineer will notify the Contractor.

Rejection of the claim or dispute by the Engineer may be appealed to the Chief Operating Officer for review. The Contractor shall give notice of the appeal, in writing, within ten (10) Calendar Days of the rejection by the Engineer. The Chief Operating Officer will conduct a claim review meeting attended by representatives of the Contractor and the Authority. The Chief Operating Officer will conduct the claims review meeting within forty-five (45) Calendar Days after receiving the Contractor's notice of appeal.

The Contractor may appeal the Chief Operating Officer's decision by requesting, in writing, within ten (10) Days of such decision, non-binding mediation with the Executive Director. If the mediation is unsuccessful, either party may proceed with the dispute resolution process as outlined in Subsection 105.17. The Executive Director shall issue a written report as to the results of the mediation, regardless of outcome.

105.16 Executive Director's Decision. After receiving the written notification from the Contractor requesting mediation, the Executive Director will notify the Contractor, in writing, within thirty (30) Calendar Days of the receipt of the request and promptly schedule mediation. The Executive Director shall issue a written report as to the results of the mediation, regardless of the outcome, within sixty (60) Calendar Days after notification to the Contractor of the Executive Director's receipt of the request for mediation.

105.17 Dispute Resolution. (a) If any claim is properly presented by the Contractor pursuant to Subsection 105.15, processed through the claims procedure and the mediation process with the Executive Director pursuant to Subsection 105.16, and the Contractor and the Authority fail to agree as to the resolution thereof, then upon the demand of either party delivered in writing to the other within thirty (30) Calendar Days from the date of the written report of the Executive Director as provided in Subsection 105.16, the claim shall be decided by exclusive, final and binding arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then in effect, except as otherwise modified by these Specifications. Such arbitration proceeding may involve presentation of facts or such portions thereof as have previously been presented at the prior administrative proceedings held pursuant to Subsections 105.15 or 105.16 herein or may be based entirely upon the record, as established therein. The record established at the prior administrative proceedings pursuant to Subsections 105.15 or 105.16 shall be specifically admissible at such arbitration proceedings and such facts as have been established shall be specifically binding upon the parties, with the

exclusion of opinions and conclusions thereon. Such arbitration shall be specifically based upon the claim(s) presented at prior administrative proceedings, and no material, information, fact and/or claim not presented at such proceedings held pursuant to Subsections 105.15 or 105.16 shall be admissible at any arbitration conducted pursuant to this Subsection 105.17. The arbitrators, in their final ruling on the claim, shall include a summary of the evidence, findings of fact based upon the evidence, conclusions of law and a concise statement of the relief awarded.

(b) Except as and to the extent the Authority may otherwise determine, any Disputes arising out of or in any way related to the Contract or the performance or breach thereof that are raised by the Authority and therefore not subject to the claim submittal process outlined in Subsection 105.15 and non-binding mediation in Subsection 105.16, shall be subject to exclusive, final and binding arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then in effect, except as otherwise modified by these Specifications.

(c) These provisions for dispute resolution are intended as a binding agreement to arbitrate under the Delaware Uniform Arbitration Act, 10 Del. C. §§ 5701 et seq., and shall be specifically enforceable. Any award rendered in any such dispute resolution procedure shall be final and judgment may be entered upon it by a court of competent jurisdiction in accordance with applicable law.

(d) If a Dispute shall arise under any Contract in connection with payments to be made to the Contractor hereunder, or otherwise in connection with the performance or alleged non-performance by any party of its obligations hereunder, the Contractor shall continue during the pendency of such Dispute to perform its services hereunder as if no Dispute shall have arisen. During the pendency of any such Dispute, the Contractor shall be entitled to receive payments from the Authority only for non-disputed items and payments for disputed items shall be deferred until final resolution of the Dispute.

(e) In all events, no claim, action or proceeding shall lie or be maintained by the Contractor, its successors or assigns, or by any Subcontractor or anyone else claiming under or through the Contractor, against the Authority upon any claim based upon or arising out of this Contract or out of anything done in connection with the Contract unless such action or proceeding shall be commenced within one (1) year after the earlier to occur of (i) the date of final completion of the Work or (ii) the termination of the Contract. This subparagraph shall not be deemed or construed to modify any other provision hereof relating to waivers of claims by the Contractor or to extend any period of limitations otherwise provided by law.

105.18 Subcontractor/Materialmen Payments. Payments received by the Contractor from the Authority that represent payments for Work completed or Materials supplied by Subcontractors or materialmen shall constitute a trust fund for the benefit of such Subcontractors and materialmen. These payments shall not be in any way co-mingled with any other project funds of the Contractor and shall be disbursed solely for the benefit of Subcontractors and materialmen with respect to the Project within thirty (30) Calendar Days of receipt of funds from the Authority. The Authority, acting in its sole and absolute discretion, may at any time direct that amounts be disbursed to Subcontractors and materialmen on a co-pay basis or by direct payment from the Authority to such Subcontractor and materialmen, and upon the Authority giving notice to Contractor of such direction, Contractor shall cooperate and take all steps necessary or appropriate to effect compliance with such direction; provided

further that upon the Authority giving notice of such direction, any term of this Contract that is not consistent with such direction shall be of no force and effect.

105.19 Claims. All claims made by the Contractor shall be submitted according to the procedure established in Subsection 105.15. Such claims shall also provide in the written notification a brief statement of the reason and basis for the claim. Within sixty (60) Calendar Days after that portion of the Work upon which the claim is based is completed, the Contractor shall submit a formal claim and if additional compensation is being claimed, such claim shall include an itemized list of labor, Equipment, and Materials used and such other costs as specifically allowed pursuant to this Subsection.

The Contractor shall not be entitled to recover any costs other than those contained and allowed herein. As described below, Subparts A. through G. shall cover all direct and indirect costs allowed and Subsection H. identifies all non-allowable costs.

- A. Labor. In accordance with 109.04 subpart D.1.
- B. Bond, Insurance, and Tax. In accordance with 109.04 subpart D.2.
- C. Materials. In accordance with 109.04 subpart D.3.
- D. Equipment. In accordance with 109.04 subpart D.4.
- E. Percentage Markups. In accordance with 109.04 subparts D.6. and D.7.
- F. Subcontractor Claims. Any claim submitted by the Contractor on behalf of one of its Subcontractors shall be submitted according to Subsection 105.15 and shall be solely limited to the list of all direct or indirect costs permitted by subparts A. through D. above. For Work approved by the Authority, the Subcontractor will be allowed a percentage markup as permitted by 109.04 subparts D.6. and D.7. The Contractor will be allowed an additional percentage markup as permitted by 109.04 subpart D.8., to be computed on the final sum total of such Subcontractor cost claimed under subparts A. through D. above for portions of Subcontractor Work approved by the Authority.
- G. Waiver of Liquidated Damages. A claim, not for additional costs, but for a waiver by the Authority of an assessment of Liquidated Damages, in whole or in part, may also be made by the Contractor as part of this Subsection.
- H. Non-allowable Damages or Expenses. The expenses listed above in subparts A. through G. shall constitute the sole cost(s) and expense(s) to which the Contractor shall be entitled on any claim submitted for additional compensation or settlement of any claim made under these Specifications, except as further provided in Subsection 105.21. The parties agree that the Authority will have no liability for the following items of damage or expense:
 - 1. Profit in excess of that provided herein,
 - 2. Loss of profit,
 - 3. Labor and Equipment inefficiencies,
 - 4. Home office overhead in excess of that provided herein,
 - 5. Consequential damages, including but not limited to loss of bonding capacity, loss of bidding opportunities and insolvency,
 - 6. Indirect costs or expenses of any nature,

7. Attorneys' fees, claim preparation expenses or costs of any dispute resolution proceedings, and
8. Interest on any claimed amounts.

I. Any claim submitted shall not affect in any manner the imposition or waiver of Liquidated Damages, except that any Liquidated Damages shall be waived for any delay for which a time extension is granted in accordance with Subsection 108.07.

J. The Contractor agrees to make its accounting records and cost information available at the time of submission of the claim, as well as all such other records as the Authority may require to determine the validity and amount of each item claimed. Such records shall be open to inspection or audit by representatives of the Authority during the life of the Contract and for a period of not less than three (3) years after the Contractor's acceptance of final payment as set forth in Subsection 109.10, and the Contractor shall retain such records for that period. Where payment for Materials, Equipment, or labor is based on the cost of forces other than the Contractor's, the Contractor shall make every reasonable effort to ensure that the cost records of such other forces are open to inspection and audit by representatives of the Authority on the same terms and conditions as the cost records of the Contractor. Payment for the cost of such forces may be deleted if the records of such third parties are not made available to the Authority's representatives. If an audit is to be commenced, the Contractor is to be provided with reasonable notice of the time when such audit is to begin. In case all or a part of such records are not made available, the Contractor understands and agrees that any items not supported by reason of such unavailability of the records will not be allowed, or if payment therefor has already been made, the Contractor shall refund to the Authority the amount so disallowed.

105.20 Project Acceptance. When, in the opinion of the Contractor, the Project has been completed, the Contractor shall so notify the Authority, in writing and the Authority will arrange for inspection. If the inspection is not found acceptable, the Authority will advise the Contractor as to the particular defects to be remedied before final acceptance will be made. Payment made to the Contractor before the final acceptance does not commit the Authority to acceptance of the Project. The Final Inspection will be made by the Authority and upon a satisfactory report, final acceptance of the Project will be made by the Chairperson of the Authority.

Partial Project acceptance of a unit of the Project may be made at the discretion of the Authority. When a unit or portion of the Project, such as a structure, interchange, or section of road or pavement is completed, the Contractor may request Final Inspection of that unit or portion. If the unit or portion has been completed in accordance with the Contract, the Authority may accept it as completed. Partial acceptance will not void or alter any of the terms of the Contract.

The Authority shall not be precluded or estopped by any measurement, estimate, certificate or approval of Work performed or Materials furnished made either before or after the Completion and acceptance of the Project and payment therefor, if such measurement, estimate or certificate be found to be in error or untrue, from showing the true amount and character of the Work performed and Materials furnished by the Contractor or from showing that any such measurement, estimate, certificate or approval is incorrectly made or untrue, that the Work or Materials do not conform in fact to the requirements of the Contract, or that said Work was

performed in a defective, unworkmanlike manner. The Authority shall not be precluded or estopped, notwithstanding any such measurement, estimate or certificate and payment made in accordance therewith, from recovering from the Contractor and his, her or its Surety such damages as it may sustain by reasons of the Contractor's failure to comply or to have complied with the terms of the Contract.

Neither the final acceptance by the Authority or any acceptance by any representative of the Authority, nor any payment made for the whole or any part of the Project, nor any extension of time granted the Contractor, nor any possession taken by the Authority, shall operate as a waiver of any portion of the Contract or of any power herein reserved, or any right to damages herein provided. A waiver of any breach of the Contract shall not be held to be a waiver of any other or subsequent breach.

Guaranty Against Defective Work.

Before final payment is made as provided in Subsection 109.10, the Contractor shall furnish a Maintenance Bond to the Authority in a sum equal to five percent (5%) of the final Contract price. The Maintenance Bond shall be on the form furnished by the Authority and with Surety satisfactory to the Authority. The Maintenance Bond shall remain in full force and effect for a period of one (1) year from the date of final acceptance of the Project by the Authority. The Contractor shall also furnish a Contractor's Release of Liens before final payment is made.

Before semifinal payment is made following the suspension of Work as provided in Subsection 104.07 and Subsection 109.07, the Contractor shall furnish a Maintenance Bond in a sum equal to five percent (5%) of the estimated value of the Work completed prior to the time the Project was suspended, and the Maintenance Bond shall remain in effect for a period of one (1) year from the date of suspension.

The Maintenance Bond (in either case) shall provide that the Contractor guarantees to replace for said period of one (1) year all Work performed and Materials furnished that were not performed or furnished according to the terms of the Contract, and make good defects thereof, regardless of cause, which have become apparent before the expiration of said period of one (1) year.

If, in the judgment of the Authority, any part of the Project need be replaced, repaired or made good during the specified guaranty period for the reasons stated above, the Authority will so notify the Contractor in writing. If the Contractor refuses or neglects to start such Work within five (5) Calendar Days from the date of service of such notice or at such other time as the Authority may designate, or if the Contractor fails to complete such Work within the time prescribed by the Authority, then the Authority will have the Work done by others and the cost thereof shall be paid by the Contractor or the Surety.

Before the Surety is released from its Maintenance Bond, the Authority shall certify, in writing, that the foregoing obligations have been duly performed.

In an emergency, as determined by the Authority, the Authority reserves the right to immediately effect both temporary and permanent repairs, or arrange for others to effect such repairs, at the expense of the Contractor, and the Contractor agrees that in such event, the Authority will be reimbursed for such costs by the Contractor or by the Surety.

The obligations of the Contractor and Surety under the Maintenance Bond specified hereinabove shall not be construed as limiting, diminishing or in any way affecting the liability and obligations

of the Contractor and Surety under the terms of the Contract Bond, it being understood that the Maintenance Bond prescribed in this Subsection is solely intended to cover defective Work of a nature that would otherwise be repaired or replaced by maintenance forces.

The Contractor shall make good all damage to the Work which is the result of the use of materials (other than Authority-furnished materials), equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract and shall restore all disturbed work resulting from the same.

If within twelve (12) months after final acceptance of the Work there shall appear or be discovered any weakness, any deficiency, any failure, or any breaking down or deterioration caused by a deficiency in design, workmanship, or material furnished by the Contractor, and all other, materials, machinery, or equipment, damage to which was caused by such defective work, materials, machinery or equipment (herein called a "guarantee deficiency"), such guarantee deficiency shall be made good, at the Contractor's expense, to meet the requirements of the Specifications and this Contract.

Any work required to be performed pursuant to the provisions of this Subsection shall be carried out, if practicable and at the Authority's option, by the Contractor, or his, her or its subcontractor, if approved by the Authority. The Authority may however, have such work performed by another repair facility and in that event the Contractor shall be liable to the Authority for the cost thereof at the straight time commercial repair rate then-prevailing. The Contractor shall not be responsible for the work performed by such repair facility or the consequences thereof, nor shall the Contractor be responsible to again perform or correct, or again pay for, the performance or correction of such guarantee deficiency.

The Authority shall notify the Contractor in writing of any guarantee deficiency and damage, if any, to Material, machinery or Equipment for which the Contractor is liable pursuant to this Subsection within thirty (30) Days after its discovery, setting out in such notification the specific defect to the extent discovered, and shall request that it be corrected. Failure of the Authority to give timely notice to the Contractor of a guarantee deficiency after its discovery will not of itself constitute a waiver of the Authority's rights in respect of such guarantee deficiency; except that in no event shall Contractor have any liability under this Contract for a guarantee deficiency known or discovered by the Authority at any time during the guarantee period unless written notice of such guarantee deficiency is given the Contractor no later than thirty (30) Days after the end of the guarantee period.

Whenever practical, the Contractor shall be given an opportunity to inspect the guarantee deficiency and damage, if any, to the Material, machinery or Equipment within fifteen (15) Days after notification of the Contractor and before it is remedied.

This Subsection 105.20 shall survive termination of the Contract.

105.21 Claims for Delay Damages. The Authority may grant time extensions in the performance of Work for delays caused by acts of God, acts of the public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or other causes, only when these delays are not the fault or responsibility of the Contractor, are beyond the Contractor's control, and could not have been anticipated by the Contractor. For such delays that are also beyond the control and not the fault of the Authority, the Contractor shall be entitled to a time extension, but shall not be entitled to recover any damages resulting from such delays.

Unless otherwise noted, the Contractor shall not be entitled to any increase in the Awarded Contract Value or any payment or compensation of any kind from the Authority for direct, indirect, or consequential damages, including but not limited to costs of acceleration, loss of revenue, or overhead or profit, arising because of hindrance or delay, from any cause whatsoever, whether such hindrance or delay be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable. Instead, as its sole right and remedy with respect to such hindrance or delay, the Contractor shall be entitled only to an extension to the Contract Time.

All direct and indirect costs allowed are covered in subpart A. below. Subpart B. below identifies all non-allowable costs. Compensation provided by subpart A. below shall not be duplicative of compensation already provided as part of Subsection 105.19 or Subsection 109.04:

A. **Allowable Direct and Indirect Expenses.** Only the additional costs associated with the following items will be recoverable by the Contractor for delay compensation:

1. Extended Field Overhead. Field overhead costs necessary for the prosecution of the Work during the delay period, as follows:
 - a. General Field Supervision. Such costs include but are not limited to general field supervision, assistants, watchmen, clerical and other field support staff. Compute these labor costs in accordance with Subsection 109.04, subpart D.1. For salaried personnel, calculate the rate of wage (or scale) actually paid by dividing the weekly salary by seven (7) days per week.
 - b. Field Office Facilities and Supplies. Such costs include but are not limited to field office trailers, tool trailers, office Equipment rental, temporary toilets, and other incidental facilities and supplies. Compute these costs on the basis of the actual added costs incurred by the Contractor to provide these services as a result of the delay.
 - c. Maintenance of Field Operations. Such costs include but are not limited to telephone, electric, water, and other similar expenses. Compute these costs on the basis of the actual added costs incurred to maintain these services as a result of the delay. These extended field overhead costs are not duplicative of those compensated in Subsection 109.04, subpart D.7.
2. Labor. For all necessary, non-salaried, idle labor that must remain on the Project during such periods of delay due to collective bargaining contracts or other reasons approved by the Engineer, compute the labor costs in accordance with Subsection 109.04, subpart D.1.
3. Bond, Insurance, and Tax. In accordance with Subsection 109.04, subpart D.2.
4. Equipment. For any idle Equipment other than small tools that must remain on the Project site during delays, the Contractor is to receive compensation at the rate calculated in Subsection 109.04, subpart D.4. Should it not be necessary for machinery or Equipment to remain on the Project during delays, the Contractor is to receive transportation costs to remove the machinery or Equipment and return it to the Project at the end of the delay period.
5. Materials. Costs for Material escalation due to the delay or the cost of storage of Materials due to the delay are recoverable. Obtain the Engineer's approval prior to storing any Material due to a delay.

6. Percentage Markups. An additional ten percent (10%) markup of the total of subparts A.1., A.2., A.3., and A.4. above will provide full compensation for home office overhead and any other costs attributed to the delay for which no specific allowance is herein provided. Payment under this Subsection constitutes full compensation for all items of expense related to such delay. No profit is allowed under this Subsection. The markup is not duplicative of those provided in Subsection 105.19, subpart E., Subsection 109.04, subpart D.6., and Subsection 109.04, subpart D.7.
7. Records. Payment will not be made for delays until the Contractor has furnished the Engineer with duplicate itemized statements of the cost as hereinabove specified and detailed as follows:
 - a. Name, classification, date, daily hours, total hours, rate, and extension for each worker and foreman.
 - b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and Equipment.
 - c. Transportation costs.
 - d. Cost of bonds, property damage, liability, and workers compensation insurance premiums; unemployment insurance contributions; and social security taxes.

The Engineer will compare the Authority's records with those furnished by the Contractor and make any necessary adjustments. When these records are agreed upon and signed by both parties, said records become the basis of payment for the expenses incurred, but do not preclude subsequent adjustment based on a later audit by the Authority.

The Contractor's cost records pertaining to expenses under this subpart shall be open to inspection or audit by representatives of the Authority as provided in Subsection 105.19, subpart J.

- B. Non-Allowable Damages or Expenses.** The expenses listed in subpart A. above shall constitute the sole cost(s) and expense(s) to which the Contractor shall be entitled on any delay claim submitted for additional compensation or settlement of any claim made under these Specifications. The parties agree that the Authority will have no liability for the items listed in Subsection 105.19, subparts H.1 through H.8.

105.22 Contractor's Responsibilities. The Contractor shall be responsible for reporting to the Authority any material omission or failure on the part of the Contractor, any Subcontractor or any Supplier to meet its schedule for completion or to perform its duties or responsibilities in connection with the Project, promptly as the same are observed by or otherwise become known to the Contractor. The Contractor shall also advise the Authority of any potential delays that may affect the ultimate completion of the Project on schedule, and shall make recommendations to the Authority, if necessary, as to the action to be taken to alleviate any potential delays.

There will be no change in the supervisory personnel assigned to the Project or in their time commitments to the Project without the prior written consent of the Authority. The Authority, in its sole discretion, shall have the right to require substitution of personnel assigned to the Project.

In addition to or in expansion of or elaboration on the Contractor's responsibilities as set forth in this Contract, it is agreed between the parties that the Contractor's responsibilities shall include:

- (a) Notifying the Authority of installation, testing and/or operational start-up times for such types or pieces of Equipment as may hereafter be specified by the Authority;
- (b) Furnishing the Authority with detailed documentation of the total cost of the Work at the completion of the project, separated into appropriate categories, classifications and codes and otherwise in a form approved by the Authority;
- (c) Preparing or obtaining from Subcontractor's brochures, guarantees, warranties, certificates of compliance and other agreements and instruments customarily prepared or obtained by a general contractor and/or the Contractor in connection with similarly situated projects; reviewing and commenting on the form of the foregoing and advising the Authority of any known discrepancies and deficiencies (the Contractor to cause any such discrepancies and deficiencies to be corrected); each guarantee, warranty or other similar instrument furnished shall name the Authority as direct beneficiary of the provisions thereof and the Authority shall have the right to enforce the same;
- (d) Maintaining at the Project site on a current basis all Contract Documents, including all Change Orders, Addenda, written interpretations and other modifications, as well as copies of all correspondence relating to the Project and a current marked-up set of the drawings, schedules, diagrams and Specifications (all of which documentation shall at all times be available for inspection by the Authority); and providing, following the completion of construction, a set of record drawings showing the Project "as built" both in full-size hard copy and on disks in PDF format; and
- (e) Training of Authority personnel as required or necessary for systems as supplied under the Contract.

The Contractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management of the Project, all of which shall be satisfactory to the Authority. The Authority and the Authority's representatives shall be afforded access to the Contractor's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the project, and the Contractor shall preserve these for a period of three (3) years after final payment, or for such longer period as may be required by law.

Section 106 - Control of Material

106.01 Source of Supply and Quality Requirements

106.02 Samples, Tests, and Referenced Specifications

106.03 Certification of Compliance

106.04 Manufacturing Plant Inspection

106.05 (Intentionally Omitted)

106.06 (Intentionally Omitted)

106.07 Storage and Handling of Materials

106.08 Unacceptable Materials

106.09 Disposal of Unacceptable Materials

106.10 Authority Furnished Material

106.01 Source of Supply and Quality Requirements. All Materials used shall meet the requirements of the Contract. All Materials for the Project shall be new materials furnished by the Contractor, unless otherwise specifically provided, and shall be subject to the approval of the Engineer.

The provisions of Subsection 102.14 notwithstanding, the Contractor shall, within ten (10) Calendar Days after the date of execution of the Contract by the Authority, inform the Engineer in writing from whom and where he proposes to obtain the Materials required for the first six (6) months of construction of the Project and thereafter advise the Engineer of proposed changes. The source of supply of each of the Materials to be incorporated into the Project shall be approved by the Engineer, preferably before the Material is ordered by the Contractor and at the very latest before delivery of such Material is started. The approval of the Engineer may be withdrawn at any time when it appears to the Engineer that the Materials no longer conform to Contract requirements after giving such approval. Subsequent to the submission of this initial list of sources of supply, for the duration of the Contract the Contractor shall notify the Engineer of new sources of supply at least thirty (30) Calendar Days in advance of the proposed shipment of Materials for such new sources.

Materials shall not be shipped to the site until inspected by the Engineer at their source and approved by the Engineer. Approval by samples alone may be permitted by the Engineer only so long as the Material conforms to the samples approved and it can be furnished at the time and in the quantity required by a producer equipped to furnish it in uniform quality and composition. Approval for a specific case or use does not imply approval for other cases or uses. Approved Materials which appear defective when received or which may have become damaged in any manner shall not be used until retested and reapproved.

All Materials proposed to be used may be inspected or tested at any time during their preparation and use. If, after inspection or testing, it is found that sources of supply which have been approved do not furnish a uniform product or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved Material from other approved sources. No Material which, after approval, has in any way become unfit for use shall be used in the Work.

Orders for Materials shall give detailed description of them and their intended use, manner of shipment, and proposed delivery date, and shall state the official designation of the Project on which they are to be used. Duplicates of orders shall be furnished to the Engineer at the time the order is placed. Material delivery slips shall show such information as may be prescribed by the Engineer.

In any item of construction, the sources, brands or types of Materials shall not be changed without the consent of the Authority. The Contractor's request for such changes shall be filed with the Engineer fifteen (15) Days in advance of such changes. The Contractor's notice shall state the name and address of the owner, the location of the proposed source, the method of shipment and the intended use of the Material. The Contractor shall also furnish this information for all Materials whenever placing an order therefor.

Wherever, on the Plans or in the Specifications, a particular brand or make of Material or a particular device or Equipment is shown or specified, such Material, device or Equipment is to be regarded only as a standard of acceptability. In such cases, other makes or brands of equal grade, suitability, availability and finish may be offered as an alternate by the Contractor for the Engineer's approval and utilized only if approved by the Engineer.

The foregoing provisions shall apply also with regard to requests by Subcontractors for the sources of the Materials they propose to use, such requests to be submitted through the Contractor.

Where the use of foreign Materials (i.e., materials mined, manufactured or produced outside the territorial limits of the United States of America) are not prohibited by the Supplemental Specifications or the Special Provisions, the Contractor may elect to utilize foreign Materials following notification to the Authority of the Contractor's intent to use such Materials, and if such Materials are furnished in accordance with the following requirements:

- (a) Materials manufactured, produced or mined outside the United States shall be delivered to approved locations within fifty (50) miles of the job site unless otherwise permitted, where they shall be retained until sampling and testing can be completed. Such sampling and testing shall be performed by testing organizations employed by the Authority.
- (b) Each lot of foreign Material shall be accompanied by a certificate of compliance, in accordance with Subsection 106.03. In addition, certified mill test reports shall be attached to the certificate of compliance for those Materials for which mill test reports are required and shall clearly identify the lot to which they apply. Mill test reports will be accepted only from those foreign manufacturers who have previously established the adequacy of their in-plant quality control to assure delivery of uniform Material. Adequacy of quality control shall be established, at the option of the Authority, by either submission of detailed written proof of adequate control or through an in-plant inspection by the Engineer. Travel and subsistence costs incurred by the Authority's representative for the performance of such in-plant inspection shall be reimbursed by the Contractor.
- (c) Foreign Materials will not be accepted which cannot be identified with mill test reports, certificates of compliance, and verified by the Authority's in-plant inspection and testing, as applicable.

106.02 Samples, Tests, and Referenced Specifications. All Materials furnished by the Contractor, Subcontractors and Suppliers for use in connection with the Project, are subject to test, at the Contractor's expense, or visual inspection, if testing is not required, for verification as to conformance to Contract requirements.

In general and unless otherwise provided, representative samples of Materials to be tested or inspected by the Authority will be selected at random by the Authority's Inspector from sources or supplies provided by the Contractor. The Contractor shall provide samples at no cost to the Authority and shall furnish all necessary assistance to the Inspector in selecting the samples. The Authority reserves the right to order that representative samples of certain Materials be selected by the Contractor and delivered to the Inspector or to an Authority approved Laboratory.

Samples required to be furnished or made available by the Contractor shall also be furnished or made available by the Contractor's Suppliers of Materials whenever tests and inspections are made at plants, quarries, mills, foundries, warehouses, shops or other points of manufacture, treatment, fabrication, assembly or storage.

Samples of Materials, units of manufactured items and prototypes shall be furnished in such quantities and numbers as may be required for establishing quality, classification, suitability, verification or performance and mix formulations.

Manufacturers furnishing pipe under the Specifications shall furnish all facilities necessary to carry out the tests required by the Specifications, at their own expense.

Methods of test shall be those prescribed or referred to in the Specifications for the various Materials. If no methods of test are provided for in the Specifications for a particular Material, that Material shall be tested in accordance with an appropriate AASHTO method or, if there be no appropriate AASHTO method of test, such Material shall be tested in accordance with an appropriate ASTM method of test.

Results of tests made with the Laboratory's apparatus, conforming to the requirements specified in the prescribed methods of tests, shall be official.

Vehicles and receptacles used for shipping and transporting Materials shall be strong, tight, clean and in good repair or Materials therein may be rejected. Receptacles shall be plainly marked with the name of the producer, kind of Material contained therein, net weight and grade. If the Material contained in the receptacle has been inspected at the point of production before shipment, the container shall be marked also with the lot number of the approved Material from which the content is taken, the date of approval and other pertinent information.

The sampling and testing of soils shall conform to the general requirements for sampling and testing Materials as specified above and to the requirements given below provided, however, that the following requirements shall govern in the event of any conflict or inconsistency.

Sampling requirements referred to herein for soils shall apply also to gravel or stone base courses or other granular Materials subject to compaction in road construction.

The Contractor shall determine, initially by means of proper sampling and laboratory tests, that soil materials from proposed sources will conform to the Specification requirements. Written notice of the proposed sources of the above-named materials shall be given to the Engineer by the Contractor after initial determination as specified above and not less than ten (10) Days prior to the time of their intended use. Then, before approving or disapproving a source, the Engineer will sample and test materials representative of that portion of the source which the Contractor intends to use.

Approval by the Engineer of a proposed source of soil materials shall not constitute approval of Materials delivered to the site of the Work from that source but shall be deemed as permission for the Contractor to select and use materials from that source only so long as they conform to the Specifications. The Contractor shall progressively determine, by proper sampling and laboratory tests, while the sources are in use, that Materials selected from approved sources will conform to the Specifications.

The final and governing determination of conformance or non-conformance with Specifications shall be based on sampling and testing of the Materials by the Engineer after they have been placed and compacted in the Work as specified or, if compaction is not specified, when they have been placed in accordance with the Plans and Specifications. All Materials in place in the Work which do not conform to the Specifications shall be removed and replaced with Materials which do conform thereto or their deficiencies shall be corrected.

The Contractor shall excavate test pits and provide such facilities as he, she or it may require in order to properly sample the source and shall, if the source be approved, remove any overburden which would contaminate the Material intended for use on the Project. If soil materials are obtained by dredging, the Contractor shall provide safe and adequate water transportation for the Engineer to and from the dredges or other boats and shall cooperate with the Engineer in every reasonable way to expedite inspection and sampling of the Materials.

106.03 Certification of Compliance. The Contract or the Authority will designate Materials that can be incorporated in the Work if accompanied by certificates of compliance from the manufacturer. The certificates of compliance shall state that the Materials or assemblies provided fully comply with the specification requirements of the Contract, and shall be signed by the manufacturer. Each lot of certified Materials or assemblies delivered to the Project must be accompanied by a certificate of compliance clearly identifying the Materials delivered and the specification requirement(s) satisfied.

Materials or assemblies used on the basis of certification of compliance may be sampled and tested by the Authority and, if determined not to be in conformance with Contract requirements, will be rejected in accordance with Subsection 105.03. The cost of such sampling and testing, regardless of outcome, shall be reimbursed by the Contractor.

106.04 Manufacturing Plant Inspection. The Engineer may inspect Materials at the acquisition or manufacturing source. Manufacturing plants may be inspected for compliance with specified manufacturing methods. Material samples will be obtained for testing for compliance with Material quality requirements.

In the event plant inspection is undertaken, the following conditions shall be met:

- A. The Engineer will have the cooperation and assistance of the Contractor and producer of the Materials;
- B. The Engineer will have full access at any time to all parts of the plant concerning the manufacture or production of the Materials being furnished;
- C. The Contractor shall arrange for an approved space for the use of the Inspector, with such space to be located conveniently near the plant;
- D. Provide and maintain adequate safety measures; and
- E. It is understood that the Authority reserves the right to retest all Materials which have been tested and accepted at the source of supply after the same have been delivered and to reject all Materials which, when retested, do not meet the requirements of these Specifications.

106.05 (Intentionally Omitted).

106.06 (Intentionally Omitted).

106.07 Storage and Handling of Materials. The Contractor, upon consultation with the Authority, shall arrange for delivery and storage, protection and security for all Materials, systems and Equipment which are a part of the Project, until such items are incorporated into the Project, including Authority-furnished Materials, systems and Equipment.

Materials shall be stored or stockpiled so as to insure preservation of their quality and fitness for the Work. Materials liable to damage or change in quality by the elements shall be stored in proper structures or in such other manner as may be necessary to protect them from damage. Materials shall be kept clean and free from foreign matter of any kind before, while and after being placed in the finished Work.

Metalwork shall be stored on dunnage or otherwise placed above ground and protected against contact with rising water or mud.

Unless otherwise directed, granular Materials shall be stockpiled on hard, clean surfaces, shall be placed in stockpiles in horizontal layers not exceeding three feet in depth and when so required, shall be suitably covered.

The locations for and methods of storing Materials shall at all times meet with the approval of the Engineer. Any Materials improperly stored will not be approved for use.

An approved portion of the Right-of-Way may be used for the storage of Materials and the Contractor's Equipment. Additional storage space required shall be provided at the Contractor's expense and option. Private property shall not be used for storage purposes without written permission of the owner or lessee. If requested, copies of such written permission shall be furnished to the Engineer.

Storage sites shall be restored to their original condition by and at the Contractor's expense.

106.08 Unacceptable Materials. Materials not conforming to the requirements of the Contract will be rejected and removed immediately from the Project unless the defects have been corrected and approved by the Engineer.

106.09 Disposal of Unacceptable Materials. All waste materials removed by earthwork operations shall become the property of the Contractor and shall be removed from the Project or otherwise disposed of as specified, unless otherwise explicitly stated in the Contract. Unless specific disposal sites are designated on the Plans, the Contractor shall procure disposal sites. Such disposal sites shall be submitted to and approved by the Engineer. No areas that are designated as wetlands will be permitted for use as disposal sites. The submittal shall include a plan of the disposal area, proposed sediment and erosion control devices, existing and proposed final contours, and proposed security measures. All permit requirements, such as those required by the Department of Natural Resources and Environmental Control (DNREC) and the U.S. Army Corps of Engineers, shall be met by the Contractor when preparing and utilizing off-site disposal areas. The Contractor shall submit a similar proposal for use of designated disposal sites if such detail is not included in the Contract Documents. Costs for preparing these plans are incidental to Section 201 of the Standard Specifications. For disposal sites designated in the Plans, payment will be made separately under applicable bid items for all necessary erosion and sediment controls, seeding, and mulching. For Contractor-procured disposal sites, such costs are incidental to Section 201 of the Standard Specifications. The Authority will not consider any delays or monetary claims of any nature resulting from the Contractor's failure or difficulty in finding the necessary disposal sites.

106.10 Authority-Furnished Material. Material furnished by the Authority will be delivered or made available to the Contractor at locations specified in the Contract.

The cost of handling and placing Authority furnished Materials after they are delivered to the Contractor shall be included in the Contract price for the item in which they are used. Deductions will be made from any monies due for any shortages, deficiencies, and damage that may occur to the Material after delivery. Demurrage charges resulting from the Contractor's failure to accept the Materials at the designated time and location of delivery will also be deducted from monies due the Contractor.

Section 107 - Legal Relations and Responsibility to the Public

- 107.01** Laws, Ordinances and Regulations
- 107.02** Permits, Licenses and Taxes
- 107.03** Patented Devices, Materials, and Processes
- 107.04** Contractor's Responsibility for Utility Property and Services
- 107.05** Federal Aid Participation
- 107.06** Construction Safety, Health, and Sanitary Standards
- 107.07** Public Convenience and Safety
- 107.08** Use of Explosives
- 107.09** Protection and Restoration of Property
- 107.10** Responsibility for Damage Claims
- 107.11** Furnishing Right-of-Way
- 107.12** No Personal Liability
- 107.13** No Waiver of Legal Rights
- 107.14** Hazardous Material
- 107.15** Ownership and Use of Documents; Confidentiality
- 107.16** Equal Employment
- 107.17** Labor Relations
- 107.18** Security

107.01 Laws, Ordinances and Regulations. The Contractor shall observe and comply with and cause the Work to be performed in accordance with all applicable governmental laws, rules, codes, regulations and requirements, including, without limitation, federal, state and local environmental and safety laws and regulations which are required of the Authority.

107.02 Permits, Licenses and Taxes. Except as otherwise hereinafter provided, the Contractor shall procure all required permits and licenses, pay all charges and fees therefor and shall give all notices necessary and incident to the due and lawful prosecution of the Project.

Before the Contractor performs dredging or excavation within tidal waterways for the procurement of Materials or performs therein other work of his, her or its own, when such work is not part of the permanent Work provided for in the Contract, he, she or it shall advise the Engineer, U.S. Army Corps of Engineers and any other Federal or State agency having jurisdiction. The Contractor shall procure all necessary permits for such work from the above-named agencies and shall comply with the rules and regulations in the performance of the above-mentioned work.

For all permanent construction prescribed in the Contract, the necessary official permits and consents from the proper agencies will be procured and all charges therefor will be paid by the Authority. However, the Contractor shall advise such agencies of their proposed operations and obtain their cooperation and such supplemental permission as may be necessary.

Passes will not be issued to the Contractor, their subcontractors or suppliers for the toll-free use of any existing toll facility operated by the Authority. The Contractor shall include the cost of all such expenses in the prices bid for the various items scheduled in the Contract Documents.

Under date of February 27, 1967, the purchasing agent of the Authority issued the following notice that the Authority is exempt from New Jersey sales taxes on purchases from New Jersey merchants:

TO ALL VENDORS FURNISHING MATERIALS OR SERVICES OR BOTH TO
THE DELAWARE RIVER AND BAY AUTHORITY, CAPE MAY-LEWES FERRY
OR DELAWARE MEMORIAL BRIDGE

The Delaware River and Bay Authority, formed by a compact between the State of Delaware and the State of New Jersey to operate the Delaware Memorial Bridge and the Cape May-Lewes Ferry, is exempt from the payment of New Jersey Sales Tax on purchases from New Jersey merchants.

The following are pertinent excerpts from the General Information Bulletin - New Jersey Sales and Use Tax Act -Chapter 30, Laws 1966:

Page 9 - Item 8a:

“The State of New Jersey or any of its agencies, instrumentalities, public authorities, public corporations (including those created pursuant to agreement or compact with another state) or political sub-divisions, when it is the purchaser, user or consumer or when it sells services or property of a kind not ordinarily sold by private persons.”

Page 11 - Item 5:

“Organizations described in Section 8a need only furnish purchase orders on their letterhead to claim exemption.”

107.03 Patented Devices, Materials, and Processes. The Contractor and the Surety shall hold and save harmless the Authority, its commissioners, officers, agents and employees, in accordance with the terms of these Specifications, from any and all claims because of the use of any patented design, device, Material, or process in connection with the Work agreed to be performed under this Contract. The foregoing indemnification shall survive termination of the Contract. Any patent agreement between patentee and the Contractor shall be furnished to the Authority.

107.04 Contractor’s Responsibility for Utility Property and Services. At points where the Contractor’s operations are adjacent to properties of railway, telegraph, telephone, power companies, or other utilities, or are adjacent to other properties, facilities, or appurtenances, damage to which might result in considerable expense, loss, or inconvenience, Work shall not be commenced until all arrangements necessary for the protection thereof have been made.

In the event of interruption to water or utility services as a result of accidental breakage, or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority. The Contractor shall cooperate with said authority in the restoration of service as promptly as possible. No Work shall be undertaken around fire hydrants until appropriate plans for continued service have been approved by the local fire authority.

Fire hydrants on or adjacent to the highway shall be kept accessible to fire apparatus at all times and no Material or obstruction shall be placed within fifteen feet (15’) of any such hydrant. Work shall be left entirely accessible at all points to fire apparatus at all times. Whenever any Work is done in the area of a fire hydrant or whenever a fire hydrant is relocated or installed, the center of the hose outlet shall be a minimum of eighteen inches (18 in.) above the final grade directly beneath the hose outlet. The breakaway flange at the bottom of the hydrant shall be set zero inches to four inches above the ground.

107.05 Federal Aid Participation. When the United States Government pays all or any portion of the cost of a Project, the Federal laws authorizing such participation and the rules and regulations made pursuant to such laws must be observed by the Contractor, and the Work shall be subject to the inspection of the appropriate Federal agency.

Such inspection shall not make the Federal Government a party to this Contract and will in no way interfere with the rights of either party hereunder.

107.06 Construction Safety, Health, and Sanitary Standards. It is a condition of all contracts, and shall be made a condition of each subcontract entered into pursuant to the prime contract, that the Contractor, and any Subcontractor, shall not require any person employed in performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to such person’s health or safety.

The Contractor shall provide and maintain in a neat and sanitary condition, properly secluded, such accommodations for himself and his employees as may be necessary to comply with the regulations of the State Departments of Health and other bodies having jurisdiction. Necessary conveniences, properly secluded, shall be provided and maintained for the use of and to the satisfaction of the Authority and sanitary authorities. No public nuisance will be tolerated.

The Contractor's personnel will not be permitted to use the sanitary provisions within any Administrative Complex of the Authority or any other Authority property.

107.07 Public Convenience and Safety. The Contractor shall maintain a safe work site at all times and be prepared to make repairs as needed after normal working hours in the case of an emergency. If the Authority is unable to contact the Contractor to make these repairs then Authority maintenance forces or a third party contractor may be used to make such repairs. The cost for this work shall be calculated according to Subsection 109.04 subpart (D) for all Authority personnel involved or third party contractor, including vehicles, equipment and materials needed. This cost will be deducted from money due the Contractor under the Contract.

The Contractor shall conduct his, her or its Work with the least possible obstruction to the traveling public. The convenience of the public and of the residents adjacent to the Project and the protection of persons and property are of first importance and shall be provided for by the Contractor in an adequate and satisfactory manner. The Contractor shall provide and maintain ingress and egress for all residences and places of business located within the construction limits. Adequate temporary crossings shall be constructed and maintained where access to adjacent property is desired, whether for convenience or fire protection. All fire hydrants shall be kept accessible at all times.

Trucks hauling materials shall have tight tail gates and shall be loaded with adequate freeboard of not less than three inches, without precarious cones or piles of material.

The Contractor shall provide for prompt removal from existing Roadways of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, obstruct or clog drainage systems, damage pavements or create a traffic hazard.

The Contractor shall employ construction methods and means that will keep flying dust to the minimum. The Contractor shall provide for the allaying of dust on the Project and on roads, streets and other areas immediately adjacent to the Project limits, wherever traffic or buildings that are occupied or in use are affected by such dust caused by hauling or other operations. The materials and methods used for dust allaying shall be subject to the approval of the Engineer.

Precaution shall be exercised at all times for the protection of persons and property. The safety provisions of applicable laws, building and construction codes, and the rules and regulations of the Delaware and New Jersey Departments of Labor, as applicable, shall be observed. Machinery, Equipment and other hazards of whatsoever character shall be guarded in accordance with the safety provisions of the AGC, to the extent that such provisions are not inconsistent with applicable Federal, state and local laws and regulations.

If any operation, practice or condition during the course of the Work is deemed by the Authority to be unsafe, the Contractor shall take corrective action when notified in writing by the Authority. However, where in the opinion of the Authority, any operation, practice or condition endangers persons or property, it shall be discontinued and adequate remedial action taken before the affected part of the Work is resumed.

107.08 Use of Explosives. Explosives shall not be brought within the Project limits or onto property under the jurisdiction of the Authority without the prior written approval of the Executive Director.

When permission is granted to bring explosives thereon, they shall be stored safely under lock and key. The storage places shall be marked conspicuously "DANGEROUS EXPLOSIVES" and be in the care of a competent watchman at all times. The storing and handling of explosives and highly inflammable Materials shall conform to state and local regulations relating thereto. Proper means shall be used to avoid blasting damage to public and private property. Flagmen shall be provided, when directed, in order to warn and keep traffic from the danger area and all persons within the danger area shall be warned and given time to withdraw.

When the use of explosives is necessary for the prosecution of the Work, the Contractor shall exercise the utmost care not to endanger life or property, including new Work. The Contractor shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and not closer than one thousand feet (1000') from the road or from any building or camping area or place of human occupancy.

The Contractor shall notify each public utility company having structures in proximity to the site of the Work of its intention to use explosives.

The use of explosives will not be permitted within two hundred feet (200') of any existing, newly finished, or partly finished structure on a Project unless authorized in writing by the Engineer. No explosives shall be stored overnight on the Project.

107.09 Protection and Restoration of Property. The Contractor shall be responsible for the preservation of all public and private property, trees, monuments, etc., along and adjacent to the Project, which are not designated on the Plans for repair, removal or reconstruction. The Contractor shall exercise the precaution necessary to prevent damage to underground structures and shall protect carefully from disturbance or damage all land monuments and property markers until an authorized representative of the Authority has witnessed or otherwise referenced their location and shall not remove them until so directed. Any disturbed land monument and/or property marker shall be located and reset by registered land surveyors, at the Contractor's expense.

The Contractor shall not injure or destroy trees or shrubs outside the limits of the graded Roadway Subsection, nor remove or cut them without proper authority.

Where any direct or indirect damage is done to public or private property on account of any act, omission, neglect or misconduct in the execution of the Work or in consequence of the non-execution thereof on the part of the Contractor, such property shall be restored by the Contractor, at the Contractor's expense, to a condition similar or equal to that existing before such damage.

In case of the failure on the part of the Contractor to restore such property or make good such damage, the Authority may, upon forty-eight (48) hours' notice, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due or which may become due the Contractor under the Contract.

107.10 Responsibility for Damage Claims. The Contractor hereby assumes entire responsibility and liability for any and all damage or injury of any kind or nature whatever (including death resulting therefrom) to all persons, whether employees of the Contractor or otherwise, and to all property caused by, resulting from, arising out of or occurring in connection with the execution of the Work; and if any claims for such damage or injury (including death resulting therefrom) be made or asserted, whether or not such claims are based upon the Authority's alleged active or passive negligence or participation in the wrong or upon any alleged breach of any statutory duty or obligation on the part of the Authority, the Contractor agrees to indemnify and save harmless the Authority, its commissioners, officers, agents, servants and employees from and against any and all such claims and further from and against any and all loss, costs, expense, liability, damage or injury, including legal fees and disbursements, that the Authority, its commissioners, officers, agents, servants or employees may directly or indirectly sustain, suffer or incur as a result thereof and the Contractor agrees to and does hereby assume, on behalf of the Authority, its commissioners, officers, agents, servants and employees, the defense of any action at law or in equity which may be brought against the Authority, its commissioners, officers, agents, servants or employees upon or by reason of such claims and to pay on behalf of the Authority, its commissioners, officers, agents, servants and employees, upon its demand, the amount of any judgment that may be entered against the Authority, its commissioners, officers, agents, servants or employees in any such action.

The Contractor also hereby assumes entire responsibility and liability for and shall, to the same extent as specified above, further indemnify and save harmless the Authority, its commissioners, officers, agents and servants from all suits, claims and actions of any kind or character whatsoever which may be brought or instituted by any Subcontractor, materialman or laborer who has performed Work or furnished Materials in or about the Project or by, or on account of, any claims or amount recovered for any infringement of patent, trademark or copyright, or for any violation of such laws, ordinances, regulations, orders or decrees, whether by the Contractor himself, herself or itself or by any of his employees, Subcontractors or Suppliers, whether or not such suit action, claims or amounts recovered are based upon the Authority's active or passive negligence or participation in the wrong or upon any alleged breach of any statutory duty or obligation on the part of the Authority. In the event that any such claims, loss, costs, expense, liability, damage or injury arise or are made, asserted or threatened against the Authority, its commissioners, officers, agents, servants or employees, the Authority shall have the right to withhold from any payments due or may become due to the Contractor an amount sufficient in its judgment to protect and indemnify it and its commissioners, officers, agents, servants and employees from and against any and all such claims, loss, costs, expense, liability, damage or injury, including legal fees and disbursements or the Authority, in its discretion, may require the Contractor to furnish a security bond satisfactory to the Authority guaranteeing such protection, which bond shall be furnished by the Contractor within five (5) Days after written demand has been made therefor.

The forgoing indemnification provision shall survive termination of the Contract.

107.11 Furnishing Right-of-Way. The Authority will be responsible for securing all necessary Rights-Of-Way in advance of construction. Any exceptions will be indicated in the Contract. If work is to be performed on, over, under or adjacent to railroad property, the Contractor may be required to indemnify and save harmless the railroad company in connection with such work. The Contractor shall be responsible for acquainting himself, herself or itself, prior to bidding, with all requirements that the railroad company may impose.

107.12 No Personal Liability. In carrying out the provisions of this Contract or in exercising any power or authority granted them by their position, there shall be no liability upon the Commissioners of the Authority, the Executive Director, the Engineer, any Authority employees or any consulting engineers that may be engaged for the Project by the Authority and their authorized representatives either personally or as officials of the Authority, it being understood that in such matters, they act as agents and representatives of the Authority.

107.13 No Waiver of Legal Rights. Upon completion of the Work, the Authority will expeditiously make Final Inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Authority from correcting any measurement, estimate, or certificate made before or after completion of the Work, nor shall the Authority be precluded or estopped from recovering from the Contractor or its Surety, or both, such overpayment as it may sustain, or from recovering the cost of the failure on the part of the Contractor to fulfill its obligations under the Contract. A waiver on the part of the Authority of any breach of any part of the Contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the Contract, shall be liable to the Authority for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Authority's rights under any warranty or guaranty.

107.14 Hazardous Material. If any abnormal condition is encountered or exposed that indicates the presence of a hazardous material or toxic waste, construction operations shall be immediately suspended in the area and the Engineer notified. Work shall be continued in other areas of the Project where such abnormal conditions have not been encountered or exposed, unless otherwise directed by the Engineer.

Abnormal conditions include but are not limited to the following: presence of barrels or drums, chemical or noxious odors, stained or contaminated soil, sheen or contamination of or on surface or ground water, excessively hot earth, smoke, or any other condition that indicates a hazardous material or toxic waste. Such conditions shall be treated with extreme caution.

Disposition of the hazardous material or toxic waste shall be made under the requirements and regulations of the applicable State and Federal agencies.

Contractor shall be responsible for abnormal conditions created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

To the fullest extent permitted by laws and regulations, Contractor shall indemnify and hold harmless the Authority and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to abnormal conditions created by Contractor or by anyone for whom Contractor is responsible or for any exacerbation by Contractor or anyone Contractor is responsible for of an existing abnormal condition shown on technical data, drawings, or specifications, or in Contract Documents. Nothing in this Paragraph shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence. The foregoing indemnification shall survive termination of the Contract.

107.15 Ownership and Use of Documents; Confidentiality. Drawings prepared by the Contractor (and all models, plans, calculations, specifications and other work product of the Contractor in connection with the Project and all related computer disks and electronic data) are and shall remain the property of the Authority, whether the Project is fully executed or not.

The Contractor agrees that all drawings, specifications, plans, designs, technical information, forecasts and other materials received by the Contractor from the Authority in connection with this Contract shall be accepted and treated as proprietary information that has a substantial commercial value to the Authority, and that the Contractor will not use or disclose any such information in any manner except to the extent that such use or disclosure may be necessary for the performance of services or the Work under this Contract. Upon completion of the Project, or at any time requested by the Authority, the Contractor shall return to the Authority all such information, including any copies made thereof by the Contractor (provided, however, that the Contractor, and each Subcontractor holding a subcontract with the Contractor, may retain one file copy of all drawings, Specifications, Addenda, Change Orders, Supplemental Agreements and like items relevant to their portion of the Work).

The term "Confidential Information" as used herein means information, data and experience of the Authority relating to the Project, whether of a technical, engineering, security, operational or economic nature, supplied to or developed or obtained by the Contractor, in writing, orally, or by observation (and, without limitation, includes all materials and information referenced above), except information that becomes known to the public at large through general publication by the Authority. The Contractor agrees:

(a) To make no use whatsoever of the Confidential Information except for the direct benefit of the Authority and accordingly, without limiting the generality of the foregoing, not to use such Confidential Information in connection with any other work performed by the Contractor either for itself or for any other person or entity;

(b) Not to reveal any Confidential Information to third parties (excepting disclosures to Subcontractor to the extent necessary for the performance of work under this Contract), and accordingly, without limiting the generality of the foregoing, not to supply any such Confidential Information to any prospective customer of the Contractor;

(c) To keep all such Confidential Information strictly secret and confidential and to that end, without limiting the generality of the foregoing, to cause all written material relating to or containing such Confidential Information, including all sketches, drawings, reports and notes, and all copies, reproductions, reprints and translations, to be plainly marked to indicate the secret and confidential nature thereof and to prevent unauthorized use or reproduction;

(d) To take reasonable precautions in order that the secrecy of such Confidential Information is preserved among the Contractor's employees having access to any portion of such Confidential Information, and to assume the responsibility that such employees will preserve the secrecy of such Confidential Information with respect to third parties; and

(e) Except as otherwise provided herein, to return all written material of the type described within this Subsection to the Authority.

The Authority specifically prohibits the photographing of any portion of the Work by the Contractor for publicity or advertising or for any other purpose without the written consent of the Authority.

The Contractor shall not release information on the Project or the subject matter of this Contract to the public without the written consent of the Authority. The Contractor shall not use the name or marks of the Authority without express written authorization by the Authority.

107.16 Equal Employment. The Contractor and all Subcontractors of any tier shall maintain employment policies as follows: the Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, disability or age. The Contractor and all Subcontractors shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, national origin, disability or age. Such policies shall be applicable to employment, upgrading, demotion or transfer, recruitment or recruitment advertisement, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor and each Subcontractor shall post in conspicuous places, available to employees and applicants for employment, notices setting forth its policies on non-discrimination. The Contractor and all Subcontractors shall, in all solicitations or advertisements for employees placed by them, or on their behalf, state that all qualified applications will receive consideration for employment without regard to race, religion, color, sex, national origin, disability or age.

107.17 Labor Relations. The Contractor shall perform the Work, whether at the Project site or elsewhere, at all times with a sufficient work force to carry out the Contractor's obligations in full force, in an efficient and timely manner, and in accordance with the agreed upon Project schedule. The Contractor shall only permit the Work to be performed by fully competent, skilled and responsible workers, all of whom shall work in harmony with other workers performing labor or services at the Project. The Contractor shall use its best efforts not to employ or permit the employment of any labor or sublet any portion of the Work to any Subcontractor if such employment or allocation is likely to cause strikes, work stoppages, delays, suspension of work or other interference with the smooth progress of the Work under the Contract Documents or other Work being performed on the Project by union or non-union labor. Should a labor dispute occur, the Authority shall have the right to initiate and maintain proceedings with any appropriate agency or administrative body or in any court of competent jurisdiction or to direct the Contractor to promptly take all such action as may be necessary or appropriate as a consequence of the labor dispute. If delay occurs as a result of such labor dispute, then the Contractor, to the fullest extent permitted by law, shall indemnify, defend and hold harmless the Authority from all claims, damages, losses and expenses (including reasonable attorneys' fees and disbursements) arising out of or resulting from the concerned labor dispute.

Further, upon the occurrence of a labor dispute which threatens adversely to affect the progress or cost of the Work, the Authority reserves the right (i) to suspend the Work of the Contractor or to direct the suspension of the Work of any Subcontractor of any tier or (ii) in the Authority's sole discretion and without prejudice to any other remedies it may have to terminate the Contract, or (iii) to direct the Contractor to terminate any subcontract, upon forty-eight (48) hours prior written notice to the Contractor. Such suspension or termination shall be deemed (i) in the case of any Subcontractor of any tier, to be for "cause" (whether or not the particular Subcontractor is directly involved in the concerned labor dispute) and (ii) in the case of the Contractor, to be for "cause" if the Contractor shall not have used reasonable care to avoid, terminate or control the labor dispute or is otherwise in default of its obligations hereunder. The Contractor shall cause the provisions of this subparagraph to be inserted in substantially the same form in all subcontracts to the end that the Authority and the Contractor shall have the rights herein set forth with respect to each Subcontractor of any tier.

107.18 Security. The Contractor will be required, at no cost to the Authority, to comply with current Authority Contractor Personnel and Vehicle Identification Card issuance/wear/display/turn-in policies. All Contractor personnel, including Subcontractors and materialmen, will be required to wear Authority-issued picture Contractor identification cards in a visible manner while working on Authority premises. In addition, Contractor's vehicles will be required to display in a visible and approved manner an Authority issued vehicle permit. At the conclusion of services rendered, all Authority-issued Contractor identification cards and vehicle permits must be turned back in to designated Authority personnel before final contract payment can be made. Liquidated damages of five hundred dollars (\$500.00) per Identification Card will be assessed for every Identification Card not turned in to the Authority upon request. All Contractor personnel and equipment are subject to search at any time while on the Authority's premises. The Contractor may be required to conduct security and background checks on its employees, Subcontractors and materialman if requested by the Authority.

The Contractor may be required, at no cost to the Authority, to comply with all of the Transportation Worker Identification Credential (TWIC) requirements pursuant to COMDTPUB 16700.40 Navigation and Vessel Inspection Circular 03-07 at all times while work is progressing on this Contract.

If TWIC regulations are applicable to the Project, the Authority will not be providing any TWIC escort services for work on the Contract. The Contractor will be required to submit a TWIC plan at the same time as the proposed project schedule is submitted. The TWIC plan must identify the total number of workers who will be performing work on this Contract and the number of TWIC card holders that will be required to maintain the appropriate TWIC ratio for the Contractor to perform its duties under the Contract unescorted. The Contractor will be required to submit a photocopy of the front side of the TWIC card for every person who will be required to have one while the Work is in progress. The Contractor will not be provided with the Notice to Proceed until the TWIC requirements have been received and approved by the Project Engineer.

The Contractor will be responsible for any and all fines incurred due to any and all violation(s) of the TWIC regulations by any and all of the Contractor's employees, agents or Subcontractors performing Work under this Contract.

Section 108 - Prosecution and Progress

- 108.01** Subletting of Contract
- 108.02** Notice to Proceed
- 108.03** Performance and Progress
- 108.04** Progress Schedules
- 108.05** Traffic Requirements and Contractor's Operations
- 108.06** Character of Workers and Equipment
- 108.07** Extension of Contract Time
- 108.08** Failure to Complete on Time
- 108.09** Schedule of Liquidated Damages
- 108.10** Default of Contract
- 108.11** Termination of Contract
- 108.12** Termination of Contractor's Responsibility

108.01 Subletting of Contract. Only the Awarded Contract Value and the value of subcontracted Work approved by the Authority will be used to compute the percentage of subcontracted Work.

The Contractor shall at all times and in all respects be the party primarily responsible to the Authority for the performance of the Contract. The Contractor shall not sell, transfer, assign or otherwise dispose of to anyone, his, her or its obligations to the Authority.

Except by special written consent of the Authority to do otherwise, the Contractor shall perform with his, her or its own organization and with the assistance of workmen under his, her or its immediate supervision, Work of a value of not less than thirty percent (30%) of the Awarded Contract Value for the Contract.

A Contract Award shall not be construed to be an approval of any subcontract, supply contract or any associated terms. The Subcontractor agrees, as a condition of entering into a subcontract on the Project, that he, she or it shall make no claim whatsoever against the Authority or its commissioners, officers, servants, agents or employees for any Work performed or thing done by reason of said subcontract or for any other cause whatsoever that may arise by reason of the relationship created between the Contractor and Subcontractor by the subcontract. The Authority will not consent to the making of any subcontract unless the proposed Subcontractor furnishes a statement to the effect that said Subcontractor is acquainted with all the provisions of the Contract and agrees thereto.

The Contractor shall, in all events, be responsible for all acts or omissions of any Subcontractor and shall be liable for all damage caused by the acts or omissions of any Subcontractor.

108.02 Notice to Proceed. Following the Contract execution, the Engineer may schedule a preconstruction meeting. Prior to the preconstruction meeting, the Contractor shall submit the progress schedule per Subsection 108.04. The Engineer will issue to the Contractor a Notice to Proceed which will stipulate the date on or before which the Contractor is expected to begin Work. The date specified in the Notice to Proceed will be at least ten (10) Calendar Days subsequent to the date of issuance of the Notice to Proceed. No Work is to be started before receipt of the Notice to Proceed. The specified Contract Time shall begin on the Day the Work actually starts or on the date stipulated in the Notice to Proceed, whichever is earlier.

108.03 Performance and Progress. The Contractor shall begin Work no later than the date stipulated in the Notice to Proceed.

Contract Time will begin as specified in Subsection 108.02 and continue each and every day shown on the calendar until the final acceptance by the Authority. Work shall be accomplished during the standard five (5) day work week, Monday through Friday, excluding Holidays, unless otherwise approved by the Engineer. Contractor shall submit a written request to the Engineer for approval to work on Saturdays, Sundays and/or Holidays. Such request shall be made at least three (3) weekdays prior to the Saturday, Sunday or Holiday for which permission to work is requested.

The Contractor shall be required to mobilize his, her or its forces and Equipment and schedule his, her or its work such that Work will be prosecuted on a full-time basis. If the Contractor is approved to work at night, then he, she or it shall supply lighting at no additional cost to the

Authority. The level of noise at night shall not exceed forty (40) decibels at the Authority's property line.

The Contractor's work schedule shall include all multiple shifts or weekend operations necessary to complete the Work on time. The schedule shall be submitted to the Authority for approval. If the Authority finds the schedule in conflict with operations or safety, the Contractor shall modify the schedule to concur with the Authority's directives.

The Contractor shall prosecute the Work with such forces, Materials and Equipment as the Authority considers necessary in order to complete the Work within the prescribed Contract Time. Whenever either the working force or the Equipment is, in the opinion of the Authority, inadequate or insufficient to insure completion within said Contract Time, the Authority may order the Contractor to correct the deficiency and the Contractor shall comply with such order.

The Work shall proceed to completion without interruption, except as provided in Subsection 104.07.

The Contractor shall be responsible for promptly reporting to the Authority any material omission or failure on the part of the Contractor, any Subcontractor or any supplier to meet its schedule for completion or to perform its duties or responsibilities in connection with the Project, as the same are observed by or otherwise become known to the Contractor. The Contractor shall also advise the Authority of any potential delays that may affect the ultimate completion of the Project on schedule, and shall make recommendations to the Authority, if necessary, as to the action to be taken to alleviate any potential delays.

108.04 Progress Schedules. The Contractor shall provide a Critical Path Method ("CPM") schedule (developed on scheduling software, such as Gantt, Primavera or other Authority approved scheduling software) showing the bar chart and the critical path for each of the individual items of the Contract. The CPM schedule shall show all major activities of Work and their relationships to each other. The CPM schedule shall be submitted to the Engineer within ten (10) Days of receipt of the fully executed Contract and a minimum of two (2) weeks before Work commences. The schedule shall show that the Work can be completed within the time allotted. If the schedule is rejected or needs to be revised, the Contractor shall have seven (7) Days to complete/submit a new schedule. A Notice to Proceed will not be issued until the Contractor's baseline CPM schedule is approved by the Engineer. The Contractor shall adhere to the schedule unless written approval is given by the Engineer.

The Contractor will be required to have a representative attend the Authority's weekly progress meetings to report on progress with respect to the schedule, including the Work completed and the Work remaining for the Contract. At these meetings, Work will be forecasted three weeks in advance.

For payment, an updated CPM schedule will be required on a monthly basis. Payment for the Contractor's Work will be predicated upon receipt of the updated schedule.

The Contract duration, prepared by the Authority, accounts for adverse weather days. The Contractor shall take into account adverse weather days as part of his, her or its CPM schedule(s) submission. The number of adverse weather days shall be clearly indicated in the Contractor's CPM schedule. No consideration for time extension shall be given for adverse weather.

An adverse weather day is defined as daily precipitation equal to or exceeding ¼ inch and/or maximum daily temperature not exceeding 32°F as reported by the New Castle Airport.

It is the Contractor's responsibility to provide the manpower, Materials and Equipment necessary to complete the Work in the prescribed time frame as directed in this Contract.

The Contractor's schedule shall reflect the Authority's concern regarding the duration of lane closure time for all areas. The Engineer's decision regarding the duration of each lane closure is final.

If the Contractor fails to submit his, her or its schedule on the dates set forth or does not adhere to the schedule (except for inclement weather or changes approved by the Engineer), the Authority will hire a consultant to produce a schedule as specified above and will deduct the cost from the monies due to the Contractor.

108.05 Traffic Requirements and Contractor's Operations. The Contractor shall conduct Work at all times in such a manner and in such sequence as will ensure the least interference with traffic. The Contractor shall give due regard to the location of detours and to the provisions for handling traffic. The Contractor shall not open up Work to the prejudice or detriment of Work already started, and the Engineer may require the Contractor to finish a section on which the Work is in progress before Work is started on any additional sections.

108.06 Character of Workers and Equipment. The Contractor shall employ only competent and efficient persons. Whenever, in the opinion of the Engineer, any employee is careless or incompetent, obstructs the progress of the Work, acts contrary to instructions of the superintendent or foreman, or conducts him or herself improperly, the Contractor shall, upon the request of the Engineer, discharge the employee from the Work and shall not again employ that person on the Contract or any other contract for the Authority, except with the written consent of the Engineer.

All machinery and Equipment owned or controlled by the Contractor that is proposed to be used by the Contractor on the Work shall be of sufficient size and capacity and such mechanical condition as to meet the requirements of the Work and to produce a satisfactory quality of Work. Equipment used on any portion of the Project shall be such that no injury to the Roadway, adjacent property or other highways results from its use.

Only equipment in good and proper working condition shall be used on the Project. Sufficient and adequate equipment shall be used to produce a satisfactory quality of work and to insure the completion of the Project within the time specified. The measure of the capacity and efficiency of machinery and Equipment shall be its actual performance on the Work. The Equipment shall be operated so as not to damage public or private property. When a specific type or character of Equipment is called for, it shall be provided and used. All Equipment shall be subject to the approval of the Authority.

If the Contractor or his, hers or its Subcontractors do not own all or part of the equipment required, a written statement shall be submitted by the Contractor or his, hers or its Subcontractors, respectively, containing the name and address of the owner or owners, stating that an agreement has been made to lease or loan the equipment and that in event of default, as set forth in Subsection 108.10, the Authority has the right to take over and use such equipment or cause it to be used for completing the Project.

When methods and/or Equipment to be used by the Contractor in accomplishing the construction are not prescribed in the Contract, the Contractor is free to use any methods and/or Equipment that it demonstrates to the satisfaction of the Engineer will accomplish the Contract Work in conformity with the requirements of the Contract.

When the Contract specifies that the construction be performed by the use of certain methods and/or Equipment, such methods and/or Equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method and/or type of Equipment other than those specified in the Contract, the Contractor may request authority from the Engineer to do so. The request shall be in writing and shall include a full explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing construction Work in conformity with Contract requirements. If, after trial use of the substituted methods and/or Equipment, the Engineer determines that the Work produced does not meet the Contract requirements, the Contractor shall discontinue the use of the substitute method and/or Equipment and shall complete the remaining construction with the specified methods and/or Equipment.

The Contractor shall remove the deficient Work and replace it with Work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made to the Unit Price for the Contract Items involved, or in Contract Time, as the result of authorizing a change in methods and/or Equipment under these provisions unless it is as a credit or a VEP.

All Equipment shall be subject to the approval of the Authority.

108.07 Extension of Contract Time. Extension of time(s) stipulated in the Contract for completion of the Project or portions thereof will be made if and as the Authority may deem proper, when such an extension of time is granted under the terms of a Change Order or Supplemental Agreement, when the Work is suspended as provided in Subsection 104.07, or when the Work of the Contractor is delayed on account of conditions, other than daily weather conditions, which in the opinion of the Authority warrant such extension; provided, however, that no extension on account of delay will be granted unless notice of such delay and of the Contractor's intention to claim an extension of time be given to the Authority, in writing, within seven (7) Calendar Days after the beginning of such delay, said notice giving complete information of the nature, cause and probable extent of the delay.

Extensions of time shall be binding only when issued in writing by the Authority.

No extension of time will be granted by reason of labor disputes to the extent that such disputes could reasonably have been avoided by appropriate scheduling of Subcontractors, trades or the like at the Project site, appropriate action for the establishment of multiple gating at the Project site, recourse to the NLRB or appropriate judicial action to restrain labor disturbances, or other control procedures normally employed by construction managers or Contractors in the management of "merit shop" projects in the state of Delaware.

No consideration for time extension shall be given for adverse weather.

108.08 Failure to Complete on Time. All work under the Contract shall be completed within the duration prescribed in the Special Provisions. In addition, interim completion requirements may also be given for various portions of the Work. The Contractor shall arrange to provide sufficient workmen, Equipment and Materials and to prosecute the Work in such sequence as

will insure completion thereof within the duration(s) stated. For each Calendar Day that Work remains uncompleted after the Contract Time has expired or beyond the completion date established by the Contract, the sum specified in Subsection 108.09 will be deducted from any money due the Contractor. This sum shall not be considered and treated as a penalty but as Liquidated Damages due the Authority by reason of inconvenience to the public, added cost of engineering and supervision, and other extra expenditures of public funds due to the Contractor's failure to complete the Work on time. Any adjustment of the Contract Time for completion of the Work granted under Subsection 108.07 will be considered in the assessment of Liquidated Damages. Each and every consecutive Calendar Day, including Saturdays, Sundays, and Holidays, shall be included in the computations for the assessment of Liquidated Damages.

The Contractor shall become liable for Liquidated Damages for delays commencing from the date on which the Contract Time, as adjusted by Subsection 108.07, shall expire.

Permission for the Contractor or Surety to continue and finish Work after the Contract Time and approved extensions have elapsed shall not waive the Authority's rights under the Contract.

The Authority may waive such portions of the Liquidated Damages as may accrue after the Work is substantially complete and is in a condition for safe and convenient use by the traveling public.

Payment of Liquidated Damages will be deducted from payments otherwise due the Contractor or be made by direct payment by the Contractor in the event the total Liquidated Damages due exceed said deductions.

The Contractor shall arrange to provide sufficient workmen, Equipment and Materials and to prosecute the Work in such sequence as will insure completion thereof within the time or times stated.

108.09 Schedule of Liquidated Damages. Liquidated Damages will be as defined in the contract Supplemental Specifications and/or the Special Provisions. In addition, Liquidated Damages of Five Hundred Dollars (\$500.00) per Identification Card will be assessed for every Authority issued Identification Card lost or not turned in to the Authority upon request or Contract closeout.

108.10 Default of Contract. The Contractor may be declared in default if, in the opinion of the Authority, any one or more of the following conditions is found to exist:

- A. The Contractor fails to begin the Work within the time specified in the Notice to Proceed.
- B. The Contractor fails to perform the Work at a satisfactory rate of progress or with sufficient labor, Equipment, and Material resources to ensure the prompt completion of the Work in accordance with the approved Schedule of Work.
- C. The Contractor's Work is unacceptable, or if the Contractor refuses to remove Materials or perform any such Work as shall be determined by the Engineer to be defective or otherwise unacceptable Work, or if the Contractor is willfully violating any of the covenants of the Contract.
- D. The Contractor discontinues the prosecution of the Work or fails to resume the Work which has been discontinued.

E. The Contractor becomes insolvent, declares bankruptcy, commits any acts of bankruptcy or insolvency, or allows any final judgment to stand unsatisfied for a period of more than forty-eight (48) hours.

F. The Contractor makes an assignment for the benefit of creditors without authorization by the Authority.

G. For any other cause whatsoever, fails to carry on the Work in a manner acceptable to the Authority.

In such event, the Executive Director will so certify to the Chairperson and the Chairperson may provide written notification to the Contractor and Surety declaring the Contractor in default on the Contract and notify the Contractor to discontinue the Project. The Chairperson may then call on the Surety to complete the Project or may complete it by other means as the Chairperson may elect. The Authority may take over any working site procured by the Contractor and may use Materials and Equipment at the site of the Project and other Equipment used elsewhere for the Project at the time of the default and may procure other Materials, Equipment and all else necessary for the completion of the Project. The Authority will recover the cost of finishing the Work of the original Contract, over and above the cost thereof at the original bid prices, by deducting the amount thereof from any monies due or which may become due the Contractor under the Contract and, when such monies are insufficient to pay said cost, the amount of said cost in excess of such monies shall be paid by the Contractor or the Surety.

108.11 Termination of Contract. The Authority may, by written order to the Contractor, terminate the Contract or any portion of the Contract when such termination would be in the best interest of the Authority. In the event such termination occurs without fault and for reasons beyond the control of the Contractor, all completed items as of the date of termination will be paid for at the applicable Unit Price. Payment for partially completed and eliminated Work will be paid for as provided in Subsection 109.06.

Acceptable Materials obtained by the Contractor for the Work but which have not been incorporated therein may, at the option of the Authority, be purchased from the Contractor at actual cost delivered to a prescribed location, or otherwise disposed of as mutually agreed.

After receipt of notice of termination from the Authority, the Contractor shall submit, within sixty (60) Days of the effective termination date, its claim for additional damages or costs not covered above or elsewhere in these Specifications. Such claim may include such cost items as reasonable idle equipment time, mobilization efforts, uncompensated bidding and project investigation costs, overhead expenses attributable to the Project terminated, legal and accounting charges involved in claim preparation, Subcontractor costs not otherwise paid for, actual idle labor costs if work is stopped in advance of the termination date, guaranteed payments for private land usage as part of the original Contract, and any other cost or damage item for which the Contractor feels reimbursement should be made. The intent of negotiating this claim would be that an adjusted figure be reached with the Contractor. In no event, however, will loss of anticipated profits be considered as part of any settlement.

The Contractor agrees to make its cost records available to the extent necessary to determine the validity and amount of each item claimed.

Termination of the Contract or any portion thereof shall not relieve the Contractor of its contractual responsibilities for the Work completed, nor shall it relieve the Surety of its obligation for and concerning any just claim arising out of the Work performed.

108.12 Termination of Contractor's Responsibility. When all of the Work included in the Contract has been finally accepted by the Authority, the Contractor shall be released from all further obligations and responsibility except as set forth and provided in Subsection 105.20, Subsection 107.03, Subsection 107.10, Subsection 107.14, Subsection 109.09 and any applicable provisions in the Special Provisions.

Section 109 - Measurement and Payment

109.01 Measurement of Quantities

109.02 Scope of Payment

109.03 Compensation for Altered
Quantities

109.04 Payment for Differing Site
Conditions, Major Changes, Extra
Work and Force Account

109.05 Basis of Payment for Fixed
Quantity Items

109.06 Eliminated Items

109.07 Partial Payment

109.08 Payment for Material

109.09 Retainage of Funds

109.10 Final Payment

109.11 Source of Supply and Carrier Rates
on Construction Materials

109.12 (Intentionally Omitted)

109.13 (Intentionally Omitted)

109.01 Measurement of Quantities. Work completed under the Contract will be measured by the Engineer according to the United States customary units (English units).

Unless stated otherwise, all Material that is to be measured by weight shall be measured as follows:

- A. The weight of each load shall be determined by weighing each loaded truck or other approved hauling equipment and then deducting the tare weight of the truck or hauling equipment. The tare weight shall be checked once daily, or as often as directed by the Engineer. Appropriate adjustments shall be made in the use of the tare weight as directed by the Engineer. Weight tickets shall be computer generated.
- B. The scale platform shall be of such length and width that it will conveniently accommodate all trucks and other approved hauling equipment. The entire vehicle, including its load, must rest on the scale platform and be weighed as one unit.
- C. Scales will be certified by the State sealer of weights and measures.
- D. Weight tickets showing a net weight of each load of Material delivered to the Project will be signed by an Inspector.

A station when used as a definition or term of measurement will be one hundred (100) linear feet.

Areas of Work shall be measured in the field based on the Work actually completed. No payment will be made for Work beyond the Limits of Construction or limits of disturbance as prescribed in the Contract. All longitudinal measurements for area of pavement will be made along the actual surface of pavement and not horizontally, unless otherwise specified.

Unless otherwise specified, when measuring areas no deductions will be made for individual fixtures (such as manholes, utility poles, etc.) having an area of nine (9) square feet or less.

Structures shall be measured according to neat lines shown in the Contract.

In computing volumes of excavation or embankment, the average end area method will be used.

For items measured by linear foot, such as pipe, culverts, guardrails, underdrains, etc., take measurements parallel to the base or foundation upon which such structures are placed.

The term "ton" means the short ton consisting of 2000 pounds avoirdupois. The Contractor shall weigh all Material measured by weight or proportioned by weight on accurate, approved scales using competent, qualified personnel at locations designated by the Engineer. If Materials are shipped by rail, the car weight may be

accepted, provided that only the actual weight of Materials is paid for. However, car weights will not be acceptable for Material to be passed through mixing plants. Trucks used to haul Material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

When requested by the Contractor and approved by the Engineer in writing, Material specified to be measured by the cubic yard may be weighed and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon.

Volumes will be measured at 60°F or will be corrected to the volume at 60°F using ASTM D 1250 for asphalt or ASTM D 633 for tars.

When bituminous materials are shipped by truck or transport, net certified weights or volume subject to correction for loss or foaming may be used for computing quantities.

Cement will be measured by the pound.

Unless otherwise specified, timber will be measured by the actual thousand feet board measure (MFBM) incorporated into the structure.

When a complete structure or structural unit (in effect, "Lump Sum" Work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

In computing tonnage, certified freight weigh-bills or certified weigh-slips will be used.

Measurement of other quantities not covered by the above requirements will be determined by the Engineer in accordance with recognized engineering practice.

When the Project is completed, the authorized quantities of the various items scheduled in the Contract and placed in the Project will be measured. When these quantities are greater or less than the corresponding estimated quantities stated in the Bid, Change Orders will be issued by the Authority to cover the difference between estimated and actual quantities and no payment will be made for work done in excess of the quantities stated in the Bid until such Change Orders have been issued and approved.

109.02 Scope of Payment. The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all Materials and for performing Work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of every kind arising out of the nature of the Work or the performance thereof, and for any additional expenses on account of unforeseen difficulties encountered, for all expenses incurred in consequence of the suspension or discontinuance of the Work, for settlement of claims and for replacement of defective Work and Materials for one (1) year after acceptance of the Project by the Authority as provided in Subsection 105.20 and subject to the provisions of Subsection 107.13.

If the "Basis of Payment" clause relating to any Unit Price in the Contract requires that the Unit Price cover and be considered compensation for certain Work or Materials essential to a Contract Item, this same Work or Material will not be measured or paid for under any other Pay Item appearing in the Contract.

Under any section or item included in the Contract, the Contractor shall be aware that when requirements, responsibilities, and furnishing of Materials are outlined in the details and notes on the Plans and in the paragraphs preceding the "Basis of Payment" paragraph in these Specifications, no interpretation shall be made that there is an exclusion from payment because reiteration is not made in the "Basis of Payment" paragraph.

The Contractor shall execute Contractor's Release of Liens and a Maintenance Bond and submit executed documents before final payment is made.

109.03 Compensation for Altered Quantities. When the accepted quantities of Work vary from the quantities in the Contract, the Contractor shall accept payment at the original Contract Unit Prices for the accepted quantities of Work done. No allowance will be made for any increased cost, except as provided in Subsections 104.05, 104.06, 104.07, and 108.11.

109.04 Payment for Differing Site Conditions, Major Changes, Extra Work, and Force Account. Differing site conditions, changes, and extra Work performed under Section 104 will be paid for using the following methods as appropriate:

- A. Contract Unit Prices.
- B. Unit Prices agreed upon in the Change Order authorizing the Work.
- C. A lump sum amount agreed upon in the Change Order authorizing the Work.
- D. If directed by the Authority, Work performed on a Force Account basis is to be compensated in the following manner, except as further provided in Subsection 105.21:
 - 1. Labor. For all necessary labor and foremen in direct charge of the specific operations, whether the employer is the Contractor, Subcontractor, or another entity, the Contractor shall receive the rate of wage (or scale) actually paid as shown in its certified payrolls for each and every hour that said labor and foremen are actually engaged in

such Work, but excluding wages and salaries paid to other personnel engaged in superintendence of the Work.

The Contractor shall receive the actual costs paid to, or on behalf of, workers by reason of health and welfare benefits or other benefits, when such amounts are required by collective bargaining agreements or other employment contracts generally applicable to the classes of labor employed in the Work.

2. Bond, Insurance, and Tax. For bond premiums, property damage, liability, and workers compensation insurance premiums, unemployment insurance contributions, and social security taxes on the Force Account Work, the Contractor shall receive the actual incremental cost thereof, necessarily and directly resulting from the Force Account Work. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance, and tax.
3. Materials. The Authority reserves the right to furnish such Materials as it deems advisable, and the Contractor shall have no claims for costs and markup on such Materials.

Only Materials furnished by the Contractor and necessarily used in the performance of the Work will be paid for. The cost of such Materials shall be the cost to the purchaser, whether Contractor, Subcontractor, or other forces from the supplier thereof, together with transportation charges actually paid by the purchaser, except as the following are applicable:

- a. If a cash or trade discount by the actual supplier is offered or available to the purchaser, it shall be credited to the Authority notwithstanding the fact that such discount may not have been taken.
- b. If Materials are procured by the purchaser by any method which is not a direct purchase from a direct billing by the actual supplier to such purchaser, the cost of such Materials is the price paid to the actual supplier as determined by the Engineer plus the actual costs, if any, incurred in the handling of such Materials.
- c. If the Materials are obtained from a supply or source owned wholly or in part by the purchaser, the cost of such Materials shall not exceed the price paid by the purchaser for similar Materials furnished from said source on items or the current wholesale price for such Materials delivered to the job site, whichever price is lower.
- d. If the cost of such Materials is, in the opinion of the Engineer, excessive, then the cost of such material is deemed to be the lowest current wholesale price at which such Materials are available in the quantities concerned delivered to the Project site, less any discounts as provided in subpart D.3.a. above.

e. If the Contractor does not furnish satisfactory evidence of the cost of such Materials from the actual Supplier thereof, the cost will be determined in accordance with subpart D.3.d. above.

f. For all Materials not incorporated into the permanent construction but necessarily involved in the performance of the Work, the Contractor shall receive an amount equal to the actual cost of such Materials, less a reasonable allowance for the salvage value of such Materials when they are no longer required for the performance of the Work. (Fuels and lubricants consumed by Equipment shall be included in the Rental Value and Rental Costs described below.)

4. Equipment and Plant.

a. Contractor-Owned Equipment and Plant. The hourly rates for Contractor-owned Equipment and plant will be determined from the applicable volume of the Blue Book.

The Blue Book will be used in the following manner:

1. The hourly rate will be determined by dividing the monthly rate by 176. The weekly, hourly, and daily rates will not be used.
2. The number of hours to be paid will be the number of hours that the Equipment or plant is actually used on a specific Force Account activity.
3. The current revisions will be used in establishing rates. The current revision applicable to specific Force Account Work is as of the first day of Work performed on that Force Account Work, and such rate applies throughout the period the Force Account Work is being performed.
4. An area adjustment will be made. Equipment life adjustment will be made in accordance with the rate adjustment tables. Overtime shall be charged at the same rate indicated in (1) above.
5. The estimated operating costs per hour will be used for each hour that the Equipment or plant is in operation on the Force Account Work. Such costs do not apply to idle time regardless of the cause of the idleness.
6. Idle time for Equipment will not be paid for, except where the Equipment has been held on the Project site on a standby basis at the request of the Engineer and, but for this request, would have left the Project site. Such payment will be made at one-half the rate established in subparts D.1. and D.4. above.

7. The rates established above include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals.
8. Operator costs are not included in this hourly rate for the Equipment.

All Equipment shall, in the opinion of the Engineer, be in good operating condition. Equipment used by the Contractor shall be specifically described and be of suitable size and suitable capacity required for the Work to be performed. In the event the Contractor elects to use Equipment of a higher rental value than that suitable for the Work, payment will be made at the rate applicable to the suitable Equipment. The Engineer will determine the suitability of the Equipment. If there is a differential in the rate of pay of the operator of oversize or higher rate Equipment, the rate paid for the operator is to be that for the suitable Equipment.

In the event that a rate is not established in the Blue Book for a particular piece of Equipment or plant, the Engineer will establish a rate for that piece of Equipment or plant that is consistent with its cost and use in the industry.

The above provisions apply to the Equipment and plant owned directly by the Contractor or by entities which are divisions, affiliates, subsidiaries, or in any other way related to the Contractor or its parent company.

- b. Rented Equipment and Plant. In the event that the Contractor does not own a specific type of Equipment and must obtain it by rental, the Contractor shall inform the Engineer of the need to rent the Equipment and of the rental rate for that Equipment prior to using it on the Work. The Contractor will be paid the actual rental rate for the Equipment for the time that the Equipment is actually used to accomplish the Work, provided that rate is reasonable, plus the cost of moving the Equipment on to and away from the job. The Contractor shall provide a copy of the paid receipt or canceled check for the rental expense incurred.
5. Miscellaneous. No allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

6. Profit. Profit shall be computed at five percent (5%) of the following:
 - a. Total Material cost (bare cost not including shipping or freight charges).
 - b. Total direct labor cost (actual hours worked multiplied by regular hourly rate and benefits), as provided by Subsection 109.04 subpart D.1.
7. Overhead. Overhead is defined to include the following:
 - a. All salaries and expenses of executive officers, supervising officers, or supervising employees and all home office expenses;
 - b. All salaries of clerical or stenographic employees;
 - c. All charges for minor Equipment, such as small tools, including shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, and other miscellaneous supplies and services; and
 - d. All drafting room accessories such as paper, tracing cloth, and blueprinting.

Overhead costs for Force Account Work shall be computed at ten percent (10%) of the following:

- e. Total Material cost (bare cost not including shipping or freight charges).
 - f. Total direct labor cost (actual hours worked multiplied by the regular hourly rate) and benefits as provided by Subsection 109.04 subpart D.1.
 - g. Total Equipment cost.
 - h. Specific extraordinary overhead expenses, such as the hiring of additional supervisory personnel or the use of special types of minor Equipment (as defined above), which the Contractor has to purchase specifically for the Force Account, may be allowed. In such instances, the Contractor will be paid only the reasonable costs of such extraordinary overhead expenses, provided the Engineer has agreed to such costs prior to their being incurred.
8. Subcontracting. For administration costs in connection with approved subcontract Work, the Contractor shall receive an amount equal to five percent (5%) of the total of such Work completed as set forth in subparts D.1. through D.4. above.
 9. Records. The Contractor shall maintain Force Account records in such a manner as to provide a clear distinction between the direct

costs of Work paid for on a Force Account basis and the costs of other operations.

From the above records, the Contractor shall furnish the Engineer completed daily Force Account Work reports for each day's Work to be paid for on a Force Account basis. Said daily Force Account Work reports shall be signed by the Contractor and submitted daily. The daily Force Account Work reports shall be detailed as follows:

- a. Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman.
 - b. Designation, dates, daily hours, total hours, rental rate (including a copy of the Blue Book pages used), and extension for each unit of machinery and Equipment.
 - c. Quantities of Materials, prices, and extensions.
 - d. Transportation of Materials.
 - e. Cost of property damage, liability, and workers compensation insurance premiums; unemployment insurance contributions; bonds; and social security tax.
10. Welfare and Pension Fund (if any). The actual additional amount of contributions paid by the Contractor for the welfare and pension fund of his, her or its employees.
11. Tolls. The actual cost of tolls paid for the Contractor's vehicles necessarily employed in the performance of the Work. Tolls for employees' personal vehicles will not be reimbursed.

Material charges shall be substantiated by valid copies of Supplier invoices. Such invoices shall be submitted with the daily Force Account Work reports or, if not available, they shall be submitted with subsequent daily Force Account Work reports. Should said Supplier invoices not be submitted within sixty (60) Days after the date of delivery of the Material, or within fifteen (15) Days after the completion of the Work, whichever occurs first, the Authority reserves the right to establish the cost of such Materials at the lowest current wholesale prices at which said Materials are available in the quantities concerned and delivered to the location of the Work, less any discounts provided in Subsection 109.04 subpart D.3.a.

The Engineer will compare its records with the completed daily Force Account Work reports furnished by the Contractor and make any necessary adjustments. When these daily Force Account Work reports are agreed upon and signed by both parties, said reports become the basis of payment for the Work performed, but do not preclude subsequent adjustment based on a later audit by the Authority.

The Contractor's cost records pertaining to Work paid for on a Force Account basis

shall be open to inspection or audit by representatives of the Authority as provided in Subsection 105.19 subpart J.

109.05 Basis of Payment for Fixed Quantity Items. When indicated on the Plans or in the Supplemental Specifications or Special Provisions, certain items will be paid for on an estimated fixed quantity item basis. Where this occurs, the method of measurement and basis of payment indicated in these Specifications for such items are deleted.

When estimated fixed quantities are indicated, the only quantities for which payment will be made are the estimated quantities as shown in the Bid at the Unit Prices bid.

The Bidder should check the estimates and make its own appraisal of the amount of labor, Equipment, or Material required to complete the Work in accordance with the Plans and Specifications. No allowance will be made or claims considered for any quantities used in completing the Work in excess of those given in the Bid unless changes due to conditions encountered during construction become necessary and are authorized in writing by the Engineer. In such cases additions or deductions will be made to or from the Bid quantities for the actual volume or amounts charged, with payment adjusted in accordance with the Unit Price of the Contract Item.

If estimated fixed quantity items are deleted completely, no payment will be made.

In cases where a fixed quantity is contested by the Contractor, it shall be the responsibility of the Contractor to provide necessary measurements and computations to support a change in the quantity. If the change is verified and approved by the Engineer, payment will be adjusted in accordance with this Subsection.

In cases where it can be shown that the quantities indicated in the Bid are in error by more than five percent (5%), additions or deductions will be made in excess of or deficient of the five percent (5%), with payment adjusted in accordance with the Unit Price of the item.

109.06 Eliminated Items. Should any items contained in the Contract be found unnecessary for the completion of the Work, the Engineer may, upon written order to the Contractor, eliminate the items from the Contract. The elimination of these items shall not invalidate the Contract. When the Contractor is notified of the elimination of items, the Contractor will be reimbursed for the actual Work done and all actual costs incurred. Reimbursement of Materials actually purchased prior to notification of the elimination of items will be paid for at the actual cost of the Materials plus fifteen percent (15%). Such Materials shall become the property of the Authority. In no event will reimbursement for an eliminated item exceed the extended amount of the Contract Item. Also, in no case will the Contractor be reimbursed for the loss of anticipated profit.

109.07 Partial Payment. Once in each month, the Authority will prepare a certificate showing the approximate quantities of Work done and all Materials furnished but not

incorporated in the Work, up to the date of such certificates and the value of such Work and such Materials. The Authority will retain ten percent (10%) of the value of such Work and twenty percent (20%) of the value of such Materials as security for the fulfillment of the Contract by the Contractor until the completion of the Contract and the Authority will pay monthly to the Contractor while carrying on the Work, the balance not retained as aforesaid after deducting therefrom all previous payments. Provided that the Work is proceeding satisfactorily on the basis of approved construction schedules, the total amount retained in connection with the Work done shall not exceed five percent (5%) of the total value of the Contract; the amount retained in connection with Materials furnished but not incorporated in the Work shall in all cases be twenty percent (20%) of the value of such Materials.

The value of Materials furnished but not incorporated in the Work shall be as determined by the Authority and such value will be included in the monthly certificates only if the Materials have been delivered at or near the site of the Work or in a location approved by the Authority, are properly stored and protected, and have been inspected and approved, and the Contractor has furnished the Authority with satisfactory releases of liens for said Materials.

If it becomes evident, on the basis of approved progress schedules or otherwise, that the completion date for the Contract will not be met, the Authority reserves the right to retain ten percent (10%) of the value of the Work done throughout the entire Contract period and to make additional retention in the amount of the Liquidated Damages which have apparently accumulated.

When the Work of the Contract is being satisfactorily carried to completion within the prescribed time and is substantially completed, the Authority may, in its discretion, reduce the retainage below the amounts set forth above.

The Authority shall have the right to retain out of monies due or to become due the Contractor any amounts claimed by the Authority to be due the Authority from the Contractor, which retainage shall be in addition to any retainage set forth elsewhere.

In the event of any conflicting claim or claims about the right to receive payments which may be or become due from the Authority under the terms of the Contract, the Authority may withhold any or all payments until such dispute or disputes be finally resolved in accordance with Subsection 105.17.

The Authority shall have the right to withhold from monies due or to become due the Contractor an amount sufficient to completely indemnify the Authority against liability resulting from any claims against the Contractor or any Contract claim filed with the Authority.

When the Work is suspended as provided in Subsection 104.07, a semi-final certificate may be made at the discretion of the Engineer. This certificate will show the cost of the Work completed and the estimated cost to complete the Work, based on the Unit Prices bid and the quantities scheduled in the Bid as amended by Change Orders, if any, except that for such parts of the Work that are not fully completed at the time of

suspension of the Work and for that reason are not susceptible to any estimate of cost as above provided, the estimated cost to complete will be determined by the Engineer. When the semi-final certificate is approved, payment will be made to the Contractor in the sum of the cost of the Work completed, after deduction of previous monthly payments on account and deduction of twenty-five percent (25%) of the estimated cost to complete the Work determined, provided, however, that before said payment is made, the following requirements shall be satisfied:

- (a) There shall be no outstanding claims against the Contractor filed with the Authority;
- (b) The Contractor shall have paid all due obligations and shall have furnished, when directed by the Authority, receipted bills or other satisfactory evidence that all obligations incurred by him, her or it and by his, her or its Subcontractors in carrying out the Project have been satisfied;
- (c) The Contractor shall have delivered a bond as specified in Subsection 105.20; and
- (d) The Contractor shall execute and deliver a release substantially in the following form:

“In consideration of the above payment, (I) (we) hereby release The Delaware River and Bay Authority and its officers, agents and employees from all claims, demands and liability of whatsoever nature for anything done or furnished or in any manner growing out of the performance of the Project, except that it is understood that credit will be given in the final certificate for the amount covering twenty-five percent (25%) of the estimated cost to complete the Work, which has been deducted in the semi-final certificate.”

The acceptance by the Contractor of payment of any semi-final certificate shall operate as and shall be a release to the Authority and its agents from all claims of, or liability to, the Contractor for anything done or furnished for or relating to the Project or any act or neglect of the Authority or any person relating thereto, except for the credits specified in the release form hereinabove set forth and except that the Contractor has the right and is obligated to continue and complete the Project when notice to resume has been received by him, her or it.

109.08 Payment for Material. When approved by the Authority, partial estimates may include an allowance for the value of tested and acceptable Materials of a non-perishable or non-contaminative nature which have been produced or furnished in a condition ready for incorporation as a permanent part of Work yet to be completed, provided the following terms and conditions are met:

A. Request. The request for payment allowance for properly stored Materials must be in writing, accompanied by an itemized inventory statement, written consent of the Surety, and an invoice or purchase order on the Supplier’s letterhead documenting the cost of the Materials.

B. Materials. An allowance of eighty percent (80%) of the cost to the Contractor for Materials may be made when such material is delivered and stockpiled or stored in accordance with the requirements specified herein.

Prior to such allowance, all such Material shall have been tested and found acceptable to the Engineer.

Payment shall not be allowed in excess of the quantity required for the Contract. The required quantity shall be based on the Contract bid quantities and approved revisions.

C. Excluded Materials. No allowance shall be made for fuels, form lumber, false-work, temporary structures, or for other Materials of any kind which will not become an integral part of the finished construction.

No allowance shall be made for cement, aggregate, sand, seed, plants, fertilizer, or other perishable or contaminative items, nor for Materials which, in the opinion of the Engineer, have an unacceptable shelf life, environmental, or safety restriction.

D. Storage. All Materials shall be stored in an approved manner and in areas where damage is not likely to occur. The Material stored shall be dedicated to the Project.

When it is determined impractical to store Materials within the limits of the Project, the Engineer may approve the storage of Materials on private property or, for structural members, in the manufacturer's or fabricator's yard. Requests for payment for such Material stored outside the limits of the Project shall be accompanied by a release from the owner and/or tenant of such property or yard agreeing to permit the removal of the Materials from the property without cost to the Authority.

E. Materials Inventory. Materials shall be available for inspection and inventory at the storage site by the Engineer at all times.

F. Materials Measurement and Payment. The method of measurement for Materials shall be in units which are easily inventoried and acceptable to the Engineer. Payment allowance for Materials shall be included in the progress estimate as a new and separate item and shall be subject to retainage provisions. Submit proof of payment to the Engineer prior to processing the next progress estimate in the form of a paid invoice from the Material Supplier. Failure to submit proof of payment prior to the processing of the progress payment will result in the deduction of the applicable Material payment, in its entirety, from progress payments until such time as the proof of payment is received by the Engineer. As the Materials are incorporated in the Project and paid for in place, an equal percentage shall be deducted from progress estimates until one hundred percent (100%) of the allowance has been deducted. At the conclusion of the Work for which the Materials are required, the cost of Materials remaining in storage for which payment allowance has been made will be deducted from the progress estimate.

109.09 Retainage of Funds. Whenever Liquidated Damages are assessable, such damages shall be deducted from the monthly and final estimates. The payment of

any current or final estimate or of any retained percentage shall in no way affect the obligation of the Contractor to repair or renew any defective parts of the construction and to be responsible for all damage due to such defects.

If at any time there is evidence of any lien or claim for which, if established, the Authority might become liable and which is chargeable to the Contractor, the Authority shall have the right to retain out of any payment then due or to become due an amount sufficient to completely indemnify the Authority against such lien or claim. If there should prove to be any such claim after all payments are made, the Contractor shall refund to the Authority all monies that the Authority may be compelled to pay in discharging any lien made obligatory in consequence of the Contractor's neglect or default.

No provision contained in these Specifications shall be construed as creating any debt, liability or obligation on the part of the Authority to any Subcontractor, Supplier, or materialman.

109.10 Final Payment. When all Work required under the Contract has been completed and, in the opinion of the Engineer, is ready for final acceptance by the Authority, a final certificate of cost of the Project will be made by the Authority, based on the actual as-built quantities of authorized Work done under each item scheduled in the Contract (as may have been amended by Change Orders and Supplemental Agreements, if any) at the Unit Price or prices stipulated therein.

When this final certificate is approved, the money due the Contractor for the performance of the Project as determined by said final certificate, after deduction of previous payments on account, will be paid the Contractor, provided however, that before such final payment is made, the following requirements shall be satisfied:

- (a) There shall be no outstanding claims against the Contractor filed with the Authority;
- (b) The Contractor shall have paid all due obligations and shall have furnished, when directed by the Authority, receipted bills or other satisfactory evidence that all obligations incurred by the Contractor and by their Subcontractors in carrying out the Project have been satisfied;
- (c) The Contractor shall have delivered a bond as specified in Subsection 105.20; and
- (d) The Contractor shall execute and deliver a final release substantially in the following form:

"This is to certify that all just liens, claims and demands for labor, Materials and rental of Equipment arising out of the prosecution of the Work under the above-named Contract are fully paid and satisfied and that all of the Work is fully released, freed and discharged from all liens, claims and demands whatsoever, whether just or otherwise of any contractors, subcontractors, materialmen, suppliers, laborers, artisans or architects.

In consideration of the final payment of said Contract, we hereby remise, release and forever discharge The Delaware River and Bay Authority, its commissioners, officers, representatives, employees, agents and servants from all and all manner of actions and cause of actions, suits, debts, accounts, bonds, covenants, contracts, agreements, judgments, liens, demands and liability of whatever nature in law and in equity from anything done or furnished or in any manner growing out of the doing of the Work under this contract, including any and all extra or reduction orders issued thereunder and any agreements supplementary thereto, and anything whether known or unknown, suspected or unsuspected or which we ever had, now have or which our heirs, executors, administrators, successors or assigns shall or may have; and we hereby agree to indemnify and hold harmless The Delaware River and Bay Authority against any and all claims which hereafter may be made or instituted against it by any contractors, subcontractors, materialmen, suppliers, laborers, artisans or architects for the purpose of enforcing a lien, claim or demand arising out of the prosecution of the Work under the above-named contract.”

- (e) The Contractor shall provide the Authority with a list of Subcontractors, materialmen, Suppliers, laborers, artisans or architects who have provided labor, material or services on the credit of the job and as a condition of final payment shall provide the Authority with a sworn, notarized statement by an authorized officer of each Subcontractor, laborer, artisan or architect attesting and certifying that it has been paid all monies due and owing from the contractor and does remise, release and forever discharge the Authority from any and all manner of action, suits, proceedings, deeds, dues, contracts, judgments, damages, claims and demands whatsoever in law and equity arising from said Contract and specifically any right to file a statutory mechanics’ lien. In the case of any person who has filed a mechanics’ lien, the Contractor shall be required to provide a “Discharge of Construction Lien Claim” executed and sworn to and acknowledged under oath by the lien claimant prior to receiving final payment. A form of “Release of Mechanics’ Lien” and a form of “Discharge of Construction Lien Claim” will be provided by the Authority to the Contractor at the time final payment is requested by the Contractor.

Compliance with the provisions of this subparagraph (e) is a matter of administrative convenience. It is the Authority’s position that the property of the Authority, as an agency of the States of Delaware and New Jersey, is not subject to the filing of statutory mechanics’ liens.

The acceptance by the Contractor of payment of the final certificate shall operate as and shall be a release to the Authority and its agents from all claims of or liability to the Contractor for anything done or furnished or omitted to be done, or furnished for or relating to, the Project or any act or neglect of the Authority or any person relating thereto.

109.11 Source of Supply and Carrier Rates on Construction Materials. Bidders must fully inform themselves as to the source of supply of acceptable Materials needed for the Work and in regard to the carrier rates and transportation facilities for these Materials before submitting Bids.

Inability to secure satisfactory Materials from the source upon which the Bid was based, or changes in carrier, or the alteration of transportation facilities for these Materials during the life of the Contract, shall not constitute cause for a claim for extra compensation.

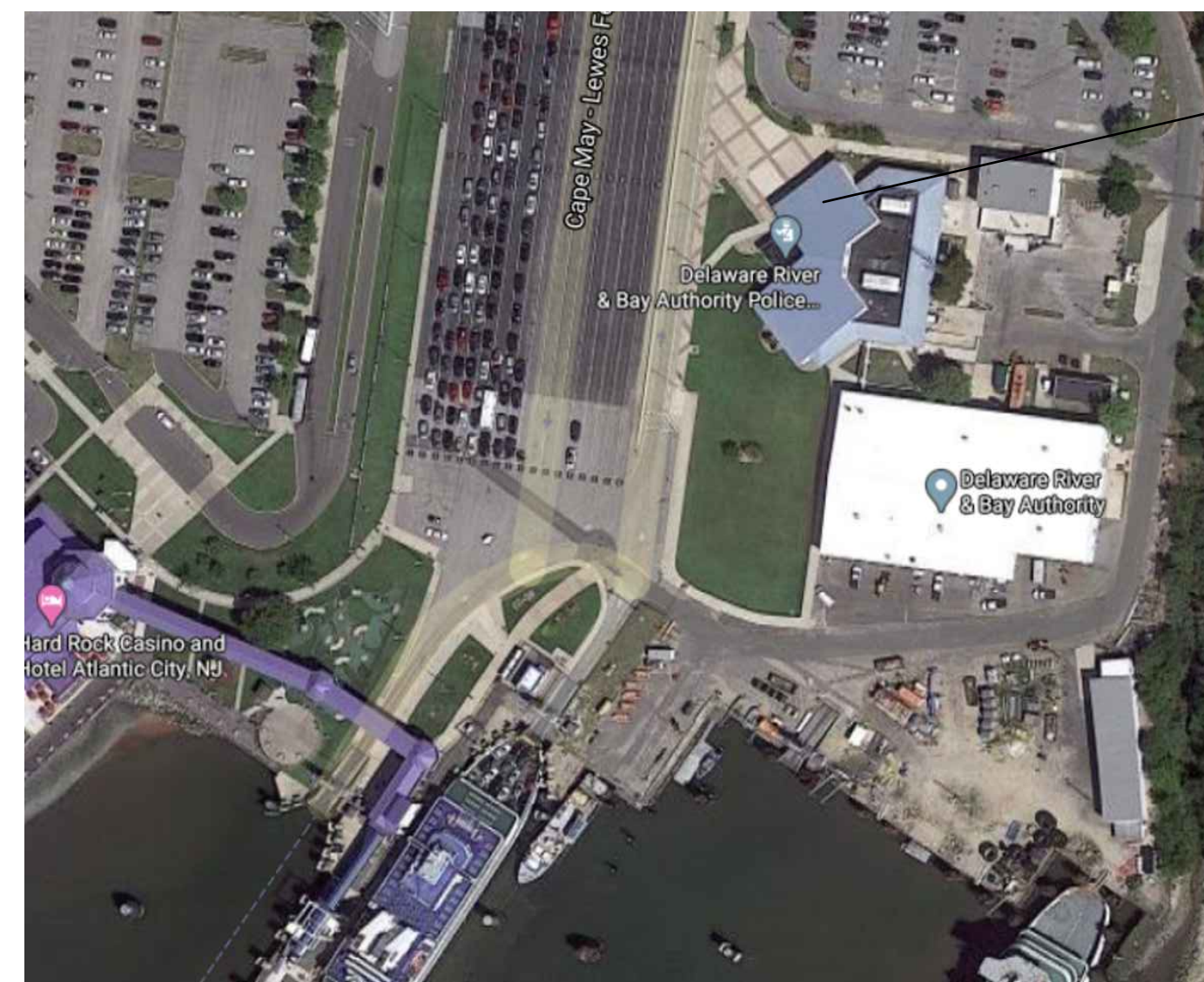
109.12 (Intentionally Omitted)

109.13 (Intentionally Omitted)

Sheet List Table	
Sheet Number	Sheet Title
G-000	COVER SHEET
A-001	ARCHITECTURAL GENERAL NOTES, ABBREVIATION, AND SYMBOLS
A-002	TYPICAL MOUNTING HEIGHTS
AP101	PHASING PLAN
A-101	DEMOLITION PLAN
A-102	CONSTRUCTION FLOOR PLAN
A-401	FINISH PLAN, ENLARGED PLANS AND ELEVATIONS
A-501	SCHEDULES AND DETAILS
M-000	GENERAL NOTES SYMBOLS AND ABBREVIATIONS
M-100	HVAC DEMOLITION PLAN
M-101	ROOF HVAC DEMOLITION PLAN
M-110	HVAC PLAN
M-111	ROOF HVAC PLAN
M-501	HVAC DETAILS
M-701	HVAC SCHEDULES
P-000	GENERAL NOTES SYMBOLS AND ABBREVIATIONS
P-100	PLUMBING DEMOLITION PLAN
P-101	PLUMBING PLAN
E-000	GENERAL NOTES SYMBOLS AND ABBREVIATIONS
E-100	ELECTRICAL DEMOLITION PLAN
E-101	LIGHTING PLAN
E-102	POWER AND LOW-VOLTAGE PLANS - OVERALL
E-103	POWER AND LOW-VOLTAGE PLANS - PHASE 1
E-104	POWER AND LOW-VOLTAGE PLAN - PHASE 2
E-105	SECURITY ACCESS PLAN

DELAWARE RIVER AND BAY AUTHORITY CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C19-06 R2
CAPE MAY DISPATCH CENTER REHAB
CAPE MAY TERMINAL - POLICE AND
ADMINISTRATION BUILDING
NEW JERSEY



DRBA CAPE MAY-LEWES FERRY TERMINAL
POLICE AND ADMINISTRATION BUILDING

1 SITE LOCATION PLAN
G-000 SCALE: NTS

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

RECOMMENDED _____ DATE _____

APPROVED BY

06/09/2022
Approved for payment.

ISSUED FOR BIDDING _____ DATE _____

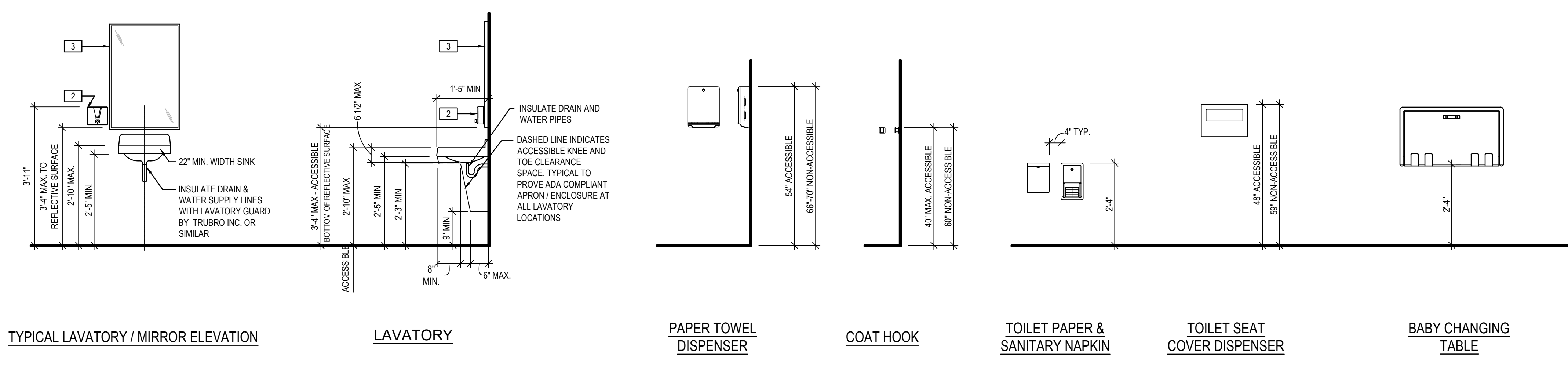
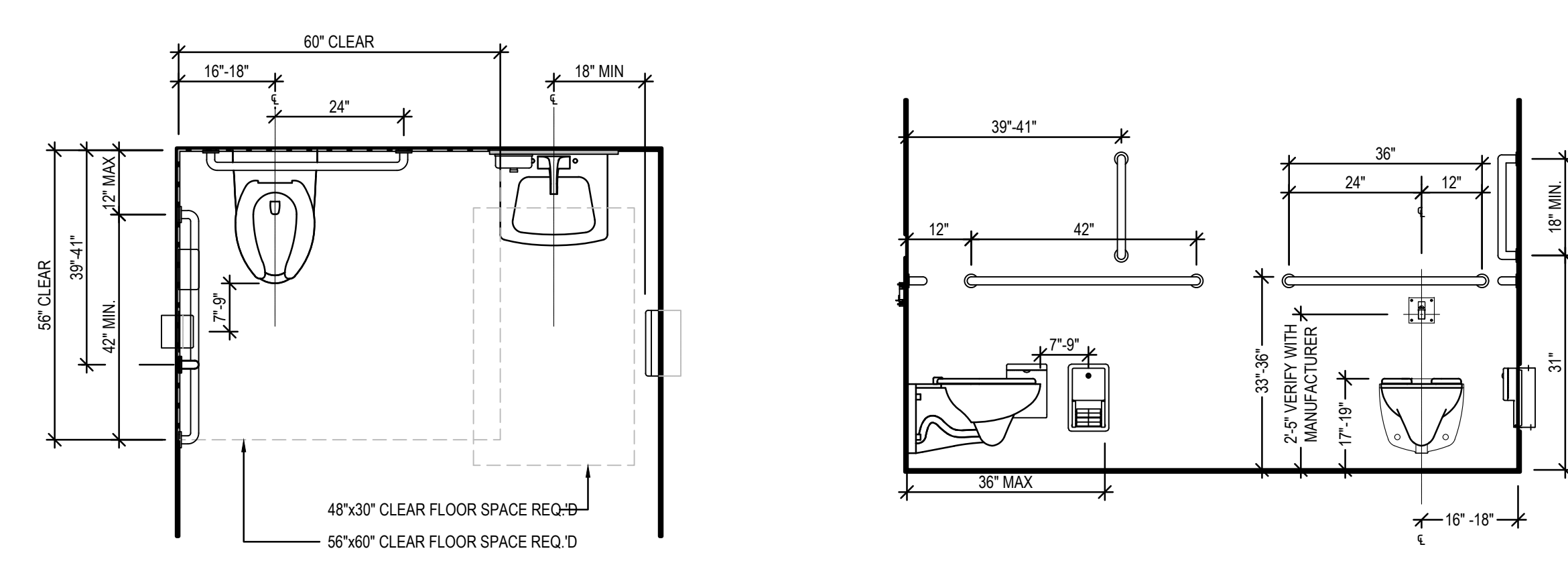
REVISION			
NO.	DATE	DESCRIPTION	BY

COVER SHEET

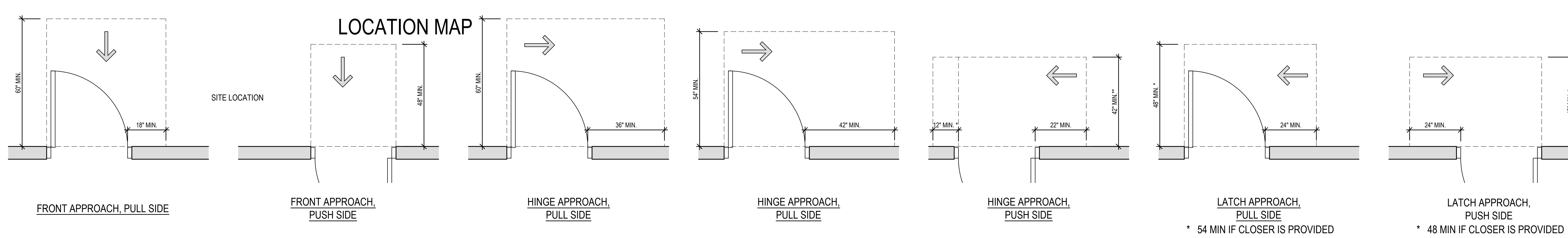
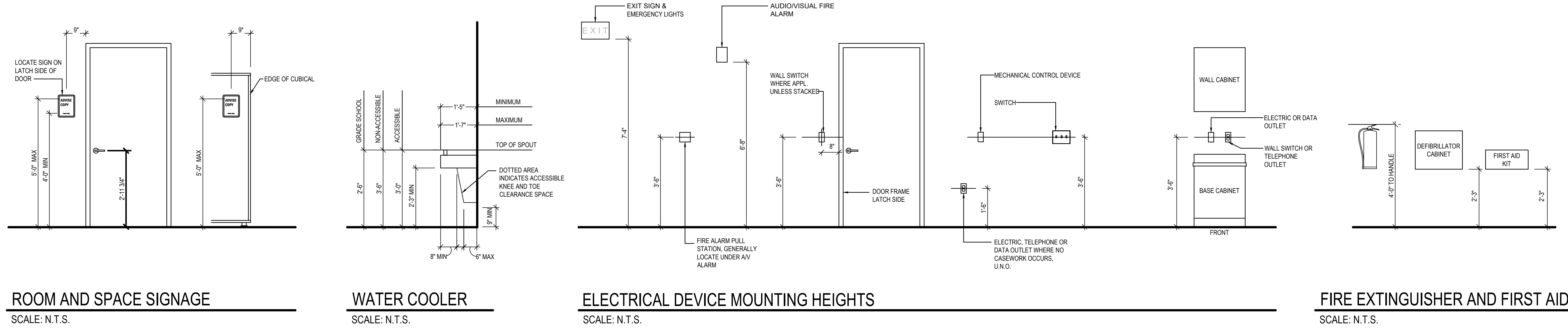
G-000

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 1

THE RECEIVER OF THESE PLANS IS HEREBY ADVISED THAT THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE PROJECT FOR COMPLIANCE WITH THE 2018 INTERNATIONAL BUILDING CODES AND 2018 INTERNATIONAL PLUMBING AND MECHANICAL CODES. THE RECEIVER WILL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE PROJECT FOR COMPLIANCE WITH THE 2018 INTERNATIONAL BUILDING CODES AND 2018 INTERNATIONAL PLUMBING AND MECHANICAL CODES. THE RECEIVER WILL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES.



TYPICAL TOILET ROOM MOUNTING HEIGHTS
 SCALE: N.T.S.



CONSULTANT

THIS DRAWING IS THE PROPERTY OF STUDIOJAED AND IS PREPARED FOR THE EXCLUSIVE USE OF ITS CLIENTS AT THE LOCATION INDICATED. NO OTHER USE IS AUTHORIZED OR INTENDED.

ARCHITECT / ENGINEER SEAL

DELAWARE RIVER AND BAY AUTHORITY
 DRBA CONTRACT NO.
 INTERIOR RENOVATION AT THE
 DRBA POLICE DISPATCH
 1200 LINCOLN BLVD
 CAPE MAY, NJ 08204

REVISIONS		
MARK	DESCRIPTION	DATE

SHEET TITLE

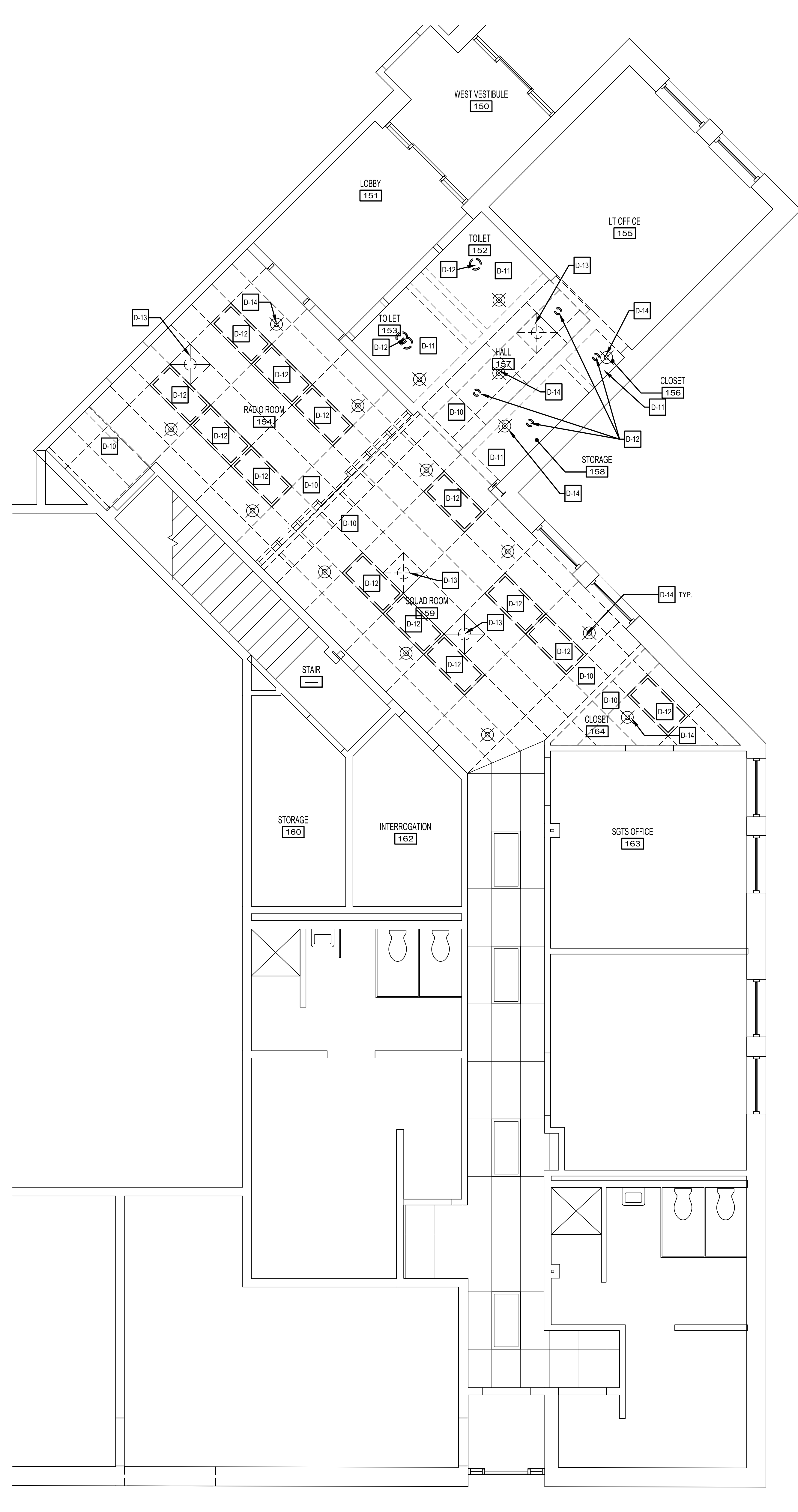
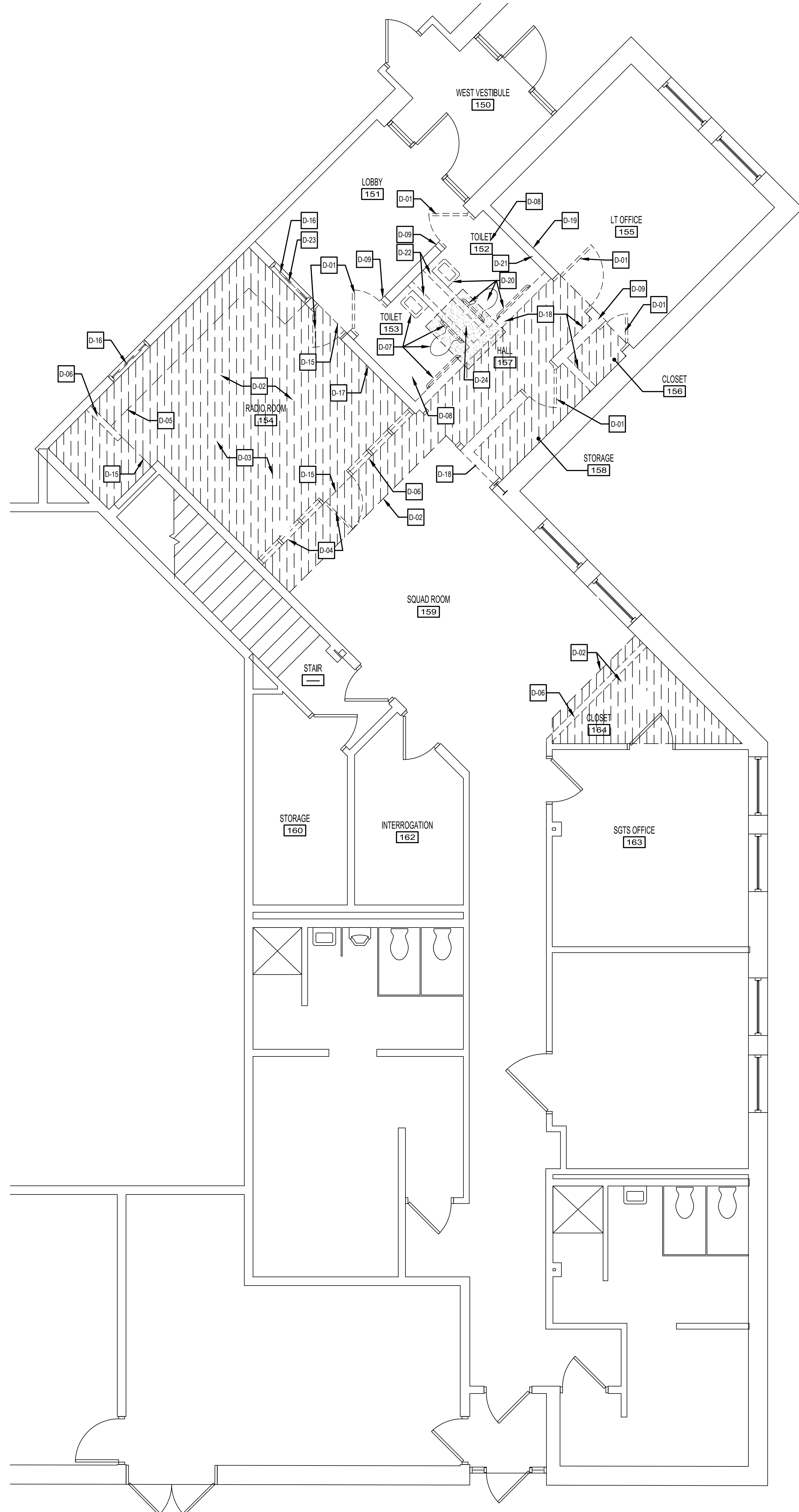
TYPICAL MOUNTING HEIGHTS

ISSUED FOR BIDDING
 MAY 20, 2022

DRAWN	CHKD	PROJECT NO.
AB	AB/PG	20008

SHEET NO.
A-002

THE RECIPIER OF THESE PLANS IS HEREBY ADVISED THAT THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED AND NOT FOR DISTRIBUTION OUTSIDE THE PROJECT TEAM. THE RECIPIER SHALL NOT REPRODUCE OR OTHERWISE MAKE USE OF THE DATA OR PLANS IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE PROJECT TEAM. THE RECIPIER SHALL NOT REPRODUCE OR OTHERWISE MAKE USE OF THE DATA OR PLANS IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE PROJECT TEAM. THE RECIPIER SHALL NOT REPRODUCE OR OTHERWISE MAKE USE OF THE DATA OR PLANS IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE PROJECT TEAM.



DEMOLITION SYMBOL LEGEND

	KEY NOTE TAG. SEE KEY NOTE INSTRUCTIONS / NARRATIVE FOR MORE INFORMATION.
	SOLID LINE INDICATES EXISTING TO REMAIN.
	DASHED LINE INDICATES EXISTING TO BE DEMOLISHED.
	HATCH INDICATES EXISTING FLOOR FINISH TO BE DEMOLISHED.
	EXISTING FIRE EXTINGUISHER CABINET.
	MECHANICAL DEVICE.
	2X4 LIGHT FIXTURE.
	DOWN LIGHT.
	SPRINKLER HEAD.
	SPEAKER.
	NOTIFICATION DEVICE (AUDIOVISUAL).
	SMOKE DETECTOR.
	CEILING MOUNTED CAMERA.

GENERAL DEMOLITION NOTES

- ALL AREAS AND PARTITIONS NOT DASHED OR NOTED TO BE REMOVED SHALL REMAIN INTACT. PATCH AND REPAIR EXISTING ADJACENT PARTITIONS AND FINISHES AS REQUIRED AFTER DEMOLITION TO MATCH EXISTING OR IN ACCORDANCE W/ PROPOSED RENOVATIONS.
- PROVIDE INTERIOR SHORING, BRACING, OR OTHER SUPPORT TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF ELEMENTS TO BE DEMOLISHED AND ADJACENT EXISTING ELEMENTS TO REMAIN.
- SELECTIVE DEMOLITION WORK INCLUDES REMOVAL OF NON-STRUCTURAL ITEMS INDICATED. REFER TO MECH, PL, BG, ELEC, DEMOLITION DWGS FOR ADDITIONAL SCOPE. THIS DRAWING DOES NOT SHOW ELEC, WATER, HVAC, AND MOST OTHER SERVICES.
- LOCATE AND IDENTIFY EXISTING UTILITIES, INCLUDING SANITARY SEWER SYSTEM, AND ASCERTAIN THEIR CONDITION TO ENSURE ADEQUATE PERFORMANCE OF ALL UTILITIES IN NEW CONSTRUCTION. PROTECT UTILITY LINES AND HARDWARE DURING DEMOLITION AND CONSTRUCTION PHASES.
- THE CONTRACTOR SHALL SAFELY SECURE ANY AND ALL PIPING, WIRING, CABLES, OR DEVICES THAT ARE NOT SCHEDULED FOR DEMOLITION THAT WERE SECURED BY ITEMS THAT HAVE BEEN OR ARE SCHEDULED FOR DEMOLITION.
- UPON COMPLETION OF THE DEMOLITION WORK, ALL AREAS SHALL BE LEFT BROOM CLEAN TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL PROMPTLY PATCH AND REPAIR DAMAGE CAUSED TO ADJACENT CONSTRUCTION BY DEMOLITION WORK. RESTORE EXPOSED FINISHES IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.
- IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION OPERATIONS, NOTIFY OWNER IMMEDIATELY COMPLY WITH APPLICABLE REGULATIONS, LAWS, AND ORDINANCES CONCERNING REMOVAL, HANDLING, AND PROTECTION AGAINST EXPOSURE OR ENVIRONMENTAL POLLUTION. BURNING OF EXISTING MATERIALS IS NOT PERMITTED ON THE PROJECT SITE.
- COORDINATE ALL DEMOLITION WORK WITH THE OWNER BEFORE PROCEEDING.

DEMOLITION KEY NOTES

- D-01 DEMOLISH EXISTING DOOR, FRAME AND HARDWARE AND ANY ASSOCIATED COMPONENTS.
- D-02 DEMOLISH EXISTING CARPET TILE FINISH DOWN TO CONCRETE SUBSTRATE. PATCH SUBSTRATE AS REQUIRED TO RECEIVE NEW FINISHES. DEMOLISH EXISTING WALL BASE. PATCH AND PREPARE EXISTING WALLS FOR NEW WALL BASE.
- D-03 DEMOLISH EXISTING BUILT UP FLOOR, INCLUDING BUT NOT LIMITED TO SUB FLOOR, METAL STUDS, FLOOR JOISTS, ETC. DOWN TO EXISTING CONCRETE SLAB.
- D-04 DEMOLISH EXISTING STOREFRONT WINDOW, DOOR, FRAME AND HARDWARE AND ANY ASSOCIATED COMPONENTS.
- D-05 DEMOLISH EXISTING CASEWORK IN ITS ENTIRETY. PATCH AND REPAIR WALL AFTER CASEWORK HAS BEEN REMOVED.
- D-06 DEMOLISH EXISTING GYPSUM WALLBOARD AND STUD PARTITION.
- D-07 DEMOLISH EXISTING PLUMBING FIXTURE AND CAP PIPING BELOW SLAB AND/ OR BEHIND WALL. DEMOLISH EXISTING STAINLESS STEEL TOILET ACCESSORIES. REMOVE EXISTING "RENOV" TOILET ACCESSORIES AND RETURN TO OWNER.
- D-08 WITH CARE REMOVE EXISTING TILE FLOOR AND WALL BASE. REPAIR AND PREP EXISTING SLAB FOR NEW FINISH. REPAIR AND PREP EXISTING WALL FOR NEW FINISH (TYP ENTIRE ROOM).
- D-09 DEMOLISH A PORTION OF THE EXISTING CMU WALL AS REQUIRED FOR A NEW DOOR FRAME AND LINTEL.
- D-10 DEMOLISH EXISTING 2'-0" x 4'-0" ACOUSTICAL CEILING SYSTEM, INCLUDING BUT NOT LIMITED TO CEILING PANELS, GRID, WALL MOLDING, HANGERS AND SUPPORTS.
- D-11 DEMOLISH EXISTING GYPSUM WALLBOARD CEILING IN ITS ENTIRETY.
- D-12 DEMOLISH EXISTING LIGHTING FIXTURE.
- D-13 DEMOLISH EXISTING MECHANICAL DIFFUSER.
- D-14 EXISTING SPRINKLER HEAD TO REMAIN. ADJUST LOCATION FOR NEW GRID PLACEMENT AS REQUIRED. TYPICAL ALL LOCATIONS UNLESS NOTED OTHERWISE.
- D-15 EDGE OF RAISED FLOOR.
- D-16 REMOVE AND DISPOSE OF EXISTING SAFETY TRANSACTION WINDOW, SILL AND TRIM.
- D-17 REMOVE GYPSUM WALLBOARD AS REQUIRED TO INSTALL NEW BLOCKING FOR (4) WALL MOUNTED VIDEO MONITORS. SEE ELEVATION 7/A-401 FOR MONITOR LOCATIONS.
- D-18 DEMOLISH EXISTING CMU WALL WITH FURRING IN ITS ENTIRETY.
- D-19 WITH CARE, REMOVE EXISTING WOOD VENEER PANELING UP TO WOOD TRIM ABOVE.
- D-20 DEMOLISH EXISTING PLUMBING FIXTURE AND RECONFIGURE PIPING FOR INSTALLATION OF NEW FIXTURES. DEMOLISH EXISTING STAINLESS STEEL TOILET ACCESSORIES. SALVAGE EXISTING "RENOV" TOILET ACCESSORIES FOR REUSE.
- D-21 INFILL CMU WALL AT REMOVED RECESSED PAPER TOWEL DISPENSER/WASTE RECEPTACLE.
- D-22 DEMOLISH EXISTING CMU WALL IN ITS ENTIRETY.
- D-23 DEMOLISH PORTION OF FURRED CMU WALL AS REQUIRED TO INSTALL NEW TRANSACTION WINDOW AT 36" ABOVE FLOOR SLAB.
- D-24 SAW CUT AND REMOVE CONCRETE FLOOR SLAB AND EXCAVATE AS REQUIRED TO RECONFIGURE SANITARY LINE FOR NEW TOILET LOCATION.

STUDIOJAED
 ARCHITECTS & ENGINEERS FACILITIES SOLUTIONS
 Website: www.studiojaed.com
 Equi: info@studiojaed.com

DELAWARE OFFICE
 1200 LINCOLN BLVD
 SEASIDE, DE 19566
 P: 410-648-0884

MARYLAND OFFICE
 1000 W. BAYVIEW AVE. SUITE 105
 ANNAPOLIS, MD 21403
 P: 410-832-1822

CONSULTANT

THIS DRAWING IS THE PROPERTY OF STUDIOJAED, AND IS PREPARED FOR THE EXCLUSIVE USE OF ITS CLIENTS AT THE LOCATION INDICATED. NO OTHER USE IS AUTHORIZED OR INTENDED.

ARCHITECT / ENGINEER SEAL

PROJECT: DELAWARE RIVER AND BAY AUTHORITY

DRBA CONTRACT NO. _____
 INTERIOR RENOVATION AT THE
 DRBA POLICE DISPATCH

1200 LINCOLN BLVD
 CAPE MAY, NJ 08204

REVISIONS

MARK	DESCRIPTION	DATE

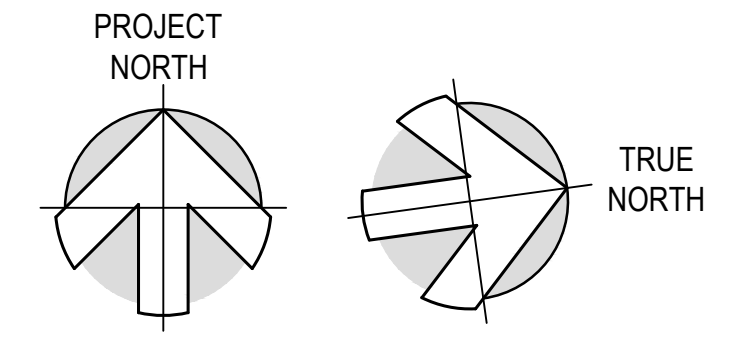
SHEET TITLE: DEMOLITION PLAN

ISSUED FOR BIDDING
 MAY 20, 2022

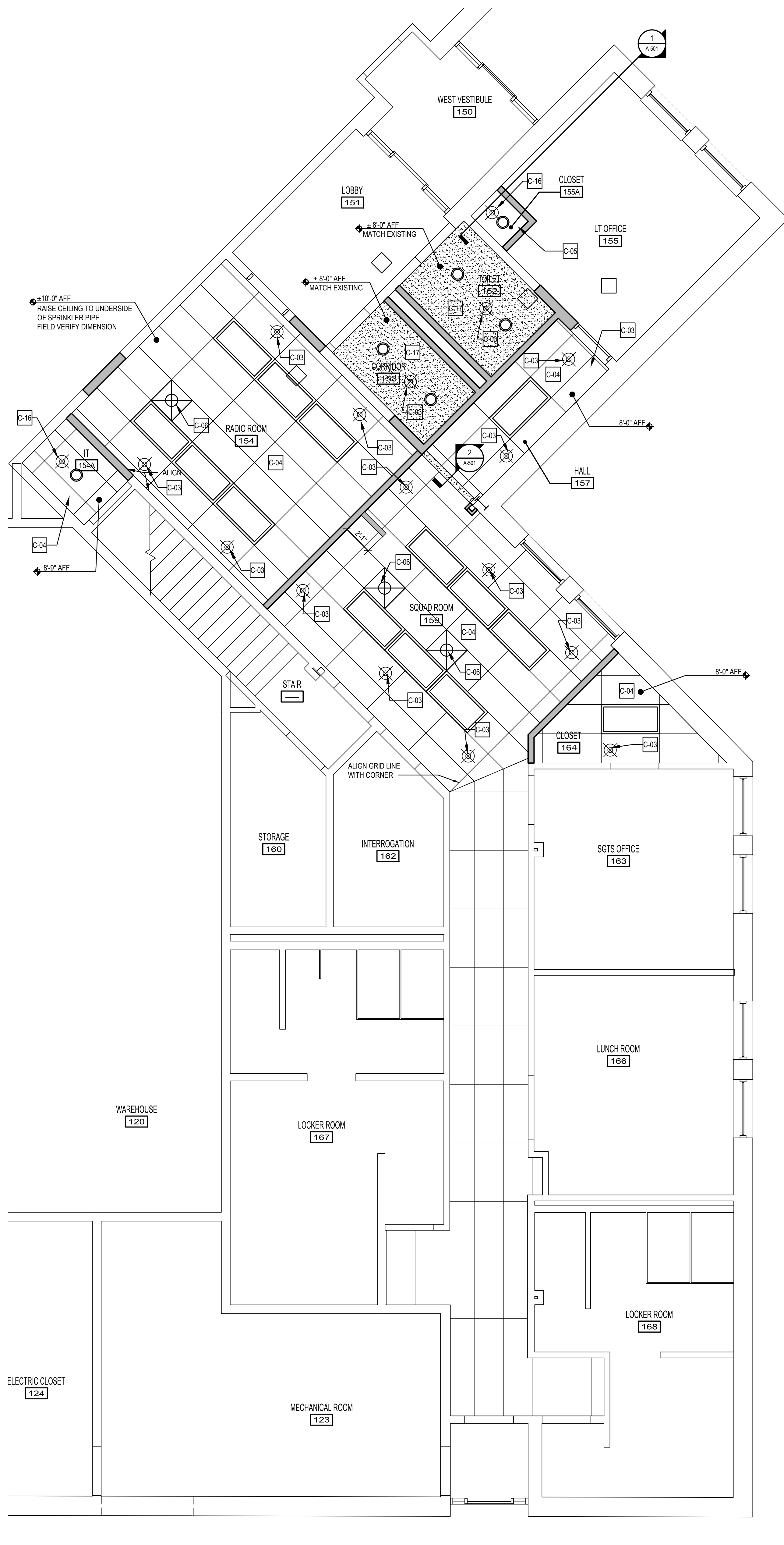
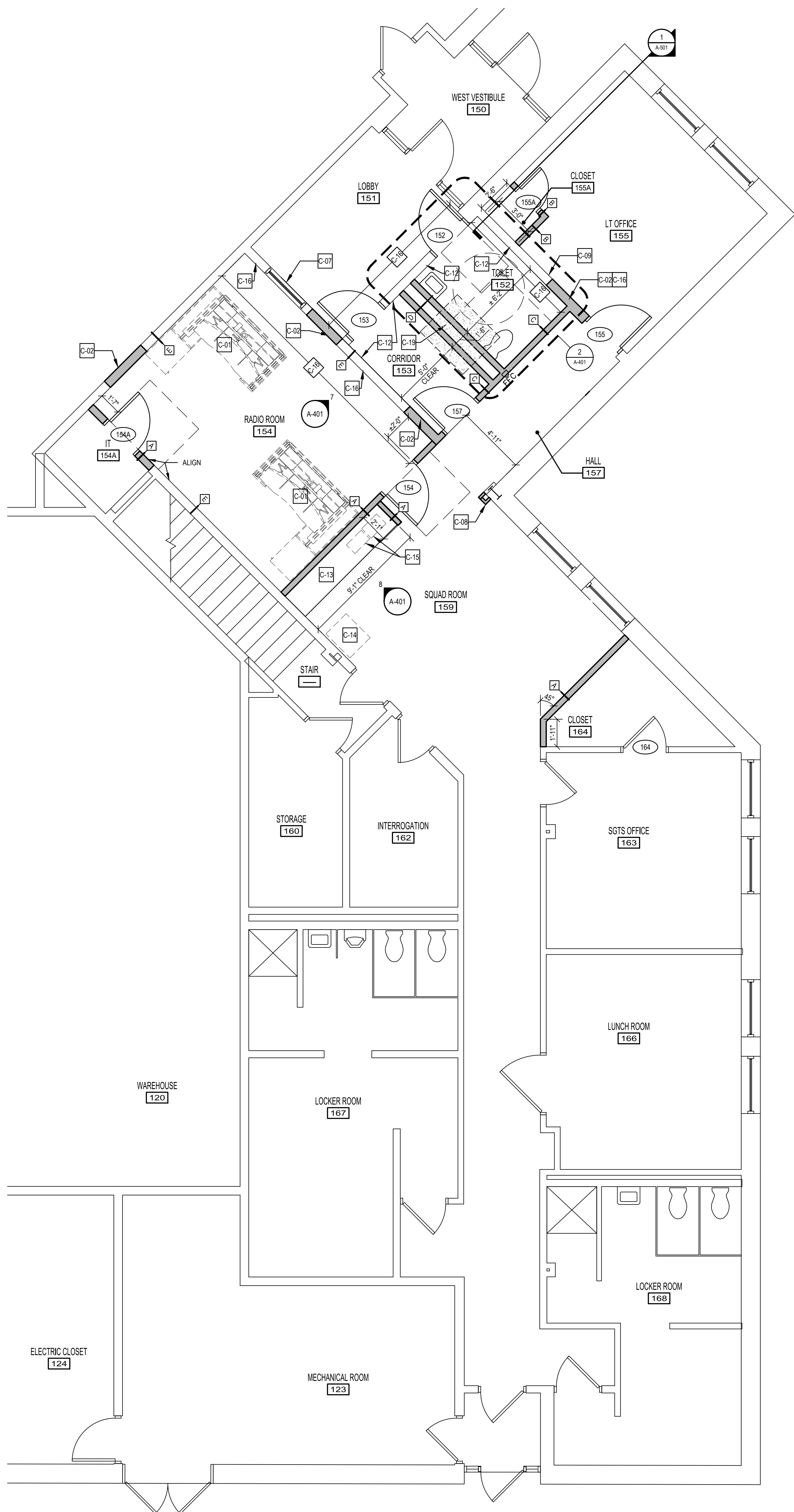
DRAWN: AB/KB CHKD: AB/PG PROJECT NO: 20008
 SHEET NO: A-101

1 PARTIAL DEMOLITION FLOOR PLAN - FIRST FLOOR
 SCALE: 1/4" = 1'-0"

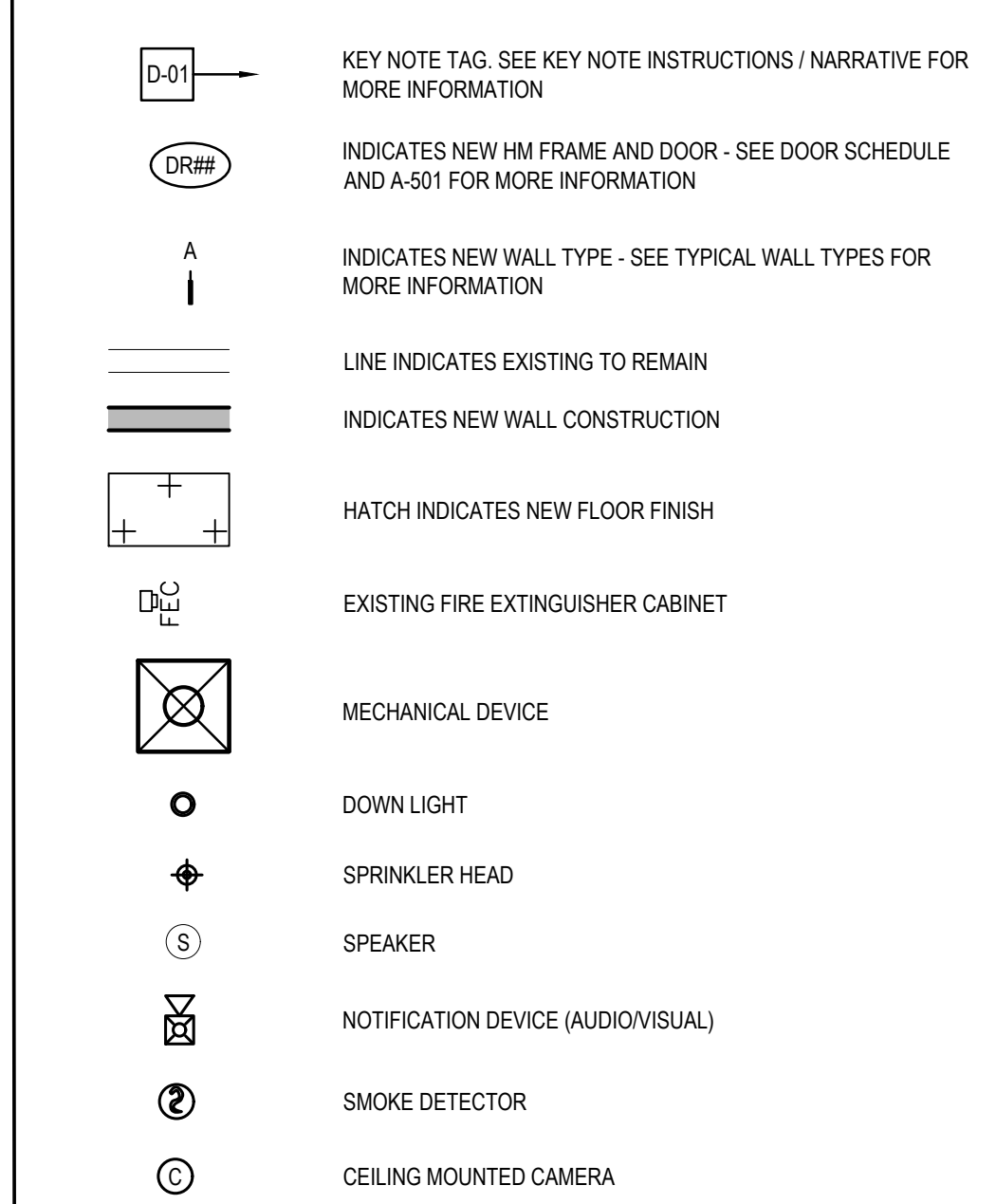
2 PARTIAL DEMOLITION REFLECTED CEILING PLAN - FIRST FLOOR
 SCALE: 1/4" = 1'-0"



THE REVISIONS LIST IS A SUMMARY OF THE REVISIONS TO THE DRAWING. THE REVISIONS LIST IS NOT A PART OF THE DRAWING. THE REVISIONS LIST IS NOT TO BE USED AS A GUIDE TO THE REVISIONS TO THE DRAWING. THE REVISIONS LIST IS NOT TO BE USED AS A GUIDE TO THE REVISIONS TO THE DRAWING. THE REVISIONS LIST IS NOT TO BE USED AS A GUIDE TO THE REVISIONS TO THE DRAWING.



CONSTRUCTION SYMBOL LEGEND

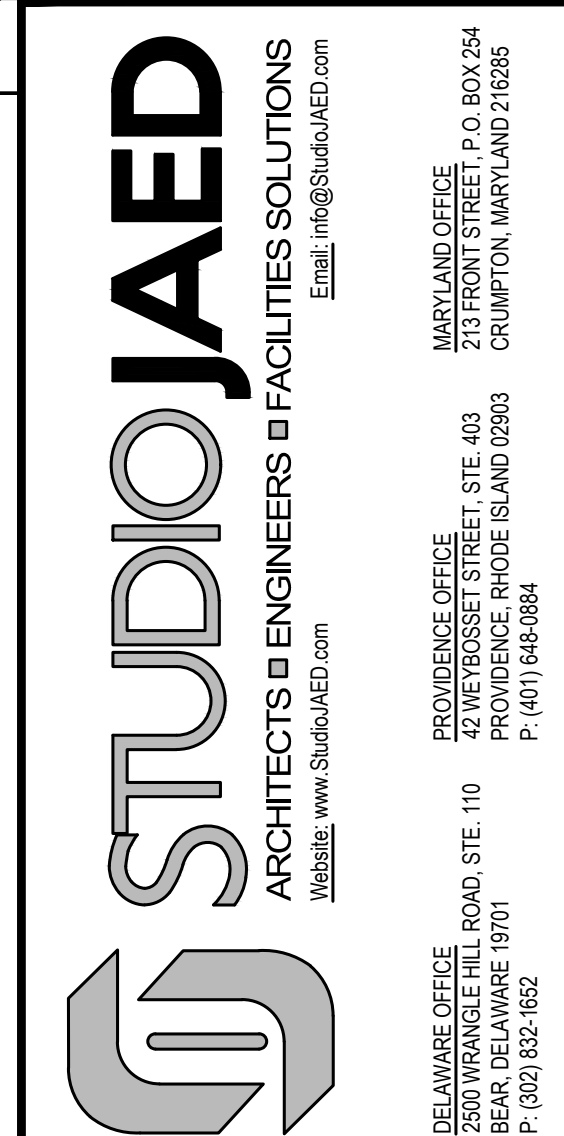


GENERAL CONSTRUCTION NOTES

- SEE GENERAL NOTES ON A-001 FOR ADDITIONAL INFORMATION.
- INTERIOR PARTITION TYPE TAGS APPLY TO THE ENTIRE LENGTH OF WALL INDICATED BY THAT TAG, REGARDLESS OF OPENINGS WITHIN THAT WALL, TYP. UNO.
- TOUCH-UP PAINT AS REQUIRED AT ALL WALLS WHERE EXISTING WALL BASE WAS REMOVED AND NEW BASE IS INSTALLED.
- ALL DIMENSIONS ARE TO FACE OF MASONRY, ROUGH FRAME, OR CENTER LINE OF COLUMN, TYPICAL UNLESS OTHERWISE NOTED. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION, AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.
- LIGHTING AND OTHER CEILING-MOUNTED FIXTURES ARE SHOWN FOR COORDINATION PURPOSES ONLY. COORDINATE ALL CEILING WORK PRIOR TO INSTALLATION OF CEILING. SEE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL INFO.
- ALL CEILING-MOUNTED ITEMS (LIGHTS, GRILLES, DIFFUSERS, DETECTORS, SPRINKLER HEAD, ETC) SHALL BE CENTERED WITHIN THE CEILING TILES AND GRIDS UNLESS NOTED OTHERWISE.
- PAINT ALL EXPOSED SURFACES, INCLUDING ALL GYPSUM BOARD CEILINGS.
- ALL CEILING TILES TO BE CENTERED IN ROOMS, UNLESS NOTED OTHERWISE.
- CEILING HEIGHTS REFERENCE ROOM FINISHED FLOOR ELEVATION.
- REFERENCE MECHANICAL AND PLUMBING DRAWINGS FOR CEILING MOUNTED DUCTS, PIPES, ETC. REFERENCE ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE TYPES AND LOCATIONS.
- ALL ACoustICAL CEILINGS SHALL BE ACT-1. ALL CEILINGS SHALL BE PLACED 8'-8" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- REINSTALL ALL FIRE PROTECTION DEVICES, FIRE DETECTION DEVICES, SPEAKERS, AND INFORMATION TECHNOLOGY DEVICES INTO ALL NEW CEILING TILE.

CONSTRUCTION KEY NOTES

- C-01 CUSTOM MERCURY PRO CONSOLES 7'-8" WIDE 6'-10" LONG AND (6) 24" MONITORS BY WATSON CONSOLES, OR APPROVED EQUAL, PROVIDED BY CONTRACTOR.
- C-02 INFILL EXISTING BLOCK WALL WITH NEW CMU, GROUTED SOLID, WITH METAL STUD FURRING AND GWB AT BOTH SIDES. TOOTH IN NEW BLOCK FOR INFILL AND ALIGN GWB WITH SURFACE OF EXISTING WALL.
- C-03 MODIFY EXISTING SPRINKLER HEAD AS REQ'D. TO FACILITATE NEW CEILING HEIGHT AND NEW LOCATION OF SPRINKLER HEAD.
- C-04 2'-0" x 4'-0" SUSPENDED ACOUSTIC CEILING TILE, GRID, AND ASSOCIATED ACCESSORIES.
- C-05 INSTALL NEW 1/2" GYPSUM BOARD CEILING ON 3/8" METAL STUDS AT 16" O.C.
- C-06 MECHANICAL DIFFUSER SEE MECHANICAL DRAWINGS.
- C-07 NEW TRANSACTION WINDOW; SET TOP OF SILL AT 36" ABOVE FINISHED FLOOR. INFILL CMU AND FURRED GYPSUM WALL BOARD AS REQUIRED TO FINISH OPENING AROUND TRANSACTION WINDOW.
- C-08 4" x 4" CLEAR PIPE CHASE WITH 1 1/2" METAL STUD ON 1/2" GYPSUM WALLBOARD.
- C-09 INSTALL NEW OAK VENEER PANELING UP TO WOOD TRIM ABOVE.
- C-10 - NOT USED -
- C-11 - NOT USED -
- C-12 PREPARE GLAZED BLOCK WALL FOR AS REQUIRED TO LAMINATE 1/2" GYPSUM WALL BOARD OVER EXISTING GLAZED BLOCK AND NEW CMU BLOCK WALL.
- C-13 FURNISH AND INSTALL CASEWORK. SEE 4/A-401 AND 3/A-501 FOR ADDITIONAL INFORMATION.
- C-14 EXISTING COPIER/PRINTER TO REMAIN.
- C-15 RELOCATED RADIO CHARGER STATIONS.
- C-16 GROUT SOLID EXISTING CMU BLOCK WALL, AS REQUIRED TO REACH BULLET RESISTANCE LEVEL 2, THE ENTIRE LENGTH OF WALL UNLESS NOTED OTHERWISE.
- C-17 INSTALL NEW 1/2" GYPSUM BOARD CEILING ON 3/4 POUND EXPANDED METAL LATHE ON 6" COLD FORM JOISTS AT 16" O.C.
- C-18 NEW SPRINKLER HEAD
- C-19 FILL AREA EXCAVATED FOR UNDERGROUND PLUMBING WORK AND INFILL WITH NEW 4" MIN. CONCRETE SLAB WITH 6X6-W1.4W1.4 WWF. DOWEL EDGES FOR NEW CONCRETE TO EXISTING FLOOR SLAB.



CONSULTANT

THIS DRAWING IS THE PROPERTY OF STUDIOJAED, AND IS PREPARED FOR THE EXCLUSIVE USE OF ITS CLIENTS AT THE LOCATION INDICATED. NO OTHER USE IS AUTHORIZED OR INTENDED.

ARCHITECT / ENGINEER SEAL

DELAWARE RIVER AND BAY AUTHORITY
 DRBA CONTRACT NO. _____
 INTERIOR RENOVATION AT THE
 DRBA POLICE DISPATCH
 1200 LINCOLN BLVD
 CAPE MAY, NJ 08204

REVISIONS		
MARK	DESCRIPTION	DATE

SHEET TITLE

CONSTRUCTION FLOOR PLAN

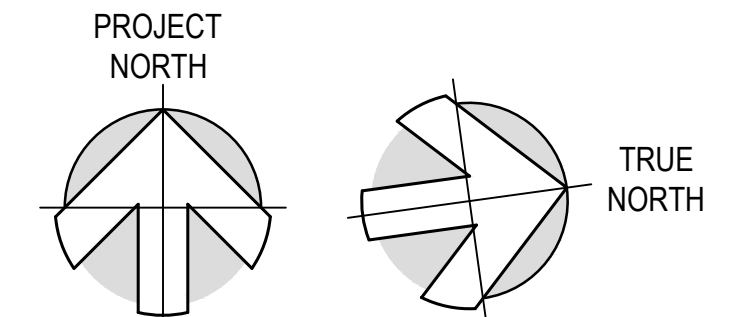
ISSUED FOR BIDDING
 MAY 20, 2022

DRAWN KB/AB	CHK'D AB/PG	PROJECT NO. 20008
----------------	----------------	----------------------

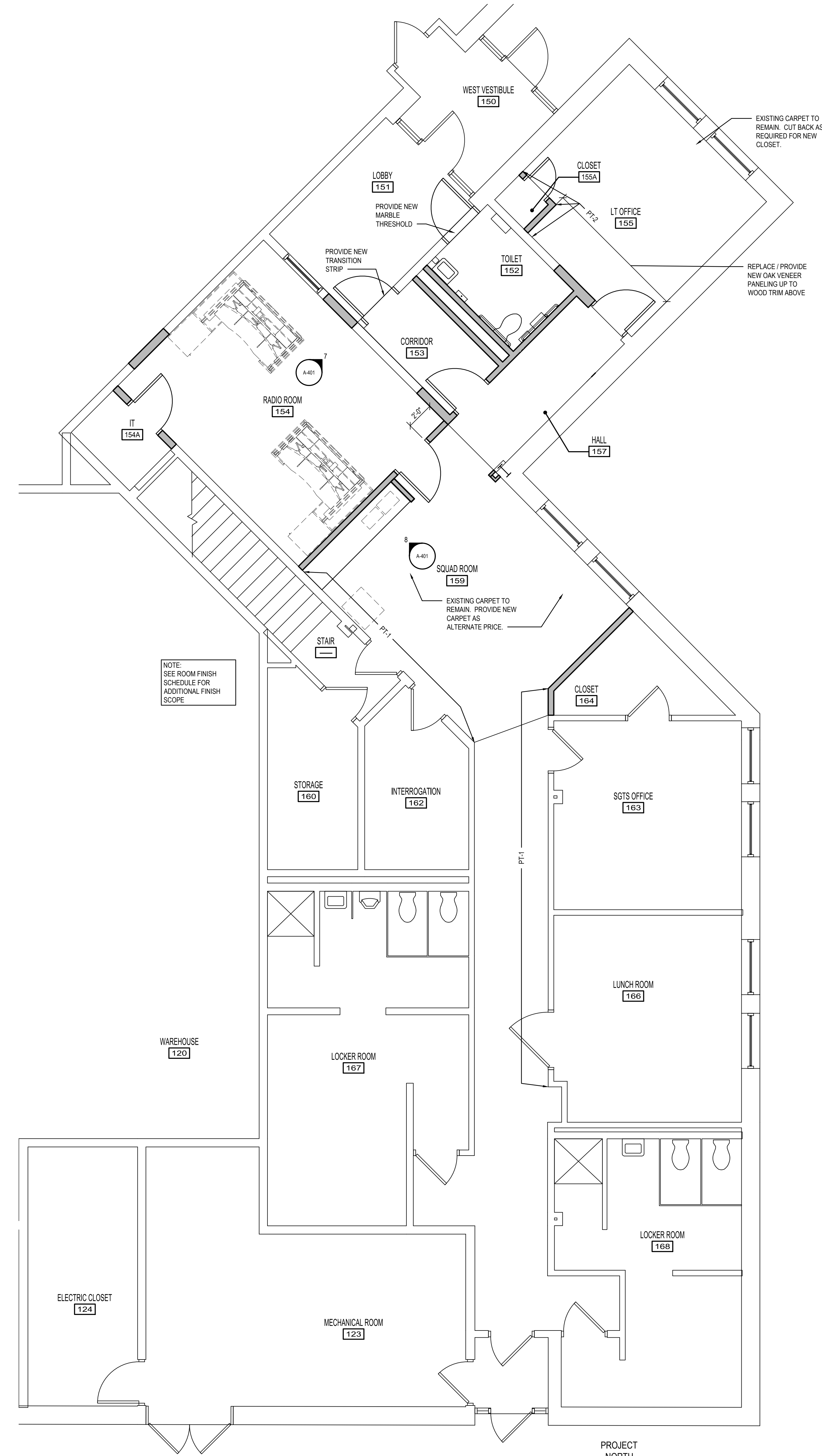
A-102

1 PARTIAL CONSTRUCTION FLOOR PLAN - FIRST FLOOR
 SCALE: 1/4" = 1'-0"

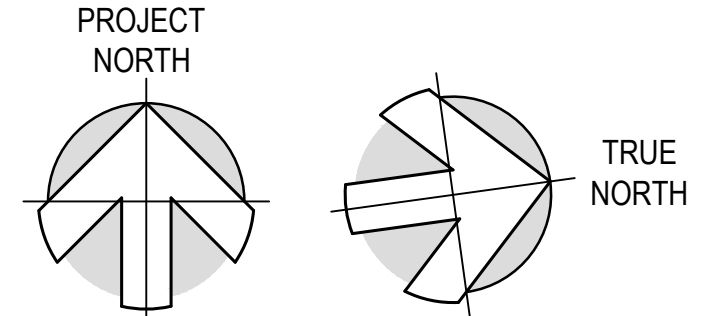
2 PARTIAL CONSTRUCTION REFLECTED CEILING PLAN - FIRST FLOOR
 SCALE: 1/4" = 1'-0"



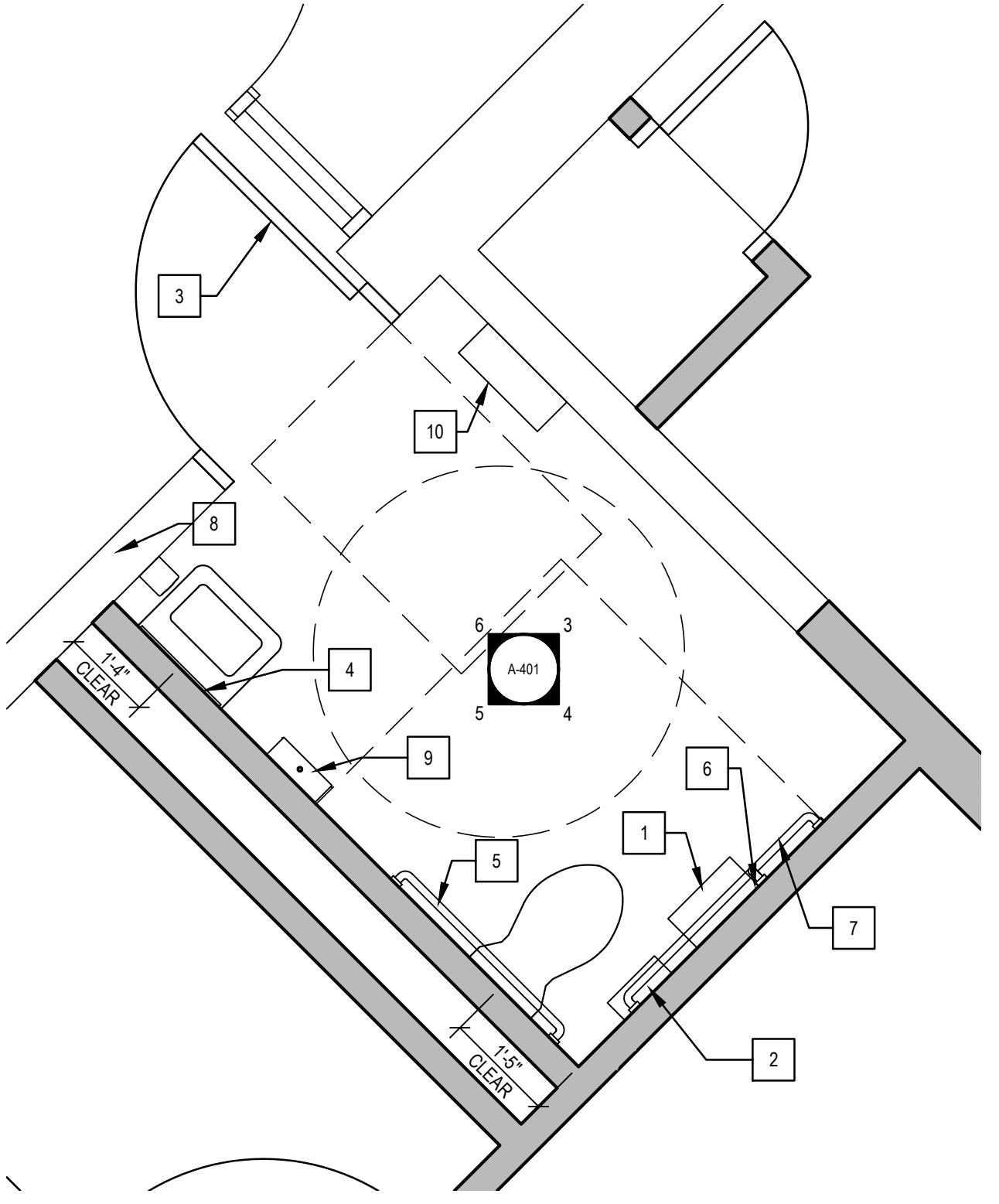
THE RECEIVER OF THESE PLANS IS HEREBY ADVISED THAT THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF STUDIOJAED ARCHITECTS & ENGINEERS. THE RECEIVER WILL COMPARE THE DATA WITH ALL AVAILABLE AND COPIES. "AED CORPORATION" WILL OWNERSHIP, COPYRIGHT AND OTHER INTELLECTUAL PROPERTY INTERESTS IN THE DATA AND INFORMATION ON THE PLANS. THE RECEIVER WARRANTS THAT IT WILL NOT REPRODUCE OR OTHERWISE MAKE USE OF THE DATA OR INFORMATION CONTAINED HEREIN IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF STUDIOJAED ARCHITECTS & ENGINEERS. THE RECEIVER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA. THE RECEIVER SHALL BE RESPONSIBLE FOR ANY REVISIONS OR AMENDMENTS TO THE DATA. THE RECEIVER SHALL BE RESPONSIBLE FOR ANY REVISIONS OR AMENDMENTS TO THE DATA. THE RECEIVER SHALL BE RESPONSIBLE FOR ANY REVISIONS OR AMENDMENTS TO THE DATA.



1 PARTIAL FINISH FLOOR PLAN - FIRST FLOOR
 A-401 SCALE: 1/4" = 1'-0"



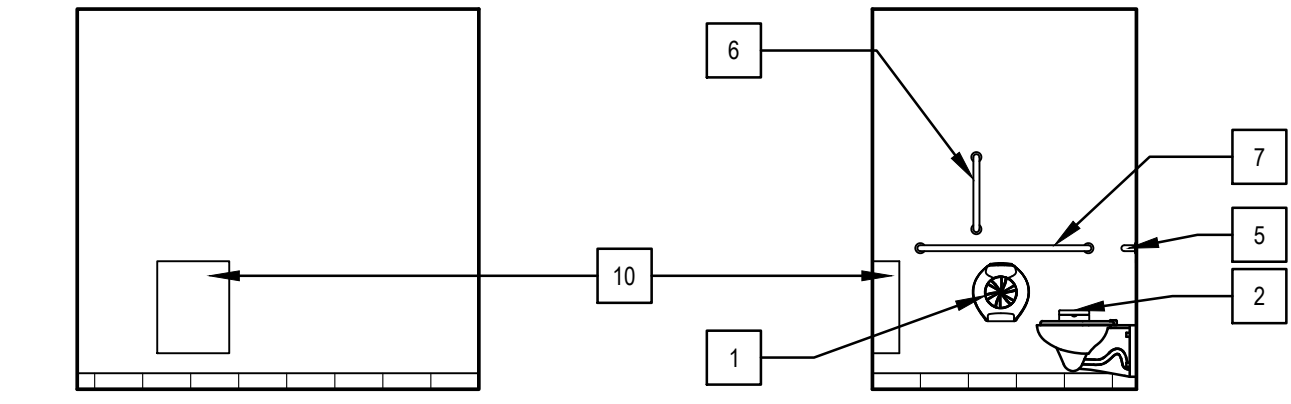
ENLARGED TOILET ROOM KEY	
1 TOILET PAPER DISPENSER	REINSTALL SALVAGED DISPENSER
2 SANITARY NAPKIN DISPOSAL	BRADLEY 4722-15
3 COAT HOOK	BRADLEY 931
4 18x36 MIRROR	BRADLEY 780
5 36" GRAB BAR	BRADLEY 812x36
6 18" VERTICAL GRAB BAR	BRADLEY 812x18
7 42" GRAB BAR	BRADLEY 812x42
8 SOAP DISPENSER	REINSTALL SALVAGED DISPENSER
9 PAPER TOWEL DISPENSER	REINSTALL SALVAGED DISPENSER
10 SURFACE MOUNTED WASTE RECEPTACLE	BRADLEY 3565



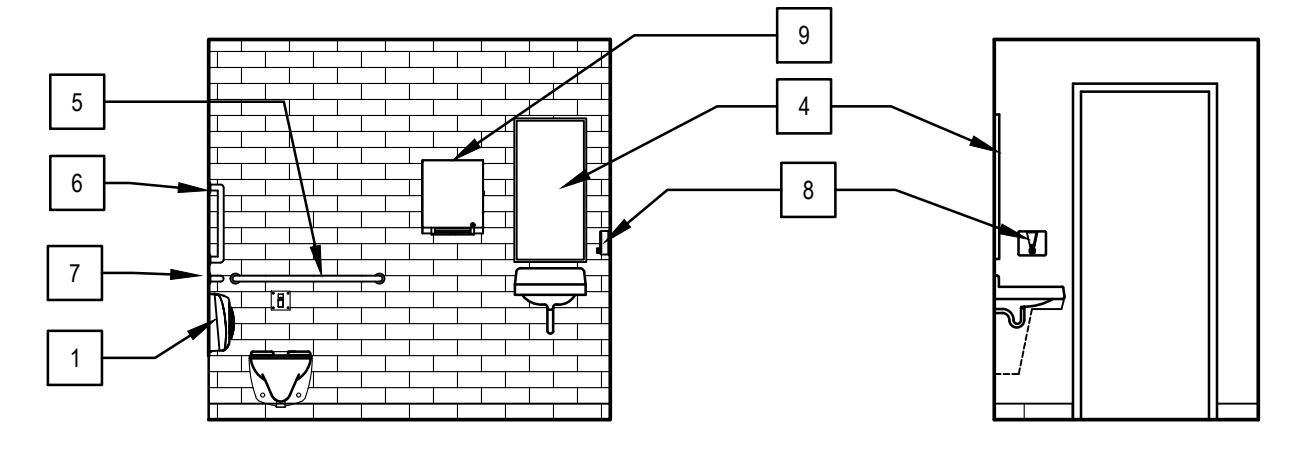
2 TOILET ROOM - ENLARGED PLAN
 A-401 SCALE: 1/2" = 1'-0"

NO.	ROOM NAME	FLOOR			WALL FINISH			NOTES
		FINISH	BASE	NORTH	EAST	SOUTH	WEST	
151	LOBBY			PT-1	PT-1	PT-1	PT-1	
152	TOILET	CT-2	CT-3	PT-1	PT-1	PT-1	PT-1	
153	CORRIDOR	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
154	RADIO ROOM	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
154A	IT	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
155	LT OFFICE	EXISTING	RB-1	EXISTING	EXISTING	EXISTING	EXISTING	PROVIDE NEW OAK TRIM BASE AT SOUTH WALL AND CLOSET WALLS TO MATCH EXISTING.
155A	CLOSET	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
157	HALL	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	
159	SQUAD ROOM	EXISTING	RB-1	PT-1	PT-1	PT-1	PT-1	
164	CLOSET	CPT-1	RB-1	PT-1	PT-1	PT-1	PT-1	

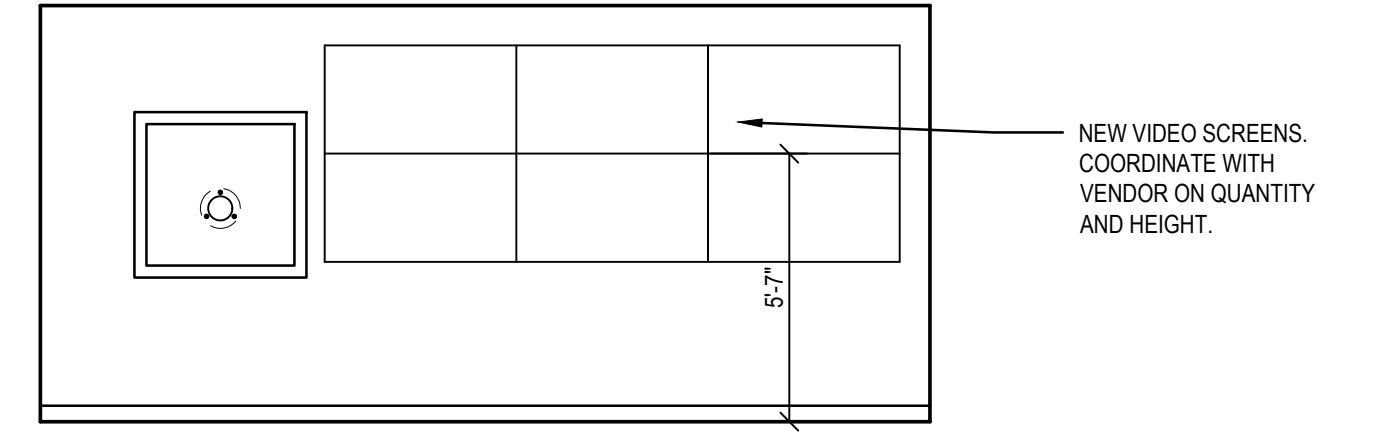
NOTES:
 1. SEE SPECIFICATIONS FOR ALL FINISH INFORMATION.



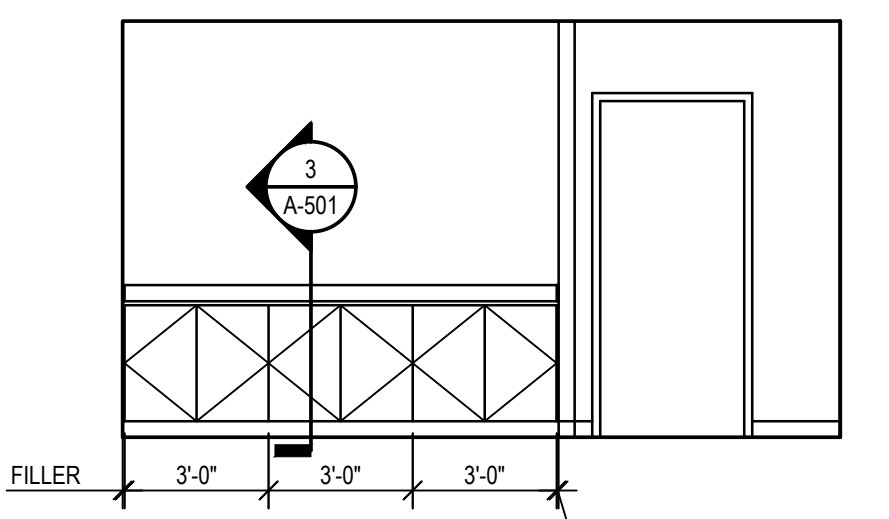
3 ELEVATION SCALE: 1/4" = 1'-0"
4 ELEVATION SCALE: 1/4" = 1'-0"



5 ELEVATION SCALE: 1/4" = 1'-0"
6 ELEVATION SCALE: 1/4" = 1'-0"



7 ELEVATION SCALE: 1/4" = 1'-0"



8 ELEVATION SCALE: 1/4" = 1'-0"

STUDIOJAED
 ARCHITECTS & ENGINEERS FACILITIES SOLUTIONS
 1200 LINCOLN BLVD
 CAPE MAY, NJ 08204
 P: 609.884.0884
 F: 609.884.0885
 WWW.STUDIOJAED.COM

CONSULTANT

THIS DRAWING IS THE PROPERTY OF STUDIOJAED ARCHITECTS & ENGINEERS. IT IS TO BE USED ONLY FOR THE PROJECT AND AT THE LOCATION INDICATED. NO OTHER USE IS AUTHORIZED OR INTENDED.

ARCHITECT / ENGINEER SEAL

PROJECT DELAWARE RIVER AND BAY AUTHORITY
 DRBA CONTRACT NO. _____
 INTERIOR RENOVATION AT THE
 DRBA POLICE DISPATCH
 1200 LINCOLN BLVD
 CAPE MAY, NJ 08204

REVISIONS		
MARK	DESCRIPTION	DATE

SHEET TITLE
FINISH PLAN, ENLARGED PLANS AND ELEVATIONS

ISSUED FOR BIDDING
 MAY 20, 2022

DRAWN: KB/AB
 CHKD: AB/PG
 PROJECT NO.: 20008

SHEET NO.:
A-401

DOOR HARDWARE SCHEDULE

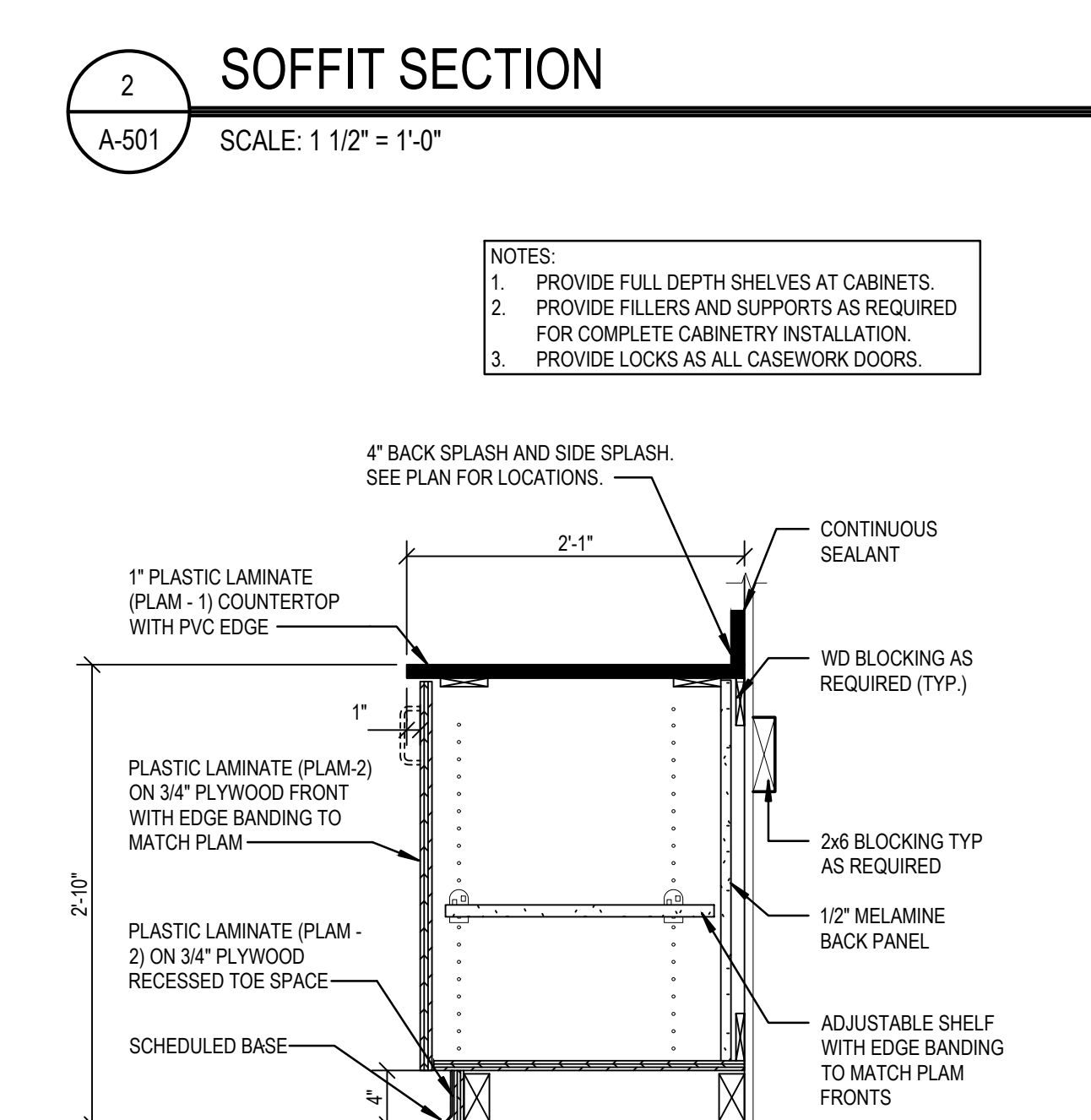
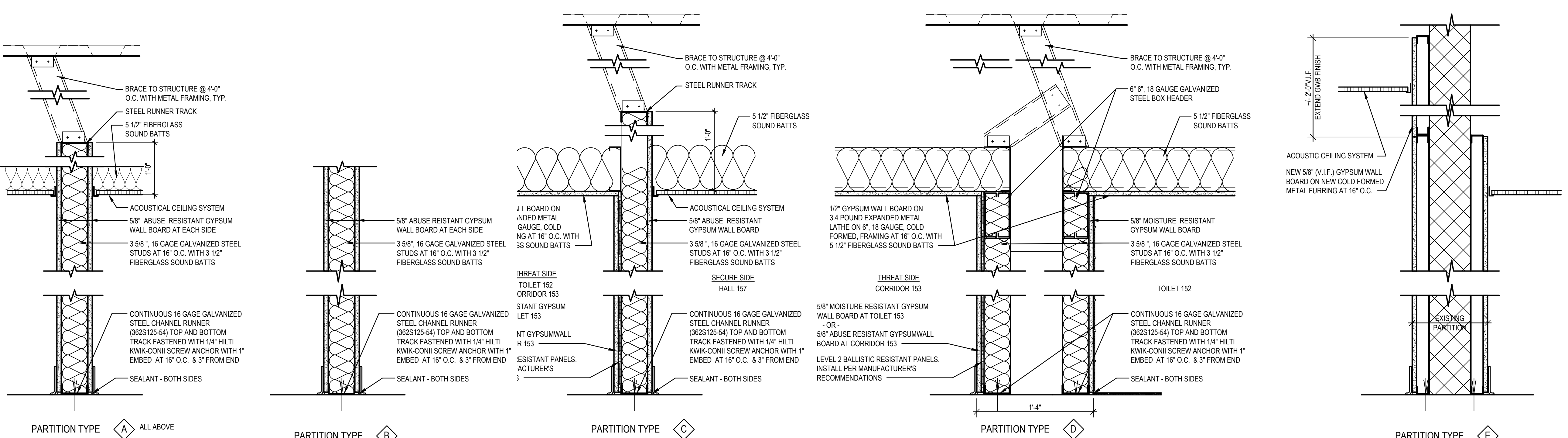
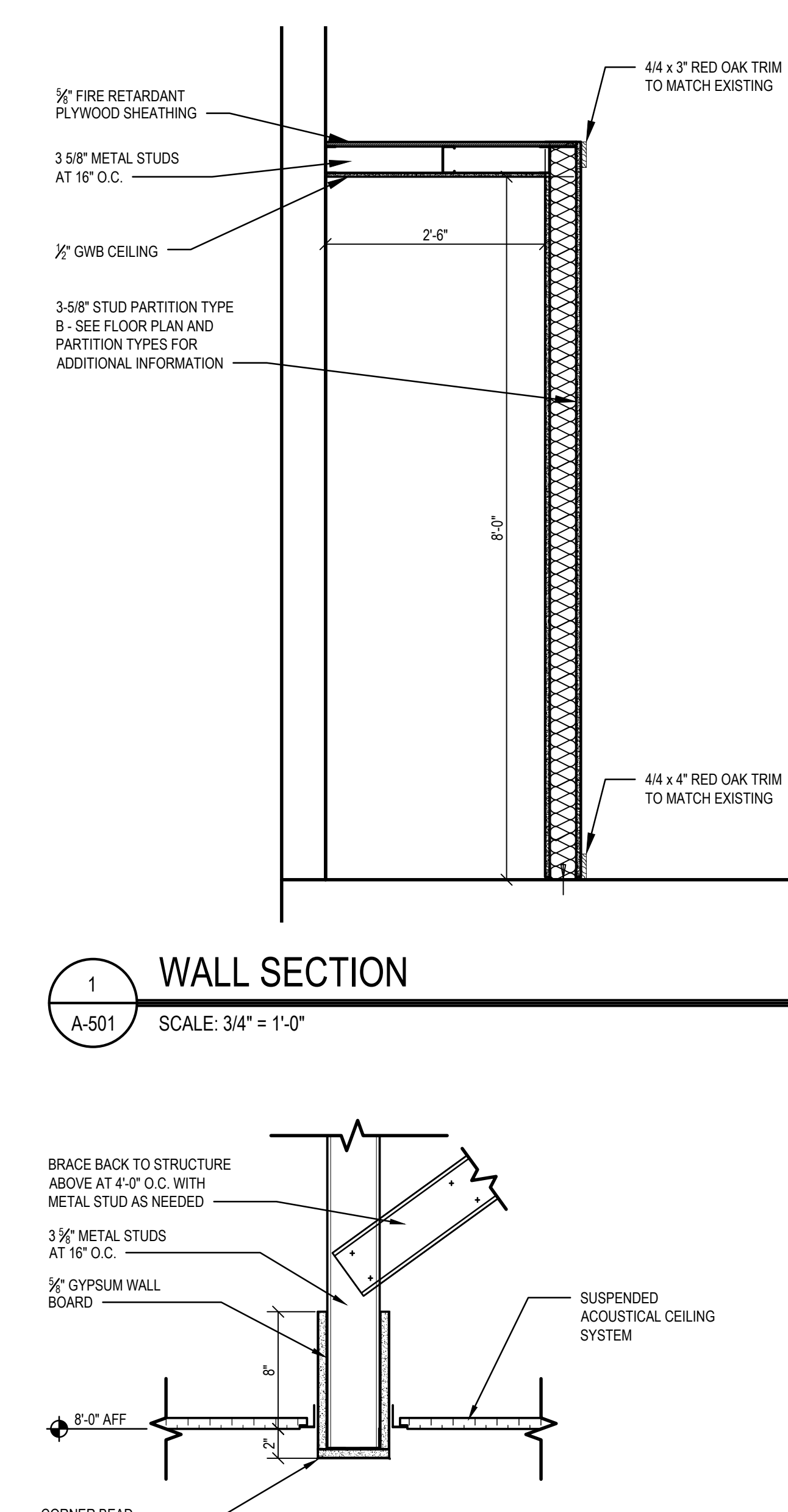
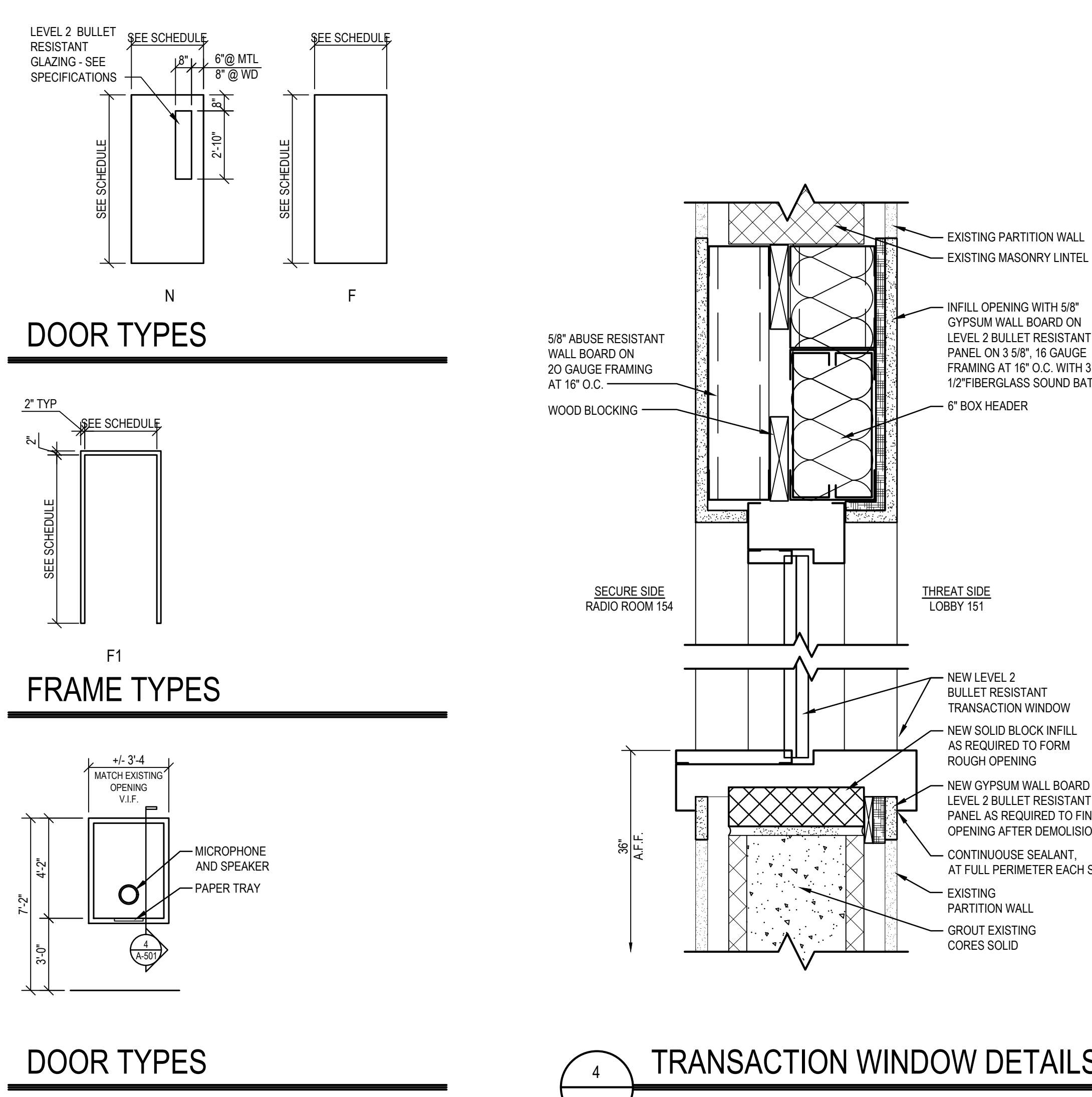
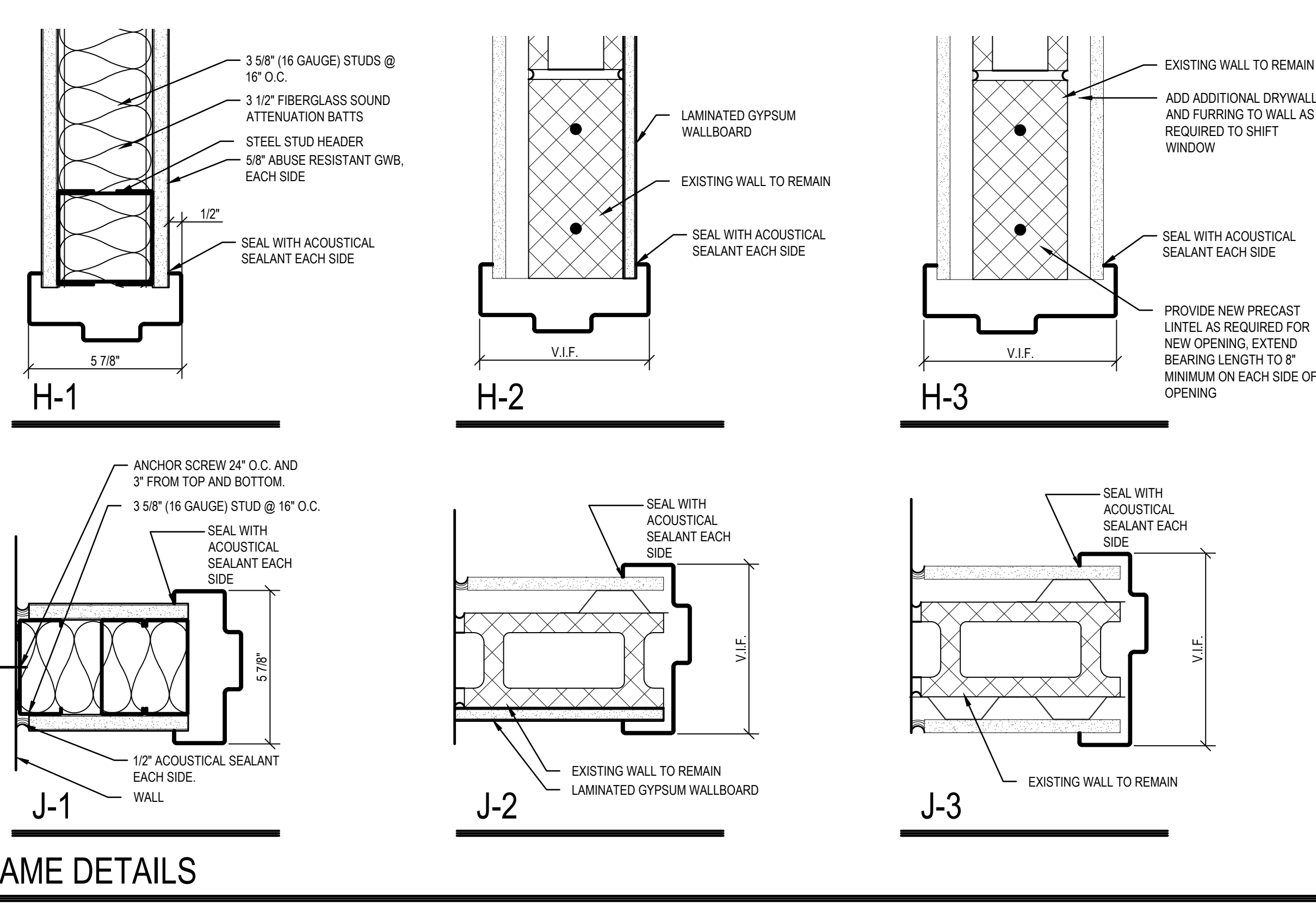
HARDWARE SET #1: SINGLE OFFICE DOOR				HARDWARE SET #2: SINGLE CLOSET DOOR				HARDWARE SET #3: SINGLE CORRIDOR DOOR WITH CARD READER				HARDWARE SET #4: BATHROOM DOOR				HARDWARE SET #5: SINGLE STORAGE DOOR			
QTY	DESCRIPTION			QTY	DESCRIPTION			QTY	DESCRIPTION			QTY	DESCRIPTION			QTY	DESCRIPTION		
3	HINGE 4.5 x 4.5 x NRP T4A3786	626	MCKINNEY	3	HINGE 4.5 x 4.5 x NRP T4A3786	626	MCKINNEY	3	HINGE 4.5 x 4.5 x NRP T4A3786	626	MCKINNEY	3	HINGE 4.5 x 4.5 x NRP T4A3786	626	MCKINNEY	3	HINGE 4.5 x 4.5 x NRP T4A3786	626	MCKINNEY
1	OFFICE LOCKSET AUR-8808FL-2153	630	YALE	1	INTRUDER LOCKSET AUR-8808FL-2153	630	YALE	1	STOREROOM LOCKSET AUR-8808FL-2153	630	YALE	1	RESTROOM INDICATOR LOCKSET AUR-8808FL-2153-V10-V1	630	YALE	1	STOREROOM LOCKSET LV9080 06	626	SCHLAGE
1	WALL STOP WS401	630	IVES	1	WALL STOP WS401	630	IVES	1	WALL STOP WS401	630	IVES	1	WALL STOP WS401	630	IVES	1	WALL STOP WS401	630	IVES
3	SILENCERS 608-RKW	GRAY	ROCKWOOD	3	SILENCERS 608-RKW	GRAY	ROCKWOOD	3	SILENCERS 608-RKW	GRAY	ROCKWOOD	3	SILENCERS 608-RKW	GRAY	ROCKWOOD	3	SILENCERS 608-RKW	GRAY	ROCKWOOD
1	6-PIN CORE (MATCH OWNER'S SYSTEM)	626	YALE	1	6-PIN CORE (MATCH OWNER'S SYSTEM)	626	YALE	1	6-PIN CORE (MATCH OWNER'S SYSTEM)	626	YALE	1	6-PIN CORE (MATCH OWNER'S SYSTEM)	626	YALE	1	6-PIN CORE (MATCH OWNER'S SYSTEM)	626	YALE
1	CONSTRUCTION CORE	626	YALE	1	CONSTRUCTION CORE	626	YALE	1	CONSTRUCTION CORE	626	YALE	1	CONSTRUCTION CORE	626	YALE	1	CONSTRUCTION CORE	626	YALE

HARDWARE NOTES:

- HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERABLE PARTS ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP W/ ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST TO OPERATE. (ANSI A117.1-2009 SECTION 404.2.6)
- DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO AN OPEN POSITION OF 12 DEGREES SHALL BE 5 SECONDS MINIMUM. (ANSI A117.1-2009 SECTION 404.2.7.1)
- DOOR SPRING HINGES SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 70 DEGREES, THE DOOR SHALL MOVE TO THE CLOSED POSITION IN 1.5 SECONDS MINIMUM. (ANSI A117.1-2009 SECTION 404.2.7.2)
- ALL LOCKS SHALL BE KEYPED TO EXISTING MASTER KEY. PROVIDE CONSTRUCTION CORES, FINAL CORES AND KEYS. COORDINATE TO ENSURE CORES AND KEYS ARE COMPATIBLE WITH OWNER'S KEYING SYSTEM.
- PROVIDE CONSTRUCTION AND FINAL CORES FOR ALL KEYPED DOORS.
- DOOR HARDWARE SETS PROVIDED REPRESENT THE DESIGN INTENT. THEY ARE ONLY A GUIDELINE AND SHOULD NOT BE CONSIDERED A DETAILED OR COMPLETE HARDWARE SCHEDULE. NECESSARY ITEMS THAT ARE NOT INCLUDED IN A HARDWARE SET SHOULD BE ADDED AND HAVE THE APPROPRIATE ADDITIONAL HARDWARE AS REQUIRED FOR PROPER APPLICATION AND FUNCTIONALITY.
- MANUFACTURER LISTED IS FOR BASIS OF DESIGN. ADDITIONAL MANUFACTURERS NEED TO BE APPROVED DURING THE BIDDING PROCESS FOR INCLUSION INTO THE PROJECT.
- PROVIDE DOOR HARDWARE ITEM(S) AS REQUIRED FOR SIMILAR PURPOSES, EVEN WHEN ITEM IS NOT LISTED FOR A DOOR IN DOOR HARDWARE SCHEDULE.
- DOOR HARDWARE SUPPLIER IS RESPONSIBLE FOR PROVIDING PROPER SIZE AND HAND OF DOOR FOR PRODUCTS REQUIRED IN ACCORDANCE WITH DOOR HARDWARE SCHEDULE AND AS INDICATED ON DRAWINGS.
- QUANTITIES LISTED ARE FOR EACH PAIR (PR) OF DOORS, OR FOR EACH SINGLE (SGL) DOOR, AS INDICATED IN HARDWARE SETS.
- HARDWARE SETS TYPICALLY IDENTIFY LOCKING AND CLOSING REQUIREMENTS TO ASSIST DOOR HARDWARE SUPPLIER WITH THIS BASIC CRITERIA.
- ALL ELECTRIC POWERED STRIKES, CARD READERS, DOOR RELEASE, POWER SUPPLIES AND COORDINATING HARDWARE WILL BE PROVIDED AND INSTALLED BY THE OWNER'S SECURITY CONTRACTOR. QUANTITIES NOTED ABOVE MAY VARY.

DOOR SCHEDULE

DOOR NUMBER	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR			FRAME			FIBERGLASS	FRAME DETAILS		HARDWARE SET	REMARKS
				TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		HEAD	JAMB		
152	3'-0"	7'-0"	1 3/4"	F	WD	STAINED	F1	HM	PAINTED	0	H-2	J-2	4	LEVEL 2 BALLISTIC WOOD DOOR
153	3'-0"	7'-0"	1 3/4"	N	WD	STAINED	F1	HM	PAINTED	0	H-2	J-2	3	LEVEL 2 BALLISTIC WOOD DOOR
154	3'-0"	7'-0"	1 3/4"	F	WD	STAINED	F1	HM	PAINTED	0	H-1	J-1	1	
154A	3'-0"	7'-0"	1 3/4"	F	WD	STAINED	F1	HM	PAINTED	0	H-1	J-1	2	
155	3'-0"	7'-0"	1 3/4"	F	WD	STAINED	F1	HM	PAINTED	0	H-3	J-3	1	
155A	2'-0"	7'-0"	1 3/4"	F	WD	STAINED	F1	HM	PAINTED	0	H-1	J-1	2	
157	3'-0"	7'-0"	1 3/4"	N	WD	STAINED	F1	HM	PAINTED	0	H-1	J-1	3	LEVEL 2 BALLISTIC WOOD DOOR
164	ETR	ETR	ETR	ETR	ETR	ETR	ETR	ETR	ETR	0	ETR	ETR	ETR	



STUDIOJAED
ARCHITECTS & ENGINEERS FACILITIES SOLUTIONS
www.studiojaed.com

1200 LINCOLN BLVD
CAPE MAY, NJ 08204

DRBA CONTRACT NO. 1200
INTERIOR RENOVATION AT THE
DRBA POLICE DISPATCH

REVISIONS

MARK	DESCRIPTION	DATE

SCHEDULES AND DETAILS

ISSUED FOR BIDDING
MAY 20, 2022

DRAWN: KB/AB
CHKD: AB/PG
PROJECT NO.: 20008

SHEET NO.: A-501

THE REGISTERED PROFESSIONAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL ARCHITECT'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL ARCHITECTURAL FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL INTERIOR DESIGNER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL INTERIOR DESIGN FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL LANDSCAPE ARCHITECTURE FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL PLANNING AND ZONING OFFICER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL PLANNING AND ZONING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL SURVEYOR'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL SURVEYING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL CIVIL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL CIVIL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL ELECTRICAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL ELECTRICAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL MECHANICAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL MECHANICAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL CHEMICAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL CHEMICAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL INDUSTRIAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL INDUSTRIAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL AGRICULTURAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL AGRICULTURAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL METALLURGICAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL METALLURGICAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL ENVIRONMENTAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL ENVIRONMENTAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL SANITARY ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL SANITARY ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL AERONAUTICAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL AERONAUTICAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL AEROSPACE ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL AEROSPACE ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL AERONAUTICAL ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL AERONAUTICAL ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS. THE REGISTERED PROFESSIONAL AEROSPACE ENGINEER'S SIGNATURE AND SEAL ARE REQUIRED FOR THE EXERCISE OF PROFESSIONAL AEROSPACE ENGINEERING FUNCTIONS AND SHALL BE PLACED ON ALL DRAWINGS.

GENERAL NOTES

(APPLY TO WORK PROVIDED UNDER DIV. 20):

1. **GENERAL:** FURNISH LABOR, EQUIPMENT AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE COMPLETE MECHANICAL SYSTEMS AS SPECIFIED HEREIN AND INDICATED IN THE CONTRACT DOCUMENTS. OUTLINE DESCRIPTION AND DIAGRAMMATIC REPRESENTATION OF SYSTEM OPERATION AND EQUIPMENT DOES NOT LIMIT CONTRACTOR LIABILITY FOR FURNISHING AND INSTALLING COMPLETE AND OPERABLE SYSTEMS.
2. **APPLICABLE CODES:** THE INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE CODE OF THE LOCAL AUTHORITY HAVING JURISDICTION.
3. **NOTE DEFINITIONS:** "DRAWING NOTES" APPLY TO THE ENTIRE DRAWING ON WHICH THEY APPEAR. WHERE RELEVANT, "SPECIFIC NOTES" APPLY ONLY WHERE INDICATED WITH THE "SPECIFIC NOTE" SYMBOL. REFER TO LEGEND.
4. DUCTWORK TO BE SHEET METAL UNLESS NOTED OTHERWISE.
5. PROVIDE REQUIRED CLEARANCE FOR MAINTENANCE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR AS REQUIRED BY CODE FOR MECHANICAL EQUIPMENT.
6. VERIFY THAT EXISTING EQUIPMENT THAT IS TO REMAIN IS FULLY FUNCTIONAL AND OPERATIONAL.
7. **PERMITS:** INCLUDE IN THE BID PRICE THE PAYMENT OF NECESSARY PERMITS. FURNISH THE OWNER PRIOR TO THE FINAL PAYMENT A CERTIFICATE FROM THE INSPECTION DEPARTMENT HAVING JURISDICTION CERTIFYING THAT THE WORK MEETS THE REQUIREMENTS OF THE LOCAL INSPECTION AUTHORITIES AND/OR THE NATIONAL BOARD OF FIRE UNDERWRITERS.
8. **SCHEDULING:** COORDINATE WITH THE OWNER FOR SCHEDULING OF WORK.
9. WORK SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
10. KEEP THE WORK SITE AND SURROUNDING AREA FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH GENERATED BY WORK FROM THIS CONTRACT. PROPERLY AND LEGALLY DISPOSE OF MATERIALS.
11. **SAFETY:** JOB SITE SAFETY SHALL BE IN STRICT ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
12. VISIT THE SITE AND CAREFULLY EXAMINE EXISTING CONDITIONS THAT MAY AFFECT THE BID.
13. **EXISTING MECHANICAL INSTALLATION:** EXISTING MECHANICAL WORK WHICH WILL NOT BE RENDERED OBSOLETE AND WHICH MAY BE DISTURBED DUE TO ANY CHANGES REQUIRED UNDER THIS CONTRACT SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION. OTHER MECHANICAL ITEMS RENDERED OBSOLETE SHALL BE ABANDONED WHERE CONCEALED AND REMOVED WHERE EXPOSED.
14. WHERE EXISTING MECHANICAL WORK INTERFERES WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE, THE INSTALLATIONS SHALL BE DISCONNECTED AND RELOCATED AND/OR RECONNECTED TO COORDINATE WITH NEW WORK AS INDICATED IN THE CONTRACT DOCUMENTS AND AS SPECIFIED.
15. DO NOT DISCONTINUE ANY MECHANICAL SYSTEM SERVICE WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE USER AGENCY. THE MECHANICAL SYSTEM OUTAGES SHALL BE KEPT TO A MINIMUM.
16. PROVIDE SUBMITTALS (SHOP DRAWINGS) FOR REVIEW FOR NEW MATERIALS AND EQUIPMENT. PRIOR TO SUBMITTING, REVIEW SUBMITTALS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, CONFLICTS WITH OTHER TRADES, AND CONSTRUCTABILITY. IDENTIFY ANY DEVIATIONS IN SUBMITTALS FROM CONTRACT DOCUMENTS. ENGINEER'S REVIEW OF SUBMITTALS DOES NOT INCLUDE REVIEW OF DIMENSIONS, DETAILS, OR QUANTITIES. REVIEW DOES NOT WAIVE ANY REQUIREMENTS OF CONTRACT DOCUMENTS, INCLUDING REQUIREMENT TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
17. WHEN MOUNTING MECHANICAL WORK IN AREAS SUBJECT TO PEDESTRIAN TRAFFIC, MAINTAIN REQUIRED HEADROOM CLEARANCES.
18. MECHANICAL MATERIALS AND EQUIPMENT SHALL BE INSTALLED AS TO MAINTAIN THEIR RESPECTIVE UL RATING AND SHALL CONFORM TO FACTORY MUTUAL STANDARDS AS APPLICABLE.
19. MECHANICAL WORK SHALL BE CONCEALED IN FINISHED AREAS SHOWN ON THE ARCHITECTURAL DRAWINGS UNLESS NOTED OTHERWISE.
20. **EQUIPMENT LOCATIONS:** REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIFFUSER LOCATIONS AND THE ELECTRICAL DRAWINGS FOR EXACT ELECTRICAL EQUIPMENT LOCATIONS. LOCATIONS OF MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING ARE SHOWN DIAGRAMMATICALLY. DETERMINE EXACT LOCATIONS IN THE FIELD.
21. WHERE NEW OR RELOCATED CONTROL DEVICES ARE SHOWN ON EXISTING WALLS, CUT WALL, INSTALL DEVICE AND CONDUIT, AND REPAIR WALL PROPERLY TO ITS ORIGINAL CONDITION.
22. SEALING FITTINGS AND APPROVED SEALING COMPOUND SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE CODE. SEAL AROUND PENETRATIONS OF FIRE-RATED WALLS WITH AN APPROVED SEALANT.
23. LOCATIONS OF DUCTWORK, AIR DEVICES, TEMPERATURE CONTROLS, AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL LAYOUTS, EQUIPMENT CUTS AND PLUMBING/ELECTRICAL PLANS. NO WORK SHALL BE INSTALLED UNTIL THE LOCATIONS HAVE BEEN VERIFIED. BRING ANY DISCREPANCY TO THE ARCHITECTS ATTENTION PRIOR TO MANUFACTURING OF DUCTWORK OR INSTALLATION.
24. NORTH ARROWS ON THESE DRAWINGS INDICATE PLAN NORTH ONLY.
25. INSTALL A MANUAL VOLUME DAMPER IN EACH BRANCH DUCT THAT RUNS TO (1) AIR DEVICE.
26. PROVIDE PIPE SLEEVE FOR PIPING PENETRATIONS THROUGH RATED SLABS OR WALLS.
27. DUCT JOINTS SHALL BE SEALED USING 3M MODEL 540 DUCT SEALER. EXCESS SEALER SHALL BE REMOVED FROM DUCTWORK AND JOINTS. PAINT SEALED JOINTS TO MATCH FINISH OF DUCTWORK.
28. IN AREAS WHERE WORK IS INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES OR WITHIN TRADES COVERED BY THIS DIVISION OF THE SPECIFICATIONS, PREPARE LARGER SCALE DRAWINGS CONSISTING OF PLANS AND SECTIONS TO SHOW HOW WORK IS TO BE INSTALLED IN RELATION TO WORK OF OTHER TRADES.

GENERAL DEMOLITION NOTES

(APPLY TO WORK PROVIDED UNDER DIVISION 20):

1. DEMOLITION WORK IS GENERALLY INDICATED AS PART OF THESE NOTES AND THE NOTES INDICATED ON THE ARCHITECTURAL DEMOLITION PLANS.
2. VERIFY THAT EXISTING PIPING, EQUIPMENT, ETC. THAT IS CALLED FOR REMOVAL IS NO LONGER IN SERVICE BEFORE BEGINNING DEMOLITION.
3. THE DEMOLITION NOTES INDICATE THE MAIN COMPONENTS OF SYSTEMS AND EQUIPMENT THAT SHALL BE REMOVED UNDER THIS CONTRACT. IF SYSTEMS AND EQUIPMENT ARE FOUND DURING CONSTRUCTION THAT THE OWNER AUTHORIZES FOR REMOVAL BUT HAVE NOT BEEN SPECIFICALLY CALLED FOR DEMOLITION, REMOVE THE SYSTEMS AND EQUIPMENT.
4. WHEN THE WORK SPECIFIED HEREUNDER CONNECTS TO ANY EXISTING EQUIPMENT, PIPING, ETC., PERFORM NECESSARY ALTERATIONS, CUTTING, FITTING, ETC. OF THE EXISTING WORK AS MAY BE NECESSARY OR REQUIRED TO MAKE SATISFACTORY CONNECTIONS BETWEEN THE NEW AND EXISTING WORK AND LEAVE THE COMPLETE WORK IN A FINISHED AND WORKMANLIKE CONDITION.
5. WHEN THE WORK SPECIFIED UNDER OTHER DIVISIONS NECESSITATES RELOCATION OF EXISTING EQUIPMENT, PIPING, ETC., PERFORM WORK AND MAKE NECESSARY CHANGES TO EXISTING WORK AS MAY BE REQUIRED TO LEAVE THE COMPLETED WORK IN A FINISHED AND WORKMANLIKE CONDITION.
6. REMOVE FROM THE PREMISES AND DISPOSE OF EXISTING PIPING, MATERIAL, FIXTURES, EQUIPMENT, ETC. NOT REQUIRED FOR RE-USE OR RE-INSTALLATION.
7. DELIVER ON THE PREMISES WHERE DIRECTED EXISTING MATERIAL AND EQUIPMENT WHICH IS REMOVED AND IS DESIRED BY THE OWNER OR IS INDICATED TO REMAIN THE PROPERTY OF THE OWNER.
8. OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.
9. PIPING ABANDONED IN CONCRETE SLABS, WALLS, OR OTHER INACCESSIBLE LOCATIONS SHALL BE LEFT EMPTY.

COMMON CONTROLS NOTES:

1. ALL MECHANICAL SYSTEM CONTROLS COMPONENTS AND SEQUENCES SHALL BE COORDINATED AND INTEGRATED WITH THE EXISTING JCI METASYS BUILDING MANAGEMENT SYSTEM.
2. PROVIDE ALL NECESSARY WIRING, CONTROLS COMPONENTS, EQUIPMENT, SOFTWARE MODIFICATIONS, AND POWER TRANSFORMERS REQUIRED FOR A FULLY FUNCTIONING, LOCAL STAND-ALONE SYSTEM OPERATION. WITH CENTRAL JCI METASYS BAS SYSTEM MONITORING, AND CONTROLS OVERRIDE CAPABILITY.

HVAC CONTROL SEQUENCES:

1. EXHAUST FAN: (EF-8)
 - A. DURING OCCUPIED PERIODS EF-8 IS TO BE ENERGIZED AND RUNNING CONTINUOUSLY.
 - B. DURING UNOCCUPIED PERIODS EF-8 IS TO BE OFF.
2. ELECTRIC BASEBOARD HEATERS: (EBH-1)
 - A. LOCAL WALL MOUNTED THERMOSTAT IS TO CONTROL UNIT TO MAINTAIN A SPACE TEMPERATURE OF 68 DEGREES F (ADJUSTABLE).
3. SPLIT SYSTEM: (ACU-1/ ACCU-1)
 - A. SYSTEM IS TO CYCLE PER THE MANUFACTURER PROVIDED CONTROLS BASED ON A SIGNAL FROM A WALL MOUNTED THERMOSTAT TO MAINTAIN A SPACE TEMPERATURE SET POINT OF 72 DEGREE F (ADJUSTABLE).

BAS MONITORING AND CONTROL:

1. PROVIDE EF-8 WITH MONITORING AND CONTROL FOR THE FOLLOWING:
 - A. FAN ON/OFF
2. PROVIDE ACU-1/ ACCU-1 WITH MONITORING AND CONTROL FOR THE FOLLOWING:
 - A. UNIT ON/OFF
 - B. SPACE TEMPERATURE SETPOINT (ADJUSTABLE)
 - C. SPACE TEMPERATURE (MONITORING AND HIGH TEMP. ALARM ONLY)

MECHANICAL LEGEND

SYMBOL	ABBREV	DESCRIPTION	ABBREV	DESCRIPTION
	CT	COOLING TOWER WATER SUPPLY	ABV	ABOVE
	CTR/CTWR	COOLING TOWER WATER RETURN	AFF	ABOVE FINISHED FLOOR
	C	CONDENSER WATER SUPPLY	AHU	AIR HANDLING UNIT
	CR	CONDENSER WATER RETURN	BTU	BRITISH THERMAL UNIT
		FLOW METER FITTING	CB	CATCH BASIN
		REDUCED PRESSURE ZONE BACKFLOW PREVENTER	CFH	CUBIC FEET HOUR
	TP	TRAP PRIMER	CFM	CUBIC FEET MINUTE
		RELIEF VALVE	CL	CENTER LINE
	MAV	MANUAL AIR VALVE	CT	COOLING TOWER
	AAV	AUTOMATIC AIR VALVE	CTW	COOLING TOWER WATER
		STRAINER W/VALVE	CW	COLD WATER
		UNION	DIFF	DIFFUSER
	SA	SHOCK ABSORBER	DB	DRY BULB
		FLOW SWITCH	DN	DOWN
		THERMOMETER/THERMOSTAT	EAT	ENTERING AIR TEMPERATURE
		THERMOMETER WELL	EBH	ELECTRIC BASEBOARD HEATER
		PRESSURE GAUGE W/ SYPHON & NEEDLE VALVE	EF	EXHAUST FAN
		PRESSURE GAUGE W/NEEDLE VALVE	ESP	EXTERNAL STATIC PRESSURE
	PG	PRESSURE GAUGE TAPPING	EL	ELEVATION
		PIPE GUIDE	EX/EXIST.	EXISTING
		ANCHOR	EXH	EXHAUST
	TCV	TEMPERATURE CONTROL VALVE (2-WAY)	EXTR	EXISTING TO REMAIN
	TCV	TEMPERATURE CONTROL VALVE (3-WAY)	FBR	FIN TUBE BASEBOARD RADIATION
		STEAM TRAP ASSEMBLY (THERMODYNAMIC)	(FLOOR PLAN M-1)	PLAN ON DRAWING M-1
		DRIP POINT	GR	GRILLE
		BUCKET TRAP	GPM	GALLONS PER MINUTE
	F&T	FLOAT AND THERMOSTATIC TRAP	HWS	HOT WATER SUPPLY
		FLEXIBLE PIPE CONNECTION	HWR	HOT WATER RETURN
		OS&Y VALVE W/ TAMPER SWITCH	HUH	HYDRONIC UNIT HEATER
		SHUTOFF VALVE	LAT	LEAVING AIR TEMPERATURE
		CHECK VALVE	LVR	LOUVER
	BWV	BACK WATER VALVE	KW	KILOWATTS
	PRV	PRESSURE REDUCING VALVE	MBH	THOUSAND BTU/HR
		PIPE TURNING UP	OA	OUTSIDE AIR
		PIPE TURNING DOWN	PD	PRESSURE DROP
		TEE TURNING UP	PSI	POUNDS PER SQUARE INCH
		TEE TURNING DOWN	RA	RETURN AIR
		THERMOSTAT	REG	REGISTER
		SUPPLY DUCT TURNED UP	RX	REMOVE EXISTING
		SUPPLY DUCT TURNED DOWN	SA	SUPPLY AIR
		RETURN OR OUTSIDE AIR DUCT TURNED UP	TSP	TOTAL STATIC PRESSURE
		RETURN OR OUTSIDE AIR DUCT TURNED DOWN	TYP	TYPICAL
		EXHAUST AIR DUCT TURNED UP	V-PH	VOLT-PHASE
		EXHAUST AIR DUCT TURNED DOWN	VTR	VENT THROUGH ROOF
		FLEXIBLE DUCT CONNECTION	UG	UNDER GROUND
	DD	DUCT SMOKE DETECTOR	UH	UNIT HEATER
	MVD	MANUAL VOLUME DAMPER		
	MOD	MOTOR OPERATED DAMPER		
	SD	SMOKE DAMPER		
	FD	FIRE DAMPER		
	BDD	BACKDRAFT DAMPER		
	OBD	OPPOSED BLADE DAMPER		
		MATCH LINE		
		PIPING BELOW GRADE		
		SECTION DESIGNATION		
		DETAIL DESIGNATION		

SYMBOL	ABBREV	DESCRIPTION
		EXTENT OF NEW WORK
		EXTENT OF DEMOLITION
		AREA TO BE DEMOLISHED



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

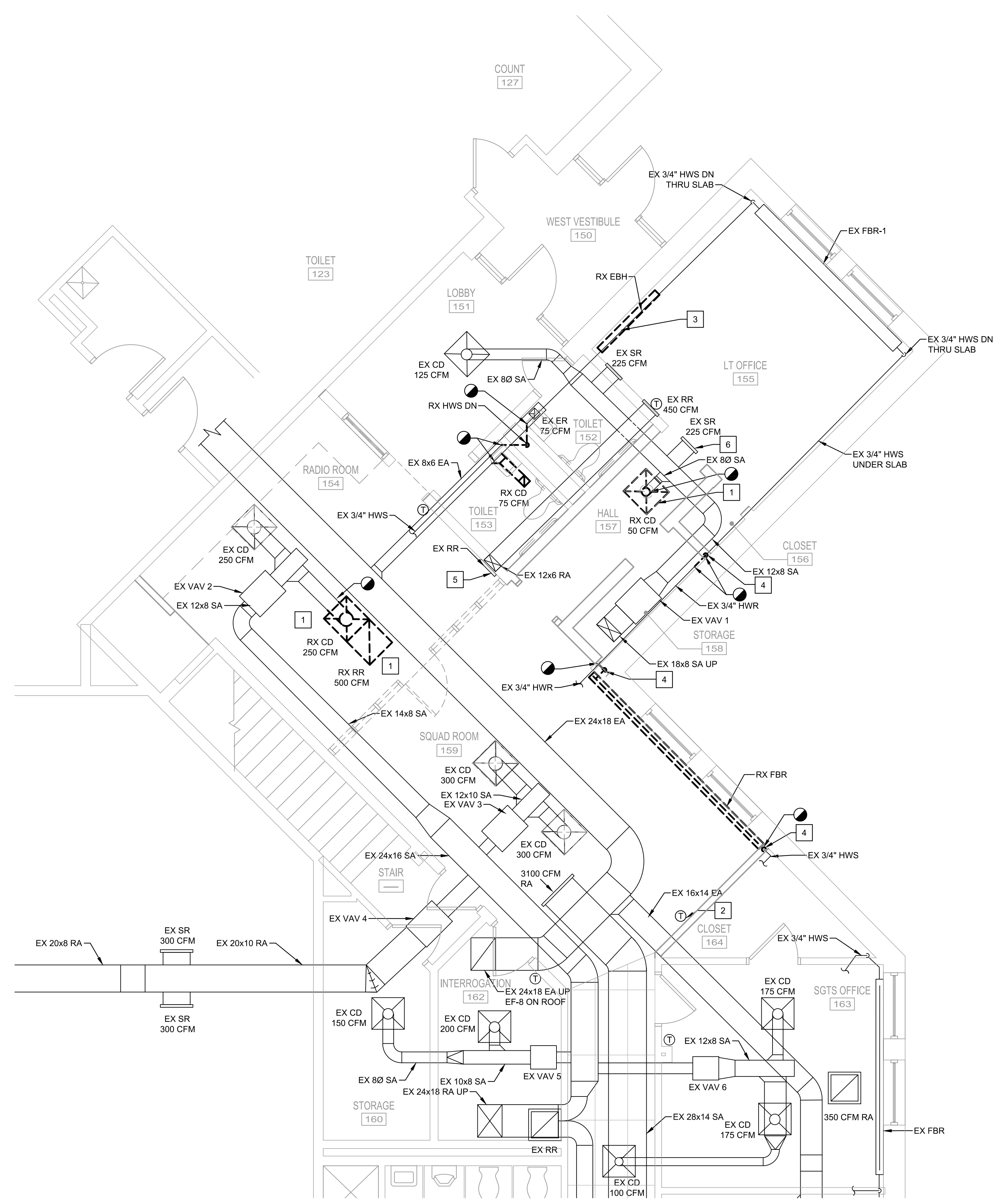
GENERAL NOTES
SYMBOLS AND
ABBREVIATIONS

M-000

REVISION			
NO.	DATE	DESCRIPTION	BY

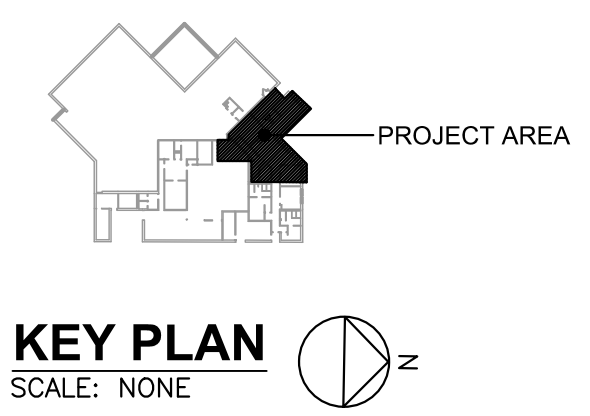
CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS

PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED



1 HVAC DEMOLITION PLAN
 M-100 SCALE: 1/4" = 1'-0"

DEMOLITION WORK SHALL BE DONE IN PHASES.
 COORDINATE WORK WITH NEW INSTALLATIONS.



SPECIFIC DEMOLITION NOTES (APPLY TO THIS DRAWING WHERE INDICATED):

- 1 REMOVE RETURN REGISTER/CEILING DIFFUSER, CLEAN, AND RETAIN FOR REINSTALLATION AS PART OF NEW WORK. DEMOLISH AND REPLACE ANY FLEXIBLE DUCTWORK.
- 2 EXISTING THERMOSTAT TO BE REMOVED AND REINSTALLED.
- 3 DISCONNECT AND REMOVE EXISTING ELECTRIC BASEBOARD HEATER AND SAVE FOR REINSTALLATION.
- 4 REMOVE HW PIPE RISER.
- 5 EXISTING REGISTER ABOVE CEILING IN PLENUM.
- 6 REMOVE THERMOSTAT AND STORE FOR REINSTALLATION AS PART OF NEW WORK.



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY ENGINEERING
 CONSULTING ENGINEERS - PLANNERS
 PLAZA 273, 56 W. MAIN STREET,
 SUITE 100-A, NEWARK, DE 19702
 Phone: (302) 525-6022 Fax: (443) 589-2401
 www.centuryeng.com
 © 2018 ALL RIGHTS RESERVED

DELAWARE RIVER AND BAY AUTHORITY
 CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C19-06
 TERMINAL POLICE AND ADMINISTRATION
 BUILDING - DISPATCH CENTER REHAB

HVAC DEMOLITION PLAN

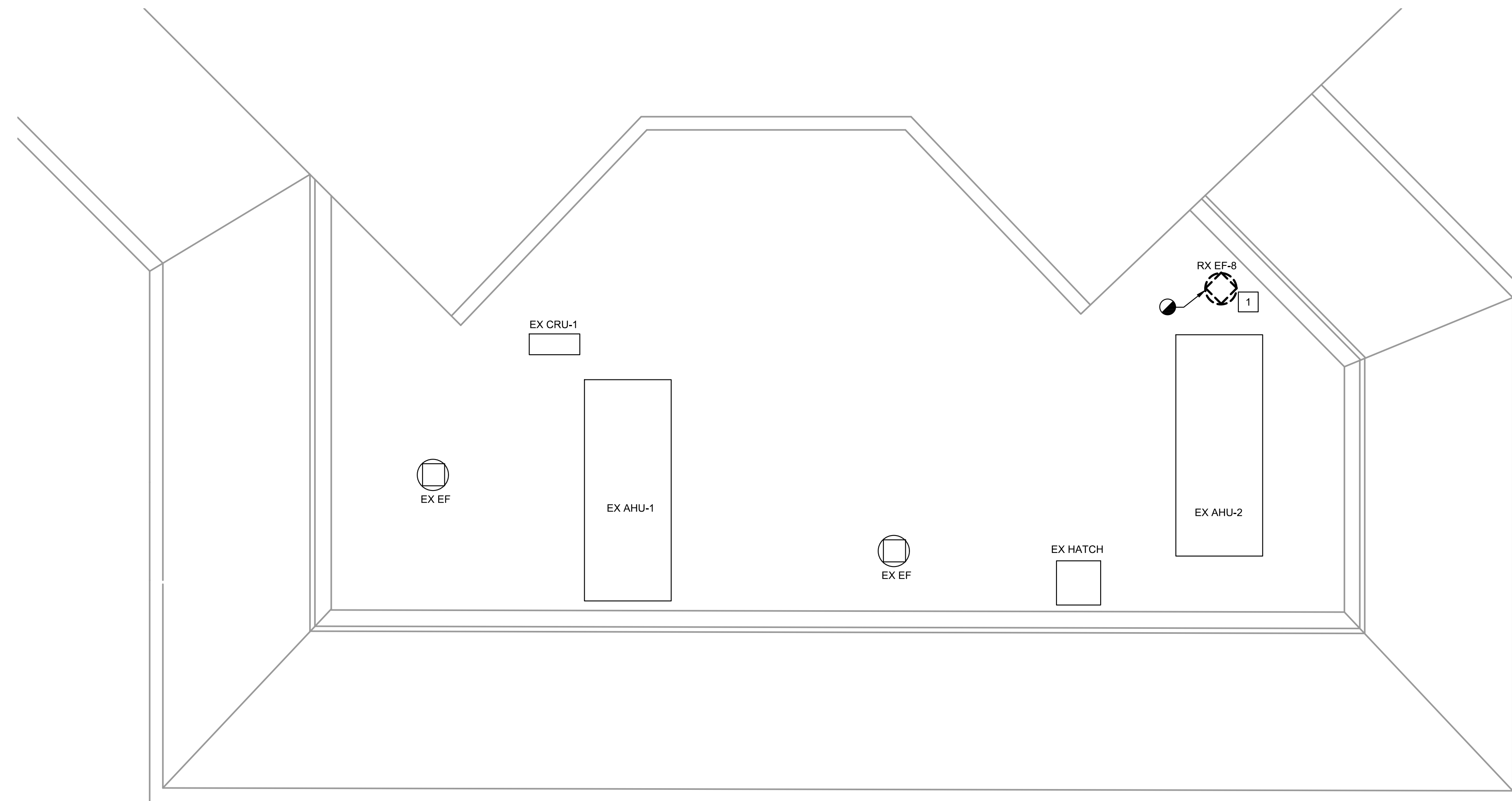
M-100

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 10

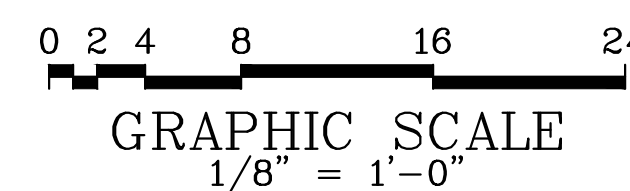
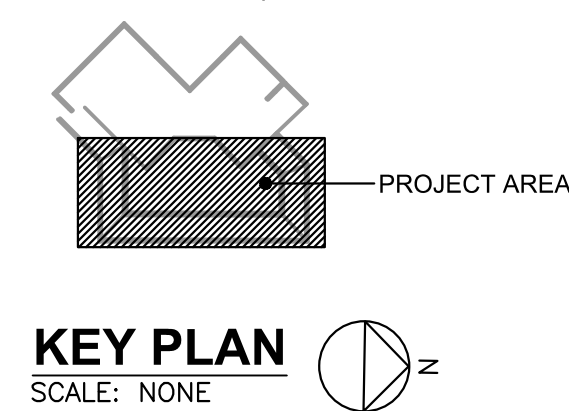


SPECIFIC NOTES (APPLY TO THIS DRAWING WHERE INDICATED):

- 1 REMOVE EXHAUST FAN AND REPAIR ROOF CURB AS REQUIRED.



1 ROOF HVAC DEMOLITION PLAN
 W-101 SCALE: 1/8" = 1'-0"



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
 ENGINEERING
 CONSULTING ENGINEERS - PLANNERS
 PLAZA 273, 56 W. MAIN STREET,
 SUITE 100-A, NEWARK, DE 19702
 Phone: (302) 525-6022 Fax: (443) 589-2401
 www.centuryeng.com
 © 2018 ALL RIGHTS RESERVED



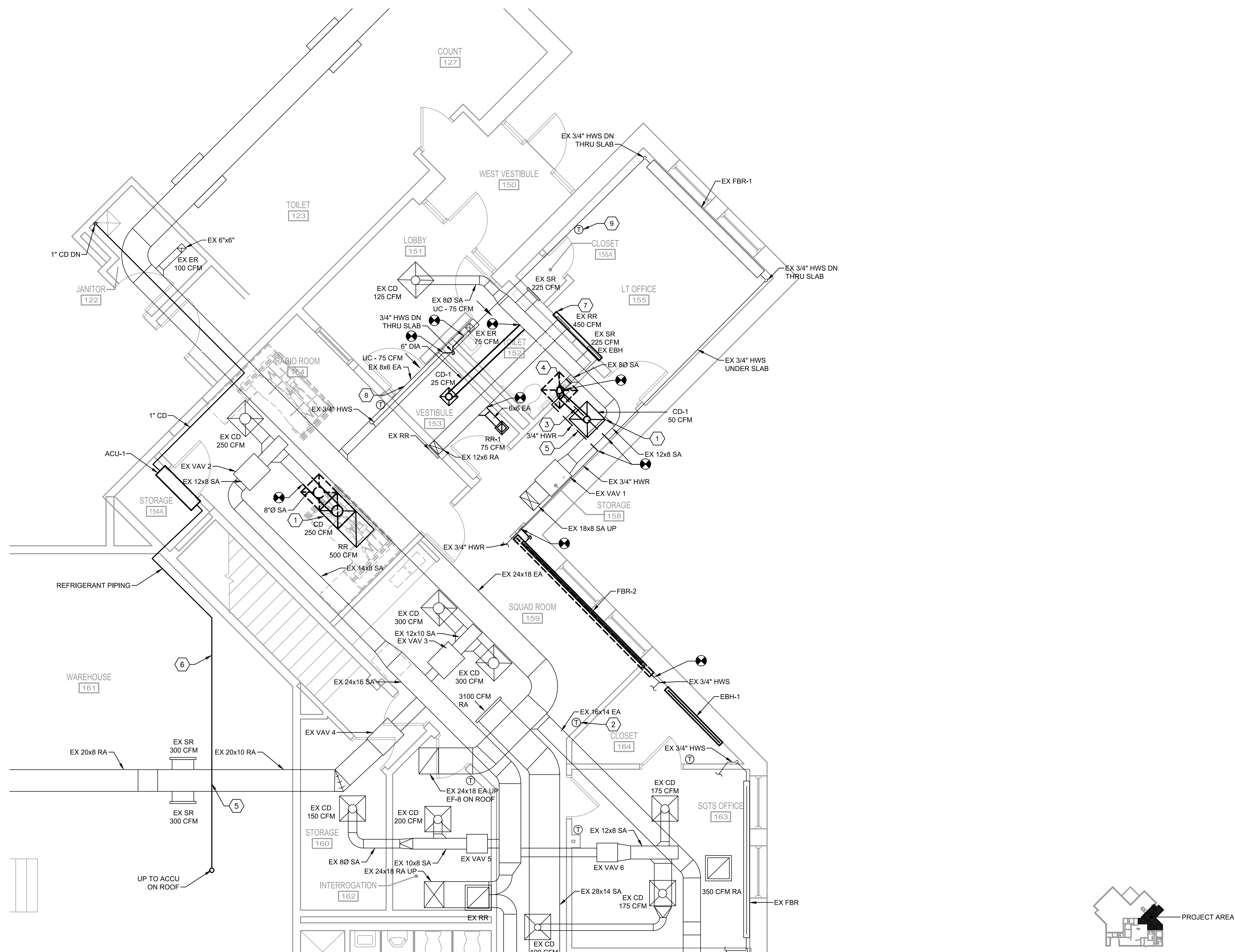
DELAWARE RIVER AND BAY AUTHORITY CAPE MAY – LEWES FERRY		
CONTRACT NO. CMLF-C19-06 TERMINAL POLICE AND ADMINISTRATION BUILDING – DISPATCH CENTER REHAB		
ROOF HVAC DEMOLITION PLAN		M-101
DATE: MAY 2022	SCALE: AS NOTED	SHEET NO. 11

DRAWING NOTES:

- 1. SEAL WALL PIPE PENETRATIONS.

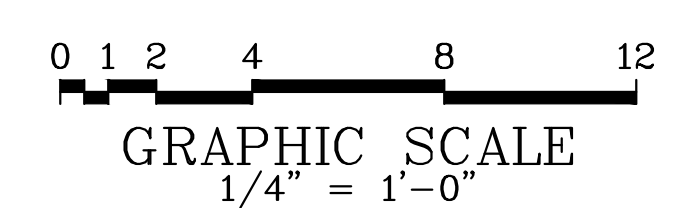
SPECIFIC NOTES: (APPLY TO THIS DRAWING WHERE INDICATED):

- ① REINSTALL EXISTING AIR DEVICE AT THIS LOCATION.
- ② REINSTALL EXISTING THERMOSTAT WITH VAV BOX.
- ③ 3/4" HWR WITH INSULATION ROUTED UNDER SLAB. CUT AND PATCH FLOOR AS REQUIRED. COORDINATE WITH OTHER DISCIPLINES.
- ④ 3/4" HWR DROP DOWN THRU SLAB IN WALL.
- ⑤ COORDINATE PIPE ROUTING WITH DUCTWORK.
- ⑥ SUSPEND REFRIGERANT PIPING FROM STRUCTURE. COORDINATE ROUTING WITH EXISTING CONDITIONS.
- ⑦ REINSTALL AND RECONNECT EXISTING ELECTRIC BASEBOARD HEATER
- ⑧ PATCH AND SEAL EXHAUST DUCT AT REMOVED BRANCH.
- ⑨ REINSTALL THERMOSTAT.



1 HVAC PLAN
M-110 SCALE: 1/4" = 1'-0"

KEY PLAN
SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

HVAC PLAN

M-110

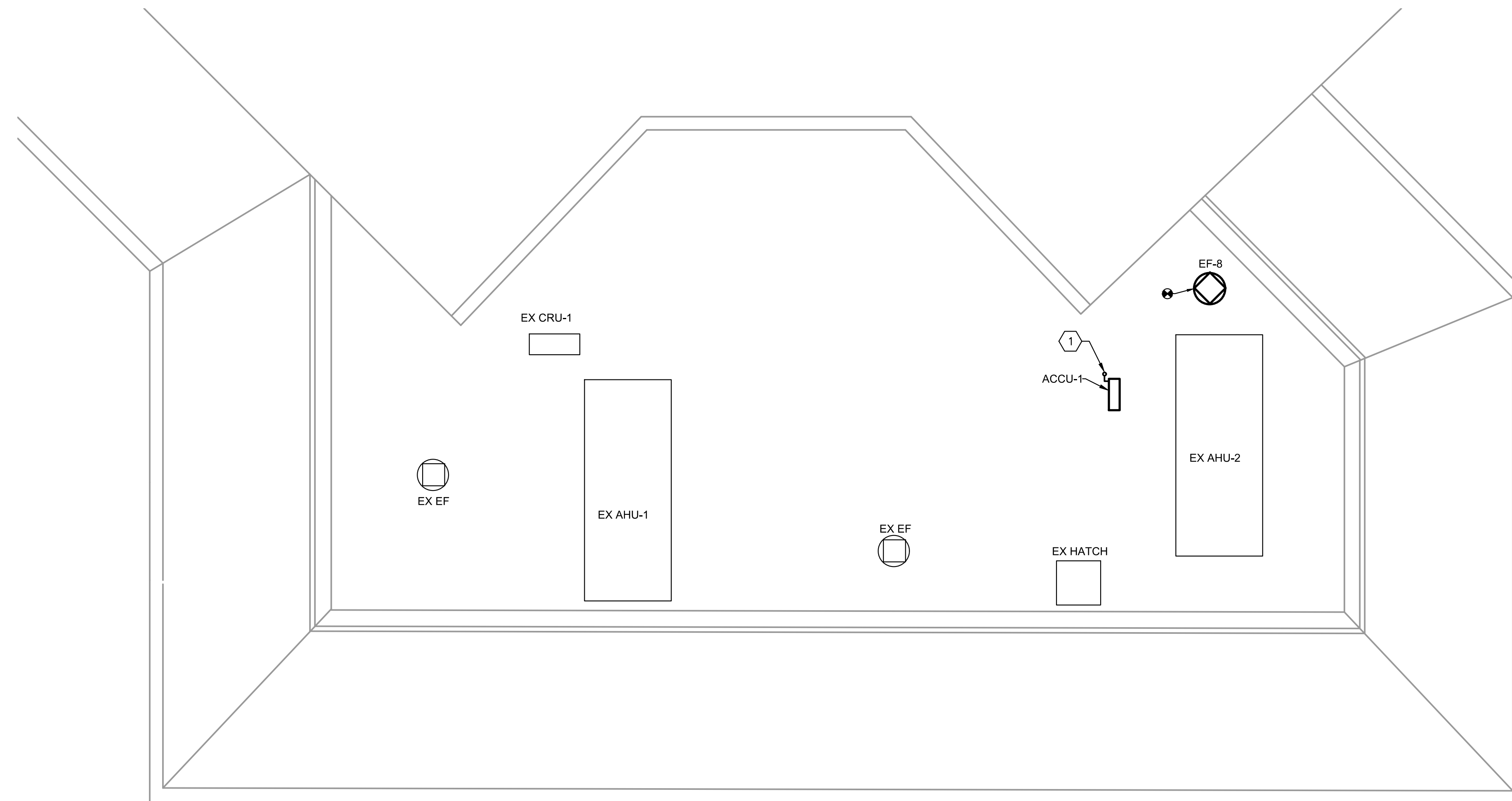
DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 12

DRAWING NOTES:

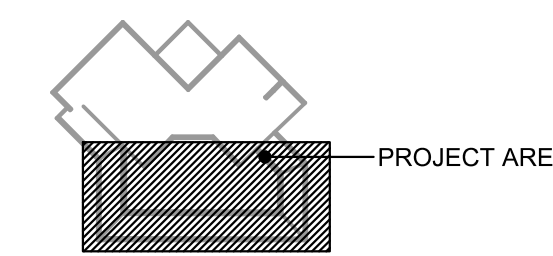
1. COORDINATE WORK WITH OTHER TRADES AND EXISTING CONDITIONS
2. REFRIGERANT PIPING IS TO BE INSULATED WITH JACKETING SEALED WEATHER TIGHT.

SPECIFIC NOTES: (APPLY TO THIS DRAWING WHERE INDICATED):

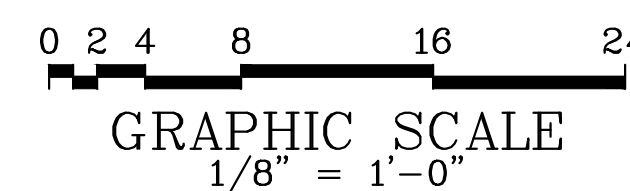
- ① REFRIGERANT PIPING ROOF PENETRATION.



1 ROOF HVAC PLAN
 M-111 SCALE: 1/8" = 1'-0"



KEY PLAN
 SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
 ENGINEERING
 CONSULTING ENGINEERS - PLANNERS
 PLAZA 273, 56 W. MAIN STREET,
 SUITE 100-A, NEWARK, DE 19702
 Phone: (302) 525-6022 Fax: (443) 589-2401
 www.centuryeng.com
 © 2018 ALL RIGHTS RESERVED



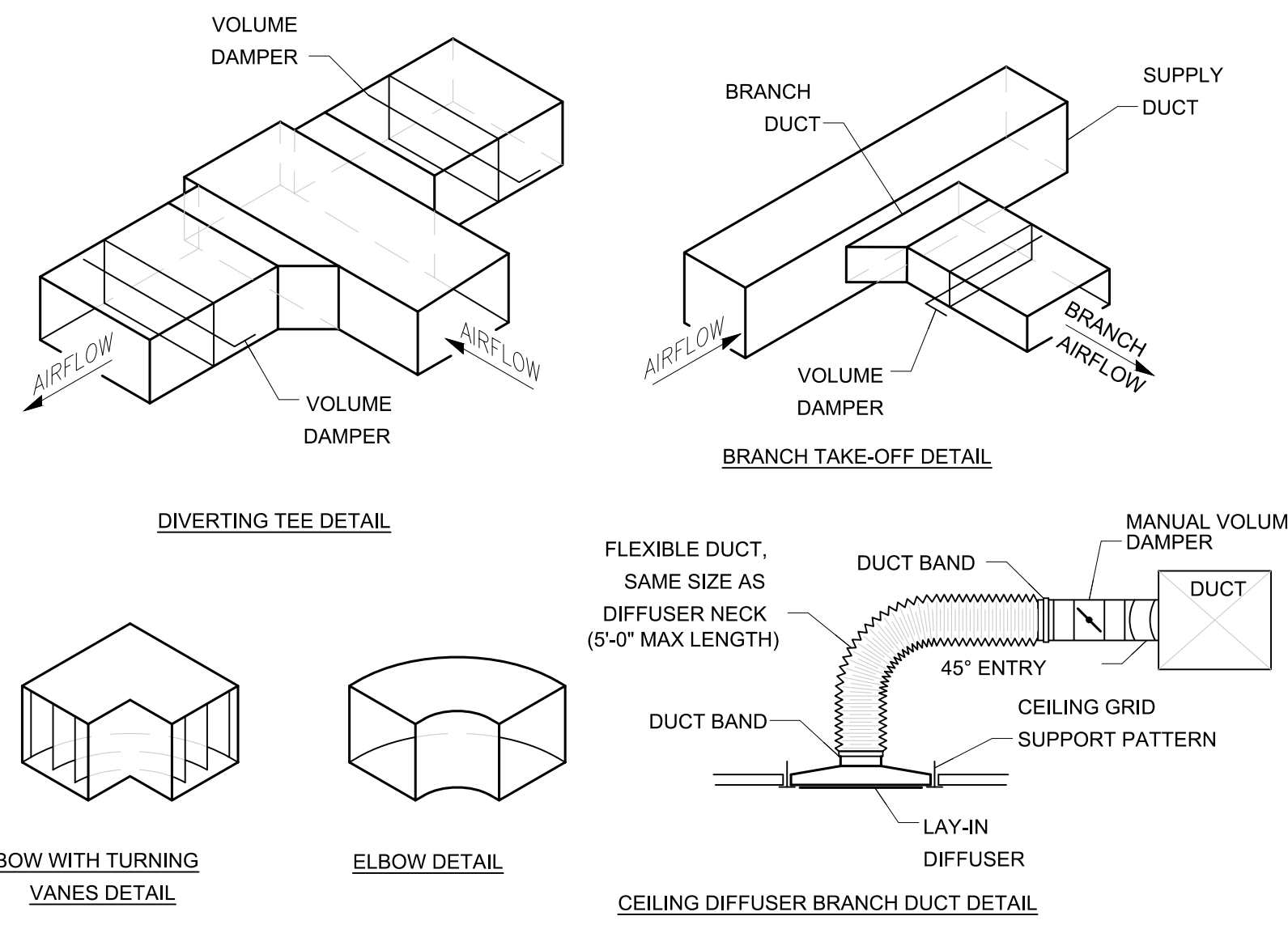
DELAWARE RIVER AND BAY AUTHORITY
 CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
 TERMINAL POLICE AND ADMINISTRATION
 BUILDING – DISPATCH CENTER REHAB

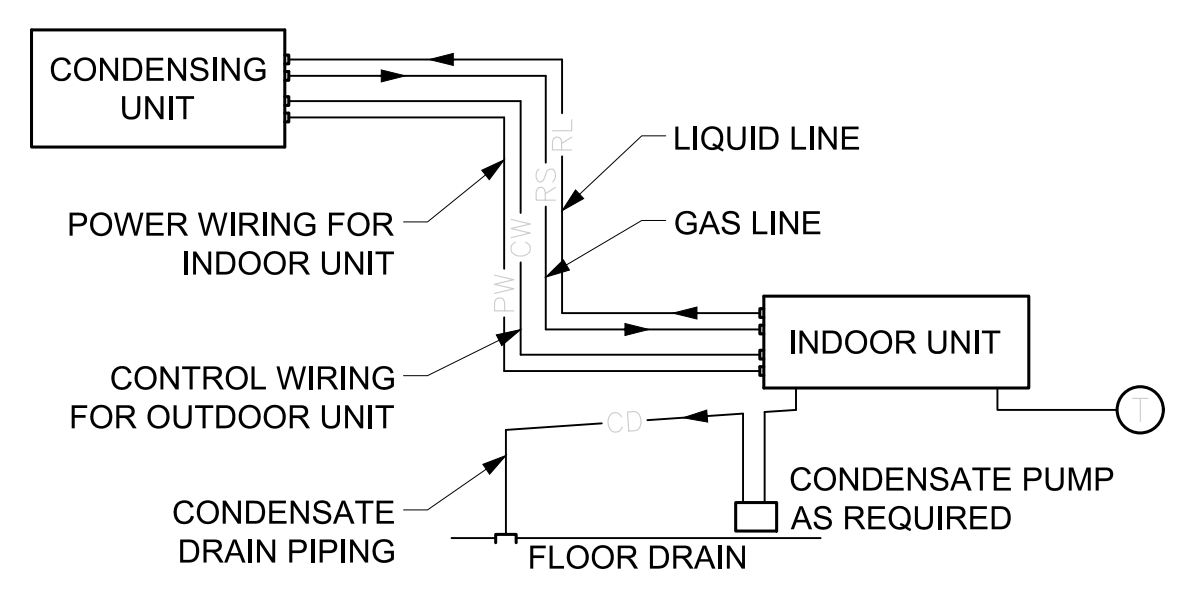
ROOF HVAC PLAN

M-111

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 13

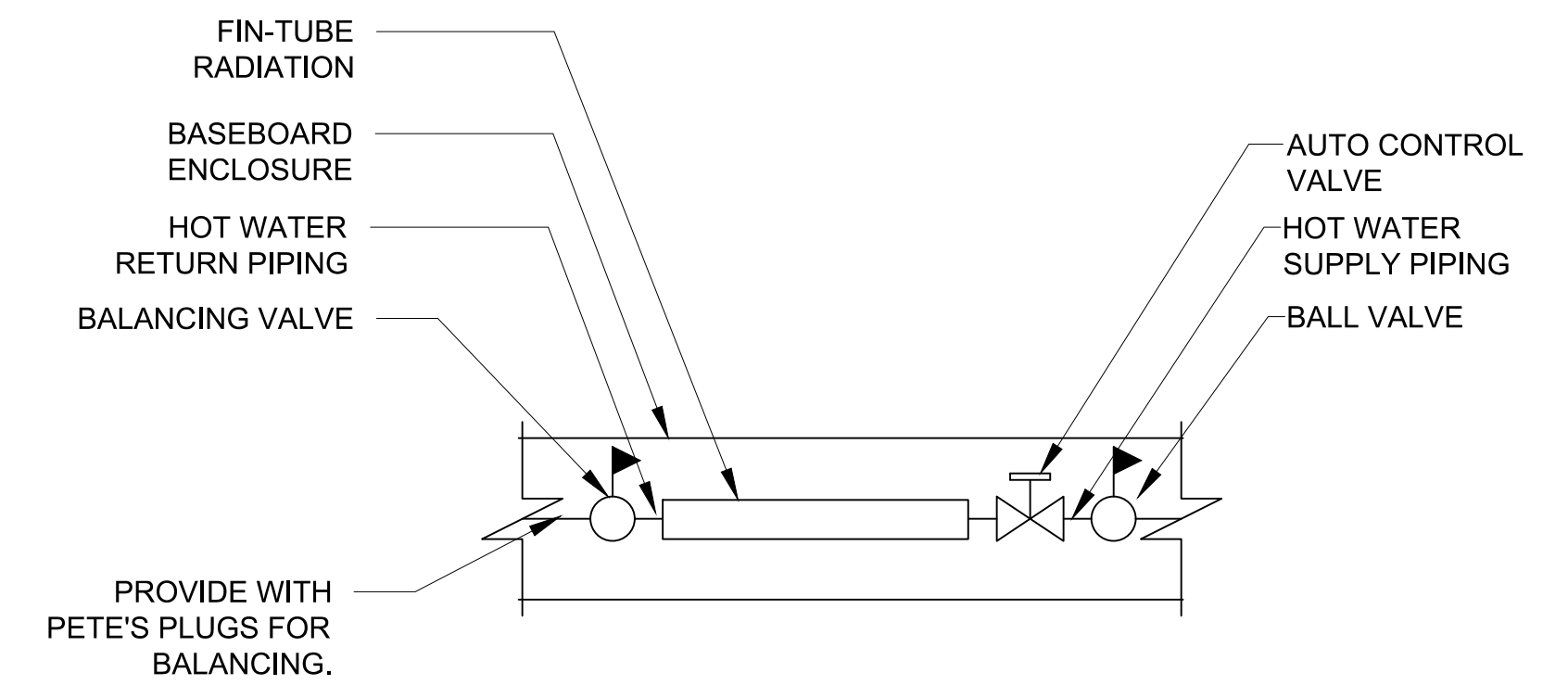


1 TYPICAL DUCT DETAILS
NOT TO SCALE

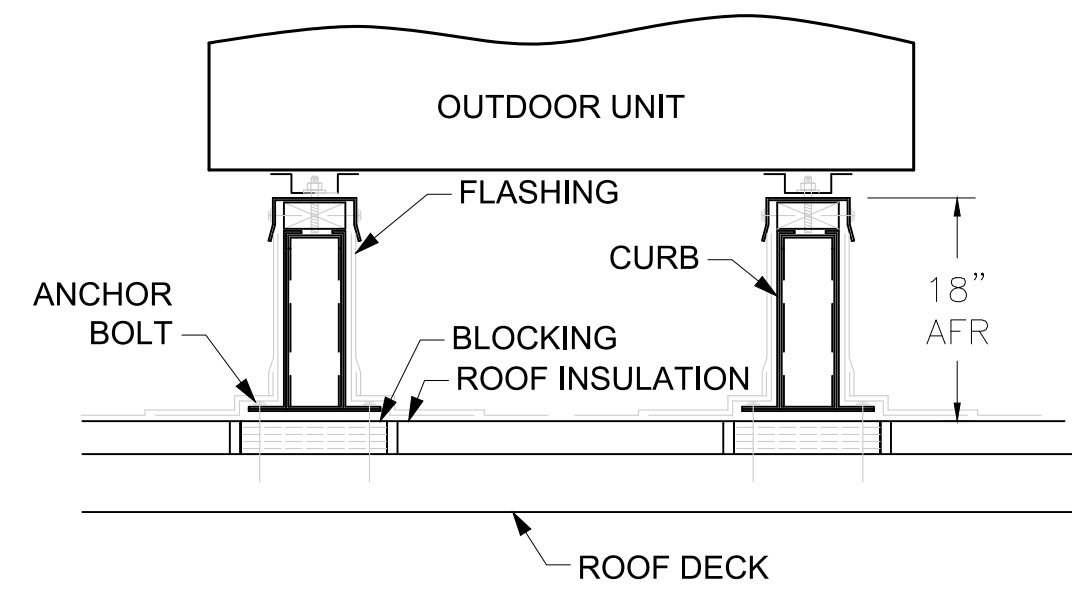


- NOTES:
1. INSTALL COPPER TYPE 'ACR' REFRIGERANT PIPING AND ACCESSORIES AS RECOMMENDED BY AND IN ACCORDANCE WITH MFR. AND RECOGNIZED PRACTICES.
 2. PIPE SIZES AND CONFIGURATIONS SHALL BE PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
 3. INSULATE BOTH REFRIGERANT LINES PER MFR RECOMMENDATIONS. MIN 1/2" THICK. PROVIDE WITH JACKETING OUTSIDE OF BUILDING.
 4. ROUTE OUTDOOR CONTROL WIRING WITH, AND SECURE TO, GAS LINE BETWEEN UNITS.
 5. INSTALL REFRIGERANT PIPING PARALLEL OR PERPENDICULAR TO THE LINES OF THE BUILDING STRUCTURE ALLOWING A MINIMUM OF FOUR INCHES CLEARANCE TO EXISTING PIPING, EQUIPMENT, AND ELECTRICAL/CONTROL WIRING.

2 DETAIL - SPLIT SYSTEM
NOT TO SCALE

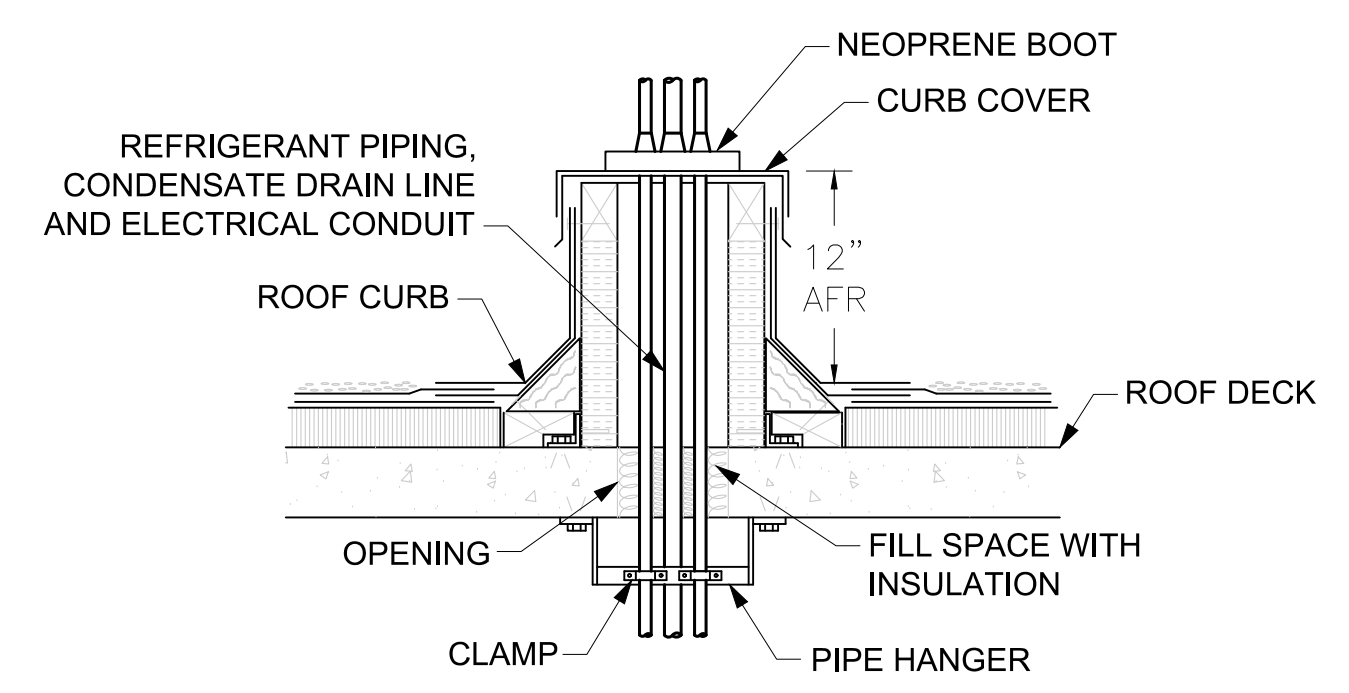


3 DETAIL - TYPICAL FIN-TUBE RADIATION VALVE ARRANGEMENT
NOT TO SCALE



- NOTES:
1. ANCHOR SECURELY PER MANUFACTURERS INSTALLATION GUIDE.
 2. VERIFY SPACING WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.
 3. RE-FLASH AND PATCH ROOF WATER TIGHT.

4 ROOF RAIL DETAIL
NOT TO SCALE



- NOTES:
1. VERIFY PIPE AND CONDUIT SIZES AND QUANTITIES
 2. PIPE INSULATION NOT SHOWN
 3. CUT AND PATCH ROOF OPENING WEATHER TIGHT

5 ROOF-TOP PIPE CURB DETAIL
NOT TO SCALE



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING - DISPATCH CENTER REHAB

HVAC DETAILS

M-501

REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS

PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

DUCTLESS SPLIT SYSTEM INDOOR UNIT SCHEDULE									
TAG	SERVING	NOMINAL TONNAGE	SUPPLY AIR CFM	COOLING			MANUFACTURER	MODEL	REMARKS
				OUTSIDE AIR TEMPERATURE		COOLING CAPACITY (MBH)			
				DB (F)	WB (F)				
ACU-1	IT ROOM	2	635	95	75	24	MITSUBISHI	PKA	1, 2

- PROVIDE WITH ELECTRICAL DISCONNECT AND WALL MOUNTED THERMOSTAT. PROVIDE WITH CONDENSATE PUMP. REFRIGERANT R-410A.
- INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.

SPLIT SYSTEM OUTDOOR UNIT SCHEDULE												
TAG	SERVING	COOLING CAPACITY (MBH)	OA TEMP		EER	SEER	ELECTRICAL				MANUFACTURER	MODEL
			DB (F)	WB (F)			VOLTAGE	PHASE	MCA (A)	MOCp (A)		
ACCU-1	ACU-1	24	95	75	10.6	17	208	1	18	30	MITSUBISHI	PUY-A24NHA6

EXHAUST FAN SCHEDULE									
TAG	AIRFLOW (CFM)	TYPE	ESP	HP	ELECTRICAL		MANUFACTURER	MODEL	REMARKS
					VOLTAGE	PHASE			
EF-8	2875	UPBLAST CENTRIFUGAL	0.75	1.5	480	3	GREENHECK	CUE-200HP	1

- PROVIDE WITH ELECTRICAL DISCONNECT SWITCH, VARI-GREEN DRIVE, BACKDRAFT DAMPER. VERIFY THAT NEW EF IS COMPATIBLE WITH EXISTING ROOF CURB. REPLACE CURB AS REQUIRED.

EXISTING VAV BOX SCHEDULE						
TAG	SERVING	AIRFLOW (CFM)	HEATING CAPACITY		MANUFACTURER	MODEL
			MBH	GPM		
VAV-1	115 LOBBY & 155 LT OFFICE	650	-	-	TRANE	VCWF-08
VAV-2	154 RADIO ROOM	500	-	-	TRANE	VCWF-08
VAV-3	159 SQUAD ROOM	600	-	-	TRANE	VCWF-08
VAV-4	161 WAREHOUSE	1200	-	-	TRANE	VCWF-12
VAV-5	INTERROGATION/STORAGE	350	-	-	TRANE	VCWF-06
VAV-6	163 SGT'S OFFICE	450	-	-	TRANE	VCWF-08
VAV-7	LUNCH ROOM	400	-	-	TRANE	VCWF-08
VAV-8	MEN'S LOCKER ROOM	450	8.2	1	TRANE	VFWC-08
VAV-9	WOMEN'S LOCKER ROOM	350	14	1.5	TRANE	VFWC-08
VAV-11	203 PC TRAINING	650	-	-	TRANE	VCWF-08
VAV-12	201 WORKROOM	1900	-	-	TRANE	VCWF-12

- NOTE
- VAV BOXES ARE EXISTING TO REMAIN.
 - MIN AIR SUPPLY FOR BOXES SHALL BE 25% OR AS REQUIRED FOR MAKE-UP

FIN-TUBE BASEBOARD RADIATION HEATER SCHEDULE								
TAG	SERVING	ROWS	AVERAGE TEMP (°F)	LENGTH (FT)	RECOVERY RATE (BTU/LF)	MANUFACTURER	MODEL	REMARKS
FBR-1	155 LT OFFICE	1	170	12	775	TRANE	TA	1, 2
FBR-2	159 SQUAD ROOM	1	170	13	775	TRANE	TA	1, 3

- NOTES
- COPPER ALUMINIUM 1-1/4", SERIES 60, FINS 2-1/2" x 5-1/4" x 0.015".
 - EXISTING TO REMAIN.
 - UNIT TO BE CONTROLLED IN A MANNER CONSISTENT WITH THE EXISTING WITH THE EXISTING UNIT TO BE REPLACED.

AIR DEVICE SCHEDULE - RETURN REGISTERS					
TAG	AIRFLOW	TYPE	SIZE	MANUFACTURER	MODEL
RR-1	75 CFM	LAY-IN	12"x12"	TITUS	350FL

AIR DEVICE SCHEDULE - SUPPLY DIFFUSER					
TAG	AIRFLOW	TYPE	SIZE	MANUFACTURER	MODEL
CD-1	25 CFM	LAY-IN	12"x12"	TITUS	TMS

ELECTRIC BASEBOARD HEATER SCHEDULE								
TAG	SERVING	LENGTH	ELECTRICAL			MANUFACTURER	MODEL	REMARKS
			KW	VOLTAGE	PHASE			
EBH-1	164 CLOSET	5'-0"	1.25	120	1	BERKO	ASL3	1

- NOTES
- PROVIDE WITH WALL THERMOSTAT.



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

HVAC SCHEDULES

M-701

REVISION			
NO.	DATE	DESCRIPTION	BY

MM CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 15

GENERAL NOTES

(APPLY TO WORK PROVIDED UNDER DIV. 20):

- GENERAL:** FURNISH LABOR, EQUIPMENT AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE COMPLETE PLUMBING SYSTEMS AS SPECIFIED HEREIN AND INDICATED IN THE CONTRACT DOCUMENTS. OUTLINE DESCRIPTION AND DIAGRAMMATIC REPRESENTATION OF SYSTEM OPERATION AND EQUIPMENT DOES NOT LIMIT CONTRACTOR LIABILITY FOR FURNISHING AND INSTALLING COMPLETE AND OPERABLE SYSTEMS.
- APPLICABLE CODES:** THE INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE CODE OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- NOTE DEFINITIONS:** "DRAWING NOTES" APPLY TO THE ENTIRE DRAWING ON WHICH THEY APPEAR, WHERE RELEVANT. "SPECIFIC NOTES" APPLY ONLY WHERE INDICATED WITH THE "SPECIFIC NOTE" SYMBOL. REFER TO LEGEND.
- PROVIDE REQUIRED CLEARANCE FOR MAINTENANCE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR AS REQUIRED BY CODE FOR MECHANICAL AND PLUMBING EQUIPMENT.
- VERIFY THAT EXISTING EQUIPMENT THAT IS TO REMAIN IS FULLY FUNCTIONAL AND OPERATIONAL.
- PERMITS:** INCLUDE IN THE BID PRICE THE PAYMENT OF NECESSARY PERMITS. FURNISH THE OWNER PRIOR TO THE FINAL PAYMENT A CERTIFICATE FROM THE INSPECTION DEPARTMENT HAVING JURISDICTION CERTIFYING THAT THE WORK MEETS THE REQUIREMENTS OF THE LOCAL INSPECTION AUTHORITIES AND/OR THE NATIONAL BOARD OF FIRE UNDERWRITERS.
- SCHEDULING:** COORDINATE WITH THE OWNER FOR SCHEDULING OF WORK.
- WORK SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
- KEEP THE WORK SITE AND SURROUNDING AREA FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH GENERATED BY WORK FROM THIS CONTRACT. PROPERLY AND LEGALLY DISPOSE OF MATERIALS.
- SAFETY:** JOB SITE SAFETY SHALL BE IN STRICT ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
- VISIT THE SITE AND CAREFULLY EXAMINE EXISTING CONDITIONS THAT MAY AFFECT THE BID.
- EXISTING PLUMBING INSTALLATION:** EXISTING PLUMBING WORK WHICH WILL NOT BE RENDERED OBSOLETE AND WHICH MAY BE DISTURBED DUE TO ANY CHANGES REQUIRED UNDER THIS CONTRACT SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION. OTHER PLUMBING ITEMS OR PLUMBING FIXTURES RENDERED OBSOLETE SHALL BE ABANDONED WHERE CONCEALED AND REMOVED WHERE EXPOSED.
- WHERE EXISTING PLUMBING WORK INTERFERES WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE, THE INSTALLATIONS SHALL BE DISCONNECTED AND RELOCATED AND/OR RECONNECTED TO COORDINATE WITH NEW WORK AS INDICATED IN THE CONTRACT DOCUMENTS AND AS SPECIFIED.
- DO NOT DISCONTINUE ANY PLUMBING SYSTEM SERVICE WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE USER AGENCY. THE PLUMBING SYSTEM OUTAGES SHALL BE KEPT TO A MINIMUM.
- PROVIDE SUBMITTALS (SHOP DRAWINGS) FOR REVIEW FOR NEW MATERIALS AND EQUIPMENT, PRIOR TO SUBMITTING. REVIEW SUBMITTALS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, CONFLICTS WITH OTHER TRADES, AND CONSTRUCTABILITY. IDENTIFY ANY DEVIATIONS IN SUBMITTALS FROM CONTRACT DOCUMENTS. ENGINEER'S REVIEW OF SUBMITTALS DOES NOT INCLUDE REVIEW OF DIMENSIONS, DETAILS, OR QUANTITIES. REVIEW DOES NOT WAIVE ANY REQUIREMENTS OF CONTRACT DOCUMENTS, INCLUDING REQUIREMENT TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
- WHEN MOUNTING PLUMBING WORK IN AREAS SUBJECT TO PEDESTRIAN TRAFFIC, MAINTAIN REQUIRED HEADROOM CLEARANCES.
- PLUMBING MATERIALS AND EQUIPMENT SHALL BE INSTALLED AS TO MAINTAIN THEIR RESPECTIVE UL RATING AND SHALL CONFORM TO FACTORY MUTUAL STANDARDS AS APPLICABLE.
- PLUMBING WORK SHALL BE CONCEALED IN FINISHED AREAS SHOWN ON THE ARCHITECTURAL DRAWINGS UNLESS NOTED OTHERWISE.
- EQUIPMENT LOCATIONS:** REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT FIXTURE LOCATIONS AND THE ELECTRICAL DRAWINGS FOR EXACT ELECTRICAL EQUIPMENT LOCATIONS. LOCATIONS PLUMBING EQUIPMENT AND PIPING ARE SHOWN DIAGRAMMATICALLY. DETERMINE EXACT LOCATIONS IN THE FIELD.
- SEALING FITTINGS AND APPROVED SEALING COMPOUND SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE CODE. SEAL AROUND PENETRATIONS OF FIRE-RATED WALLS WITH AN APPROVED SEALANT.
- SANITARY AND DRAINAGE PIPING SHALL RUN AT 2% SLOPE MINIMUM, UNLESS NOTED OTHERWISE.
- LOCATIONS OF DRAINS AND CONNECTIONS TO FIXTURES AND EQUIPMENT SHALL BE COORDINATED WITH FLOOR PLANS. EQUIPMENT CUTS AND MECHANICAL/ELECTRICAL/STRUCTURAL PLANS. NO WORK SHALL BE INSTALLED UNTIL LOCATIONS HAVE BEEN VERIFIED.
- PLUMBING FIXTURES SHALL BE CAULKED TO THE ADJOINING FLOOR OR WALL SURFACE.
- PROVIDE CLEANOUTS IN SANITARY AND DRAIN LINES EVERY 50 FEET UNLESS INDICATED AT CLOSER INTERVALS ON THE DRAWINGS AND AT CHANGES OF DIRECTION.
- THE PLUMBING FIXTURE SCHEDULE AND SPECIFICATIONS SUPERCEDE THE SYMBOLS INDICATED ON THE FLOOR PLANS.
- PIPE DROPS IN EXTERIOR WALLS SHALL BE INBOARD OF INSULATION.

GENERAL DEMOLITION NOTES

(APPLY TO WORK PROVIDED UNDER DIVISION 20):

- DEMOLITION WORK IS GENERALLY INDICATED AS PART OF THESE NOTES AND THE NOTES INDICATED ON THE ARCHITECTURAL DEMOLITION PLANS.
- VERIFY THAT EXISTING PIPING, EQUIPMENT, ETC. THAT IS CALLED FOR REMOVAL IS NO LONGER IN SERVICE BEFORE BEGINNING DEMOLITION.
- THE DEMOLITION NOTES INDICATE THE MAIN COMPONENTS OF SYSTEMS AND EQUIPMENT THAT SHALL BE REMOVED UNDER THIS CONTRACT. IF SYSTEMS AND EQUIPMENT ARE FOUND DURING CONSTRUCTION THAT THE OWNER AUTHORIZES FOR REMOVAL BUT HAVE NOT BEEN SPECIFICALLY CALLED FOR DEMOLITION, REMOVE THE SYSTEMS AND EQUIPMENT.
- WHEN THE WORK SPECIFIED HEREUNDER CONNECTS TO ANY EXISTING EQUIPMENT, PIPING, ETC., PERFORM NECESSARY ALTERATIONS, CUTTING, FITTING, ETC. OF THE EXISTING WORK AS MAY BE NECESSARY OR REQUIRED TO MAKE SATISFACTORY CONNECTIONS BETWEEN THE NEW AND EXISTING WORK AND LEAVE THE COMPLETE WORK IN A FINISHED AND WORKMANLIKE CONDITION.
- WHEN THE WORK SPECIFIED UNDER OTHER DIVISIONS NECESSITATES RELOCATION OF EXISTING EQUIPMENT, PIPING, ETC., PERFORM WORK AND MAKE NECESSARY CHANGES TO EXISTING WORK AS MAY BE REQUIRED TO LEAVE THE COMPLETED WORK IN A FINISHED AND WORKMANLIKE CONDITION.
- REMOVE FROM THE PREMISES AND DISPOSE OF EXISTING PIPING, MATERIAL, FIXTURES, EQUIPMENT, ETC. NOT REQUIRED FOR RE-USE OR RE-INSTALLATION.
- DELIVER ON THE PREMISES WHERE DIRECTED EXISTING MATERIAL AND EQUIPMENT WHICH IS REMOVED AND IS DESIRED BY THE OWNER OR IS INDICATED TO REMAIN THE PROPERTY OF THE OWNER.
- OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.
- PIPING ABANDONED IN CONCRETE SLABS, WALLS, OR OTHER INACCESSIBLE LOCATIONS SHALL BE LEFT EMPTY.

GENERAL NOTES : FIRE PROTECTION

(APPLY TO WORK PROVIDED UNDER DIVISION 20):

- EXISTING SPRINKLER SYSTEM SERVING THE RENOVATED SPACE IS TO REMAIN AND SHALL BE MODIFIED AND EXTENDED AS REQUIRED BY A CERTIFIED SPRINKLER CONTRACTOR TO SUIT NEW CONSTRUCTION.
- REROUTE EXISTING SPRINKLER PIPING AS REQUIRED TO AVOID ROUTING THRU OR ABOVE ELECTRICAL EQUIPMENT ROOMS. ELECTRIC ROOMS SHALL ONLY CONTAIN PIPING THAT SERVES THAT ROOM.
- THE EXISTING SPRINKLER SYSTEM AND SPRINKLER HEADS SHALL BE UPGRADED AS REQUIRED TO MEET ALL CURRENT NFPA 13, NFPA 25 AND ALL APPLICABLE LOCAL FIRE CODES, REGULATIONS AND WITH THE APPROVAL OF THE LOCAL FIRE MARSHAL AND/OR THE AUTHORITY HAVING JURISDICTION.
- EXISTING SPRINKLER PIPING TO REMAIN IS TO BE THOROUGHLY FLUSHED AND TESTED FOR LEAKAGE AND DEFECTS IN WORK AND MATERIALS. A CERTIFIED SPRINKLER ENGINEER SHALL PROVIDE SPRINKLER SHOP DRAWINGS AND HYDRAULIC CALCULATION FOR A LIGHT HAZARD SPRINKLER CLASSIFICATION.
- COORDINATE SPRINKLER HEADS WITH NEW CEILING LAYOUT AND ALL OTHER TRADES. PROVIDE TAMPER/SUPERVISORY SWITCHES AS REQUIRED PER NFPA. SPRINKLER HEADS ARE TO BE PENDANT TYPE TO MATCH EXISTING.
- IN RENOVATED AREAS SUBJECT TO FREEZING, DRY SIDEWALL HEADS SHALL BE USED FROM THE WET SYSTEM SERVING SUCH AREAS.

PLUMBING LEGEND

SYMBOL	ABBREV	DESCRIPTION	SYMBOL	ABBREV	DESCRIPTION
	SP,SAN	SANITARY PIPE		AFF	ABOVE FINISHED FLOOR
	SW	STORM WATER		BTU	BRITISH THERMAL UNIT
	D	DRAIN		CB	CATCH BASIN
	FDR	FOUNDATION DRAIN		CFH	CUBIC FEET HOUR
	CO	CLEANOUT		CFM	CUBIC FEET MINUTE
	VP	VENT PIPE		DIFF	DIFFUSER
	CW	COLD WATER		EX	EXISTING
	HW	HOT WATER		EXTR	EXISTING TO REMAIN
	HWC	HOT WATER CIRCULATING		(FLOOR PLAN -M-1)	FOR CONTINUATION SEE FLOOR PLAN ON DRAWING M-1
	T	TEMPERED WATER		GPM	GALLONS PER MINUTE
	G	GAS		KW	KILOWATTS
	F	FIRE LINE		MBH	THOUSAND BTU/HR
		FLOW METER FITTING		RX	REMOVE EXISTING
		REDUCED PRESSURE ZONE BACKFLOW PREVENTER		V-PH	VOLT-PHASE
	TP	TRAP PRIMER		VTR	VENT THROUGH ROOF
		RELIEF VALVE			EXTENT OF NEW WORK
	MAV	MANUAL AIR VALVE			EXTENT OF DEMOLITION
	AAV	AUTOMATIC AIR VALVE			AREA TO BE DEMOLISHED
		STRAINER W/VALVE			
		UNION			
	SA	SHOCK ABSORBER			
		FLOW SWITCH			
		THERMOMETER/THERMOSTAT			
		THERMOMETER WELL			
		PRESSURE GAUGE W/ SYPHON & NEEDLE VALVE			
		PRESSURE GAUGE W/NEEDLE VALVE			
	PG	PRESSURE GAUGE TAPPING			
		PIPE GUIDE			
		ANCHOR			
		FLEXIBLE PIPE CONNECTION			
	OS&Y	OS&Y VALVE W/ TAMPER SWITCH			
		SHUTOFF VALVE			
		CHECK VALVE			
	BWV	BACK WATER VALVE			
	PRV	PRESSURE REDUCING VALVE			
		PIPE TURNING UP			
		PIPE TURNING DOWN			
		TEE TURNING UP			
		TEE TURNING DOWN			
	WH	WALL HYDRANT			
		GAS PRESSURE REGULATOR			
	AD	AREA DRAIN			
	FD	FLOOR DRAIN			
	FDP	FLOOR DRAIN WITH TRAP PRIMER			
	RD	ROOF DRAIN			
	FS	FLOOR SINK			
		MATCH LINE			
		SECTION DESIGNATION			
		DETAIL DESIGNATION			

TAG	DESCRIPTION	CW SIZE	HW SIZE	SAN SIZE	VENT SIZE	NOTES
P-1	WATER CLOSET	1/2"	-	4"	2"	
P-2	LAVATORY	1/2"	1/2"	2"	2"	

REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

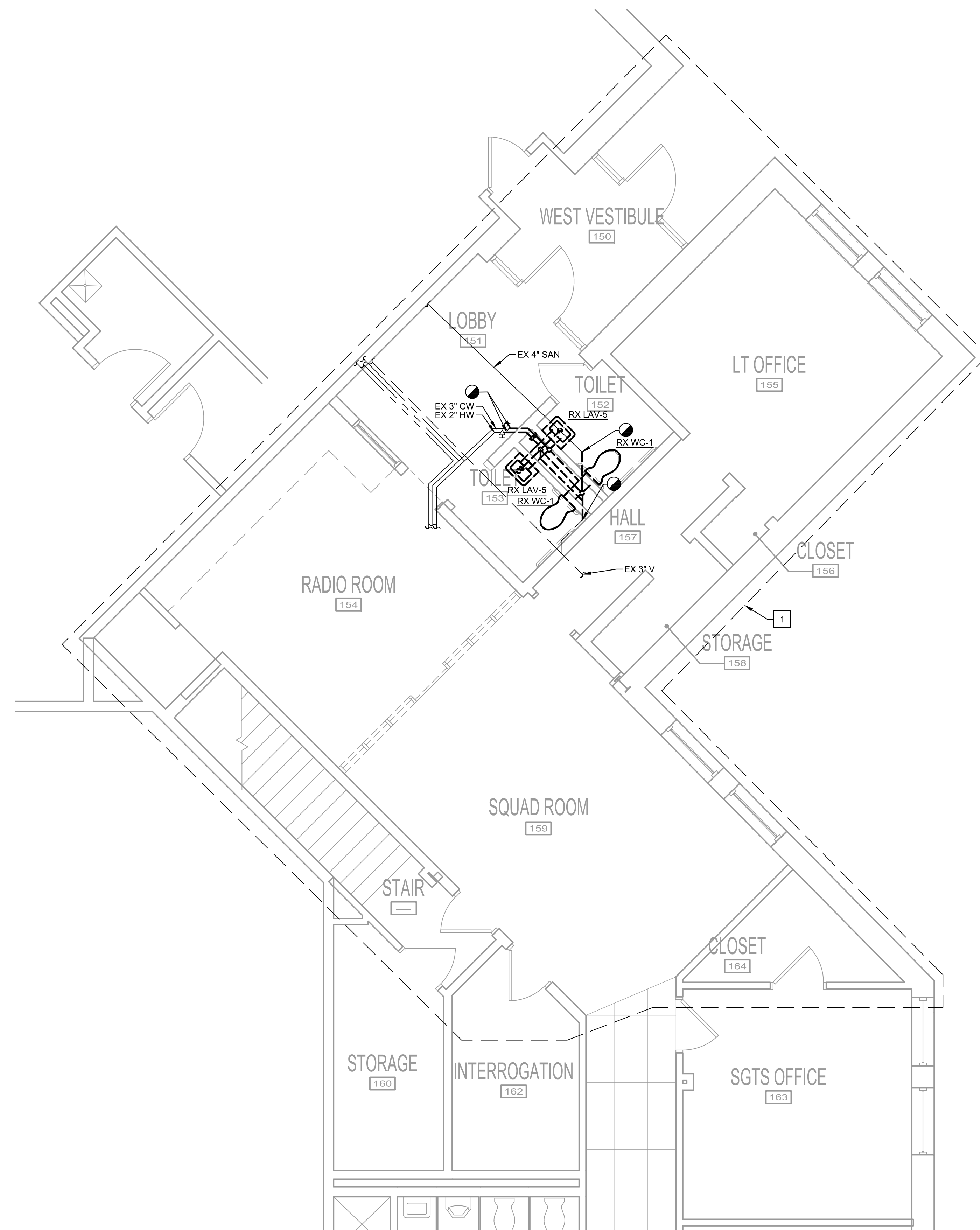
GENERAL NOTES
SYMBOLS AND
ABBREVIATIONS

P-000



SPECIFIC NOTES: (APPLY TO THIS DRAWING WHERE INDICATED):

1 SEE GENERAL SPRINKLER NOTES FOR SCOPE OF SPRINKLER WORK IN THIS AREA.

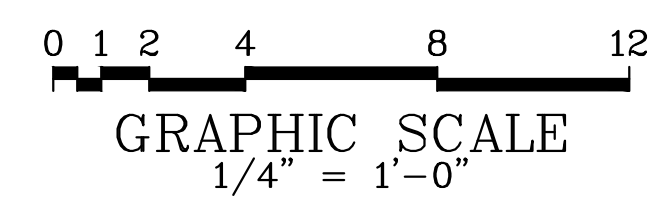


DEMOLITION WORK SHALL BE DONE IN PHASES. COORDINATE ALL WORK WITH NEW INSTALLATIONS.



KEY PLAN
SCALE: NONE

1 PLUMBING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

**PLUMBING DEMOLITION
PLAN**

P-100

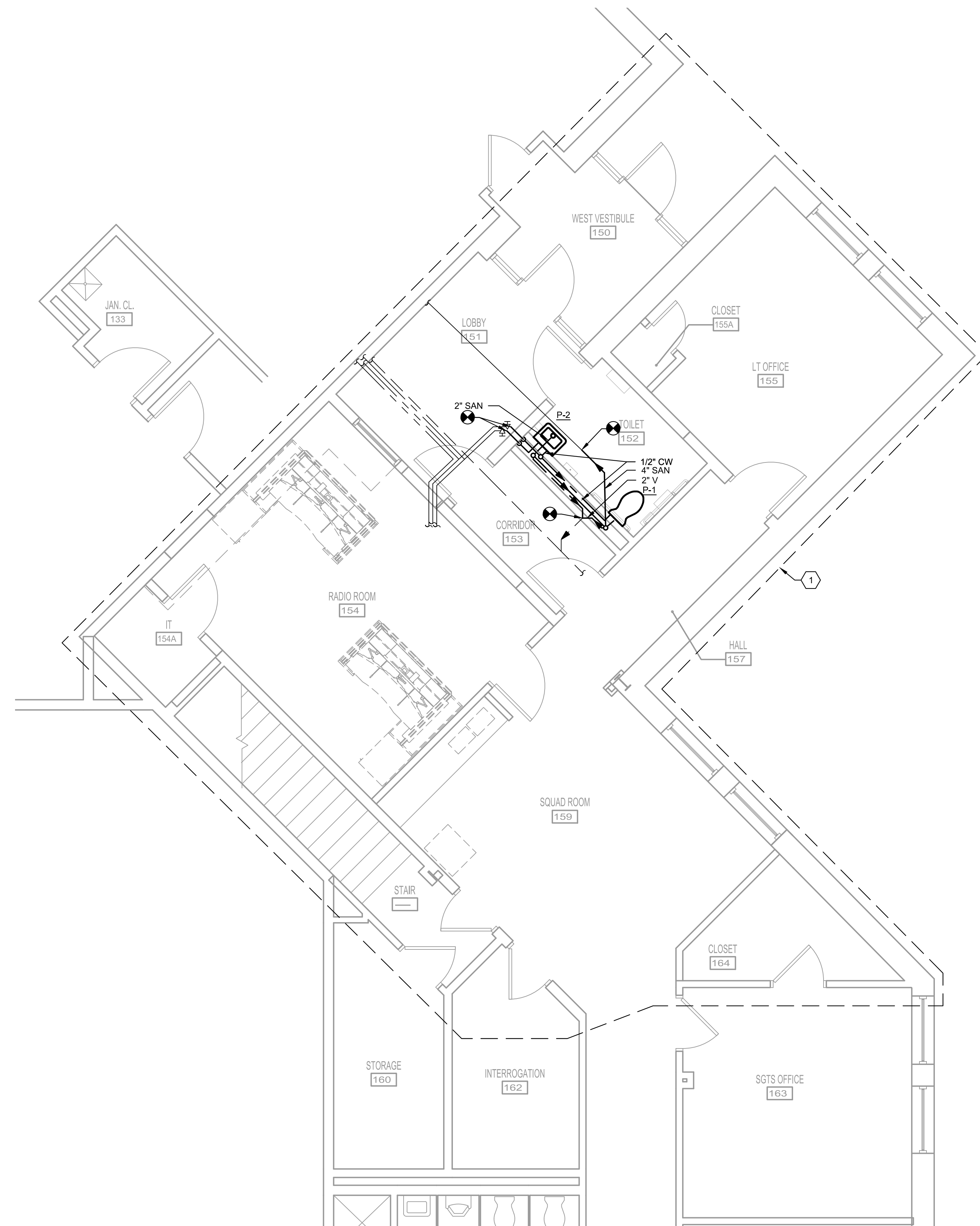
DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 17

REVISION			
NO.	DATE	DESCRIPTION	BY

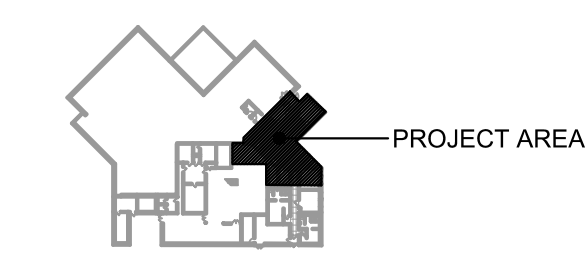
CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

SPECIFIC NOTES: (APPLY TO THIS DRAWING WHERE INDICATED):

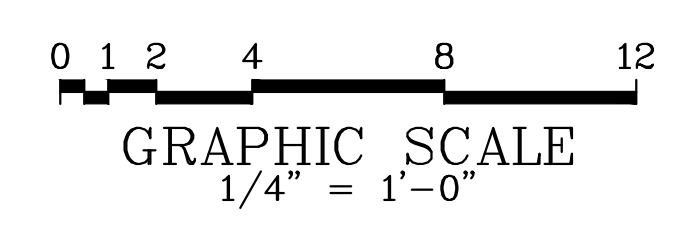
1 SEE GENERAL SPRINKLER NOTES FOR SCOPE OF SPRINKLER WORK IN THIS AREA.



1
P-101 PLUMBING PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN
SCALE: NONE



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

PLUMBING PLAN

P-101

REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

GENERAL DEMOLITION NOTES

- A. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING ELECTRICAL WORK SHOWN ON THESE DRAWINGS.
- B. THE EXTENT OF ELECTRICAL DEMOLITION SHALL BE AS NOTED ON THE DRAWINGS. SHOULD THERE BE ANY QUESTION AS TO THE DISPOSITION OF ANY EXISTING ELECTRICAL WORK, IT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER. THE FINAL DISPOSITION OF SUCH WORK SHALL BE AS DIRECTED BY THE OWNER.
- C. WHEREVER EXISTING ELECTRICAL WORK IS INDICATED TO BE REMOVED, THE FOLLOWING NOTES SHALL APPLY:
 1. WIRING SHALL BE REMOVED AS NOTED ON DRAWINGS.
 2. SURFACES WHICH ARE DISTURBED BY DEMOLITION UNDER THIS WORK SHALL BE PATCHED WITH MATERIALS TO MATCH THE EXISTING SURFACE. PATCHING SHALL MATCH THE EXISTING SURROUNDING SURFACES, AND SHALL BE DONE TO THE COMPLETE SATISFACTION OF THE OWNER.

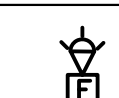


GENERAL NOTES - ELECTRICAL WORK

- DRAWINGS SHALL NOT BE SCALED.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES. THE MECHANICAL AND OTHER DRAWINGS AND SPECIFICATIONS SHALL BE CONSULTED AND COORDINATED WITH PRIOR TO ROUGH-IN.
- WHEREVER POSSIBLE, THE CONTRACTOR SHALL OBTAIN ACTUAL ROUGH-IN DRAWINGS FOR THE ACTUAL ITEM OF EQUIPMENT TO BE INSTALLED PRIOR TO ROUGH-IN. THIS SHALL APPLY TO EQUIPMENT, WHETHER IT IS TO BE INSTALLED BY THE CONTRACTOR OR BY THE OWNER.
- IT IS THE INTENT OF THESE DRAWINGS THAT NEW ELECTRICAL WORK TO BE INSTALLED IN FINISHED AREAS, BE INSTALLED CONCEALED WITHIN NEW OR EXISTING WALLS, FLOORS OR CEILINGS. ANY AND CUTTING AND PATCHING OF SURFACES SHALL BE PROVIDED BY THE CONTRACTOR.
- WHERE CIRCUIT AND HOMERUN LINES ARE NOT SHOWN, PROVIDE MINIMUM 2#12-#12 GROUND + PULL STRING IN 1" CONDUIT.
- PROVIDE PULL STRINGS IN ALL CONDUITS.
- WHERE NEW LOADS ARE ADDED AND EXISTING LOADS REMOVED, PROVIDE UPDATED PRINTED CIRCUIT DIRECTORIES FOR PANELBOARDS TO INDICATE TYPE OF LOAD SERVED AND AREA SERVED (E.G. RECEPTACLES-OFFICE 201).
- UNLESS NOTED OTHERWISE, EVERY CONDUIT CONTAINING 120V OR GREATER WIRING SHALL CONTAIN A SEPARATE INSULATED GROUND WIRE RATED FOR 600V.
- ELECTRICAL PENETRATIONS FOR BOXES, DEVICES, EQUIPMENT, WIRING AND RACEWAYS IN FIRE-RESISTANCE-RATED CONSTRUCTION SHALL COMPLY WITH REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE. "PENETRATIONS" SECTION. PROVIDE FIRE SEALANT FOR PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS TO MAINTAIN THE APPLICABLE FIRE RATING.
- PROVIDE STRUCTURAL STEEL FRAME SUPPORTS AS REQUIRED FOR DISCONNECT SWITCHES, MOTOR STARTERS, ETC. (IF DISCONNECT SWITCHES OR STARTERS ARE LOCATED ON EQUIPMENT HOUSINGS, COORDINATE LOCATIONS WITH EQUIPMENT SUPPLIER TO ENSURE SWITCHES/STARTERS ARE NOT INSTALLED ON EQUIPMENT ACCESS PANELS). MAINTAIN PROPER NATIONAL ELECTRICAL CODE CLEARANCES. IN ADDITION, MAINTAIN PROPER MECHANICAL WORKING CLEARANCES FOR SERVICING OF EQUIPMENT.
- UNLESS INDICATED OTHERWISE, PROVIDE FINAL CONNECTIONS TO EQUIPMENT.

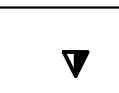
ELECTRICAL ABBREVIATIONS (NOT ALL USED)

A	AMPERE(S)	MS	MOTOR STARTER
ADA	AMERICAN DISABILITY ACT	NEC	NATIONAL ELECTRICAL CODE
AFF	ABOVE FINISHED FLOOR	NO	NORMALLY OPEN
AIC	AMPERES INTERRUPTING CAPACITY	NTS	NOT TO SCALE
AWG	AMERICAN WIRE GAUGE	OC	ON CENTER
C	CONDUIT	OH	OVERHEAD
CB	CIRCUIT BREAKER	OTA	OVER THE AIR
CCT	CORRELATED COLOR TEMPERATURE	Ø	PHASE
CKT	CIRCUIT	P	POLE
CLG	CEILING	PNL	PANELBOARD
DWG	DRAWING	PRI	PRIMARY
EX	EXISTING	RL	RELOCATE EXISTING
FLA	FULL LOAD AMPERES	RLA	RUNNING LOAD AMPERES
GFI	GROUND FAULT CIRCUIT INTERRUPTER	RMS	ROOT MEAN SQUARE
G/GRD	GROUND	RX	REMOVE EXISTING
HP	HORSEPOWER	SHP	SECURITY HEADEND PANEL
HZ	HERTZ	S/N	SOLID NEUTRAL
IG	ISOLATED GROUND	SPD	SURGE PROTECTIVE DEVICE
Isc	SHORT CIRCUIT INTERRUPTING CAPACITY	SWBD	SWITCHBOARD
Isc (RMS SYMMETRICAL AMPERES)		SYM	SYMMETRICAL
JB	JUNCTION BOX	TELE	TELECOMMUNICATION BACKBOARD
Kcmil	THOUSAND CIRCULAR MILLS	TELE	TELEPHONE
KV	KILOVOLTS	TYP	TYPICAL
KVA	KILO-VOLT-AMPERES	UNO	UNLESS NOTED OTHERWISE
KW	KILOWATTS	V	VOLTS
LGT	LIGHTING	VA	VOLT-AMPERE
LV	LOW VOLTAGE	W	WIRE, WATTS
MCA	MINIMUM CIRCUIT AMPACITY	WP	WEATHERPROOF
MCB	MAIN CIRCUIT BREAKER	Y	WYE CONNECTED
MCP	MOTOR CIRCUIT PROTECTOR	1P	SINGLE POLE
MH	MOUNTING HEIGHT	2P	DOUBLE POLE
MISC	MISCELLANEOUS	3P	THREE POLE
MLO	MAIN LUGS ONLY	4P	FOUR POLE
MOCB	MAXIMUM OVER-CURRENT PROTECTION DEVICE		






FIRE ALARM SYSTEM LEGEND

	HORN-STROBE COMBINATION
	STROBE
	SMOKE DETECTOR

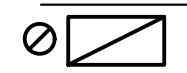


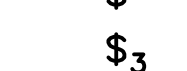
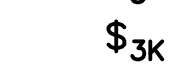
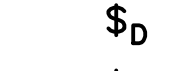
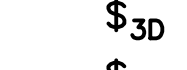



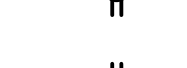





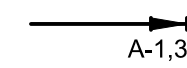
COMMUNICATIONS LEGEND

	SINGLE GANG BOX, WALL MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE. PROVIDE PULL STRING IN 1" CONDUIT TO ABOVE ACCESSIBLE CEILING.
---	--

GENERAL SYMBOLS

	SPECIFIC DEMOLITION NOTE
	SPECIFIC NEW WORK NOTE
	REVISION NUMBER TAG
	REVISION CLOUD
	NORTH ARROW

ELECTRICAL LEGEND

	LIGHTING FIXTURE
	EXIT SIGN, SINGLE OR DUAL FACE; CEILING MOUNTED; WALL MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE, PROVIDE WITH INTEGRAL HEADS. SHADING INDICATES NUMBER OF FACES.
	SINGLE POLE SWITCH, MOUNT AT 46" A.F.F. U.N.O.
	3-WAY SWITCH, MOUNT AT 46" A.F.F. U.N.O.
	3-WAY KEYED SWITCH
	DIMMER WITH 3-WAY SWITCH, MOUNT AT 46" A.F.F. U.N.O.
	DIMMER, MOUNT AT 46" A.F.F. U.N.O.
	COMBINATION TYPE WALL BOX OCCUPANCY/VACANCY SENSOR, MOUNT AT 46" A.F.F. U.N.O.
	125V-20A DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE
	125V-20A DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 9" ABOVE COUNTER UNLESS NOTED OTHERWISE
	125V-20A QUAD RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE
	125V-20A DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE G = GROUND FAULT CIRCUIT INTERRUPTER WP = WEATHERPROOF WHILE-IN-USE DIE-CAST ALUMINUM COVER
	JUNCTION BOX OR DEVICE BOX
	PANELBOARD
	HOMERUN TO PANELBOARD: A-1,3
	ARROWS INDICATE QUANTITY OF CIRCUITS.
	NOTATION INDICATES PANELBOARD AND CIRCUIT NUMBER TO WHICH CIRCUITS ARE TO BE EXTENDED.

SUGGESTED CONSTRUCTION SEQUENCE

- CONSTRUCTION SHALL BE IN A PHASED APPROACH, IN ORDER TO MAINTAIN CONTINUITY OF DISPATCH CENTER IN OPERATION. THE TWO MAJOR CONSTRUCTION PHASES ARE RENOVATE THE NON-RADIO ROOM SPACES WHILE KEEPING EXISTING DISPATCH EQUIPMENT IN RADIO ROOM SERVICE AND RENOVATE THE RADIO ROOM. COORDINATE AND SCHEDULE OUTAGES WITH THE AUTHORITY. THE FOLLOWING IS A SUGGESTED SEQUENCE OF GENERAL CONSTRUCTION ACTIVITIES.
1. INSTALL NEW PANEL PD AND TRANSFER REMAINING CIRCUITS TO PANEL. MAINTAIN EXISTING PANEL PD IN SERVICE UNTIL CIRCUITS HAVE BEEN TRANSFERRED.
 2. INSTALL LIGHTING IN NEW CLOSET 155A.
 3. INSTALL RECEPTACLES AND BOXES IN SQUAD ROOM FOR TEMPORARY WORKSTATION AND WALL-MOUNTED DISPLAYS.
 4. REMOVE LIGHTING IN SPACE DESIGNATED AS NEW STORAGE 154A. INSTALL LIGHTING AND RECEPTACLE IN NEW STORAGE 154A. INSTALL NEW DISPATCH EQUIPMENT RACK (BY VENDOR).
 5. INSTALL TEMPORARY CABLING FROM DISPATCH EQUIPMENT RACK TO SQUAD ROOM (BY VENDOR).
 6. INSTALL DATA CABLING FROM EXISTING IT EQUIPMENT TO DISPATCH EQUIPMENT RACK AND TO TEMPORARY WORKSTATION (BY AUTHORITY IT DEPARTMENT).
 7. PERFORM TESTING AND CUTOVER TO TEMPORARY WORKSTATION AND WALL-MOUNTED DISPLAYS.
 8. PERFORM DEMOLITION WORK IN AREAS DESIGNATED AS PHASE 1, EXCEPT FOR NEW STORAGE 154A THAT DEMOLITION WORK WAS DONE IN PREVIOUS STEP ABOVE.
 9. PERFORM RENOVATION WORK IN AREAS DESIGNATED AS PHASE 1, EXCEPT FOR NEW STORAGE 154A THAT DEMOLITION WORK WAS DONE IN PREVIOUS STEP ABOVE.
 10. PERFORM DEMOLITION WORK IN RADIO ROOM 154 THAT IS DESIGNATED AS PHASE 2.
 11. PERFORM RENOVATION WORK IN RADIO ROOM 154 THAT IS DESIGNATED AS PHASE 2.
 12. INSTALL RECEPTACLES AND BOXES IN RADIO ROOM 154 FOR BOTH WORKSTATIONS AND WALL-MOUNTED DISPLAY.
 13. RELOCATE WORKSTATION AND DISPLAY FROM SQUAD ROOM TO RADIO ROOM 154 (BY VENDOR)
 14. ASSIST VENDOR AND AUTHORITY FOR REMOVAL OF TEMPORARY CABLING AND SUPPORTS. REMOVE TEMPORARY RECEPTACLES AND BOXES.
 15. INSTALL LOW-VOLTAGE CABLING FOR DISPATCH EQUIPMENT, WORKSTATIONS, AND WALL-MOUNTED DISPLAY (BY VENDOR AND AUTHORITY IT DEPARTMENT).
 16. PERFORM WALL/CEILING REPAIRS AND CLEANUP.

PANEL NAME		TYPE: GE TYPE A SERIES		LOCATION: SQUAD RM 159															
EXISTING CONDITION		CIRCUIT BREAKER MOUNTING SPACE: 42		VOLTAGE: 208Y/120V, 3-PHASE, 4-WIRE															
PD		MAIN BUS RATING: 125 AMPS		PANEL MOUNTING: RECESSED															
		MAIN LUG ONLY		PANEL ENCLOSURE (NEMA): 1															
				PANEL MIN. A. I. C. RATING: 10K															
CIR. No.	DESCRIPTION	NOTE	CIR. BKR.	WIRE & CONDUIT	LOAD - VA			LOAD - VA			WIRE & CONDUIT	CIR. BKR.	NOTE	DESCRIPTION	CIR. No.				
					AØ	BØ	CØ	AØ	BØ	CØ									
1	LIGHT SQUAD RM		20/1	EXISTING							EXISTING	20/1	REC RADIO RM	2					
3	LIGHT RADIO RM		20/1	EXISTING							EXISTING	20/1	REC RADIO RM	4					
5	LIGHT LOBBY		20/1	EXISTING							EXISTING	20/1	REC DOOR ALARM	6					
7	LIGHT LIEUTENANT'S OFFICE		20/1	EXISTING							EXISTING	20/1	REC RADIO RM	8					
9	LIGHT ENTRANCE		20/1	EXISTING							EXISTING	20/1	REC RADIO RM	10					
11	LIGHT SERGEANT'S OFFICE		20/1	EXISTING							EXISTING	20/2	HAND DRYER WOMEN'S LOCKER	12					
13	LIGHT BACK ENTRANCE		20/1	EXISTING							EXISTING	-	-	14					
15	LIGHT CORRIDOR		20/1	EXISTING							EXISTING	20/2	HAND DRYER MEN'S LOCKER	16					
17	LIGHT WOMEN'S LOCKER RM		20/1	EXISTING							EXISTING	-	-	18					
19	REC STONE RM		20/1	EXISTING							EXISTING	20/1	MXL	20					
21	LIGHT MEN'S LOCKER RM		20/1	EXISTING							EXISTING	20/1	POD	22					
23	LIGHT INTERROGATION RM		20/1	EXISTING							EXISTING	20/1	UNIT HEATER REAR ENTRANCE	24					
25	REC SQUAD RM		20/1	EXISTING							EXISTING	20/1	SPARE WOMEN'S LOCKER CEILING	26					
27	REC LOBBY		20/1	EXISTING							EXISTING	20/1	SPARE WAREHOUSE CEILING	28					
29	REC INTERROGATION RM		20/1	EXISTING							EXISTING	20/1	SPARE COMMANDER'S CLOSET CCEL.	30					
31	REC SERGEANT'S RM		20/1	EXISTING							EXISTING	20/1	SPARE FRONT ENTRANCE	32					
33	REC MEN'S LOCKER RM		20/1	EXISTING							20/1	SPARE	34						
35	REC WOMEN'S LOCKER RM		20/1	EXISTING							20/1	SPARE	36						
37	REC RADIO SHELF		20/1	EXISTING							20/1	SPARE	38						
39	REC RADIO SHELF		20/1	EXISTING							EXISTING	20/2	CIRCUIT TO FRONT PD ENTRANCE	40					
41	SPARE		20/1								EXISTING	-	-	42					

CONNECTED LOAD:	
AØ	0.00 KVA
BØ	0.00 KVA
CØ	0.00 KVA
TOTAL	0.00 KVA 0.00 A
DMD	0.00 KVA 0.00 A

X ISOLATED NEUTRAL BUS	
X EQUIPMENT GROUND BUS	
NOTES: GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH THE NEC.	

PANEL NAME		TYPE: SQUARE D TYPE NQ		LOCATION: HALL 157															
NEW		CIRCUIT BREAKER MOUNTING SPACE: 42		VOLTAGE: 208Y/120V, 3-PHASE, 4-WIRE															
PD		MAIN BUS RATING: 125 AMPS		PANEL MOUNTING: RECESSED															
		MAIN LUG ONLY		PANEL ENCLOSURE (NEMA): 1															
				PANEL MIN. A. I. C. RATING: 10K															
CIR. No.	DESCRIPTION	NOTE	CIR. BKR.	WIRE & CONDUIT	LOAD - VA			LOAD - VA			WIRE & CONDUIT	CIR. BKR.	NOTE	DESCRIPTION	CIR. No.				
					AØ	BØ	CØ	AØ	BØ	CØ									
1	LIGHT SQUAD RM		2	20/1	2#12, 1#12G IN 1" C				270				480		2#12, 1#12G IN 1" C	20/1	2	REC RADIO RM WORKSTATION	2
3	LIGHT RADIO RM		2	20/1	2#12, 1#12G IN 1" C				270				480		2#12, 1#12G IN 1" C	20/1	2	REC RADIO RM WORKSTATION	4
5	LIGHT LOBBY		1	20/1	EXTEND EXISTING								100		EXTEND EXISTING	20/1	1	REC DOOR ALARM	6
7	LIGHT LIEUTENANT'S OFFICE		1	20/1	EXTEND EXISTING	232							180		2#12, 1#12G IN 1" C	20/1	2	REC RADIO RM INTERCOM	8
9	LIGHT ENTRANCE		1	20/1	EXTEND EXISTING				100				360		2#12, 1#12G IN 1" C	20/1	2	REC RADIO RM	10
11	LIGHT SERGEANT'S OFFICE		1	20/1	EXTEND EXISTING					232			480		EXTEND EXISTING	20/2	1	HAND DRYER WOMEN'S LOCKER	12
13	LIGHT BACK ENTRANCE		1	20/1	EXTEND EXISTING	100							480		EXTEND EXISTING	-	1	-	14
15	LIGHT CORRIDOR		1	20/1	EXTEND EXISTING					580				480	EXTEND EXISTING	20/2	1	HAND DRYER MEN'S LOCKER	16
17	LIGHT WOMEN'S LOCKER RM		1	20/1	EXTEND EXISTING								480		EXTEND EXISTING	-	1	-	18
19	REC STONE RM		1	20/1	EXTEND EXISTING	180							200		EXTEND EXISTING	20/1	1	MXL	20
21	LIGHT MEN'S LOCKER RM		1	20/1	EXTEND EXISTING				232				720		EXTEND EXISTING	20/1	1	POD	22
23	LIGHT INTERROGATION RM		1	20/1	EXTEND EXISTING					100				1500	EXTEND EXISTING	20/1	1	UNIT HEATER REAR ENTRANCE	24
25	REC SQUAD RM		2	20/1	2#12, 1#12G IN 1" C	360							180		EXTEND EXISTING	20/1	1	SPARE WOMEN'S LOCKER CEILING	26
27	REC LOBBY		1	20/1	EXTEND EXISTING				180				180		EXTEND EXISTING	20/1	1	SPARE WAREHOUSE CEILING	28
29	REC INTERROGATION RM		1	20/1	EXTEND EXISTING					180			180		EXTEND EXISTING	20/1	1	SPARE COMMANDER'S CLOSET CCEL.	30
31	REC SERGEANT'S RM		1	20/1	EXTEND EXISTING	720							180		EXTEND EXISTING	20/1	1	SPARE FRONT ENTRANCE	32
33	REC MEN'S LOCKER RM		1	20/1	EXTEND EXISTING				180				720		2#12, 1#12G IN 1" C	20/1	2	REC CLOSET 154, SQUAD RM	34
35	REC WOMEN'S LOCKER RM		1	20/1	EXTEND EXISTING					180			480		2#12, 1#12G IN 1" C	20/1	2	REC RADIO ROOM DISPLAYS	36
37	REC RADIO CHARGER		2	20/1	2#12, 1#12G IN 1" C	540										20/1	1	SPARE	38
39	REC RADIO CHARGER		2	20/1	2#12, 1#12G IN 1" C	540							500		EXTEND EXISTING	20/2	1	CIRCUIT TO FRONT PD ENTRANCE	40
41	SPARE		1	20/1									500		EXTEND EXISTING	-	1	-	42

CONNECTED LOAD:	
AØ	4.10 KVA
BØ	5.52 KVA
CØ	4.94 KVA
TOTAL	14.57 KVA 40.44 A
DMD	9.47 KVA 26.28 A

X ISOLATED NEUTRAL BUS	
X EQUIPMENT GROUND BUS	
NOTES: GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH THE NEC. BALANCE ALL PHASES.	
1. EXISTING LOAD. EXTEND EXISTING CIRCUIT TO NEW LOCATION.	
2. PROVIDE NEW CONNECTION.	



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

GENERAL NOTES
SYMBOLS AND
ABBREVIATIONS

E-000

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 19

REVISION			
NO.	DATE	DESCRIPTION	BY

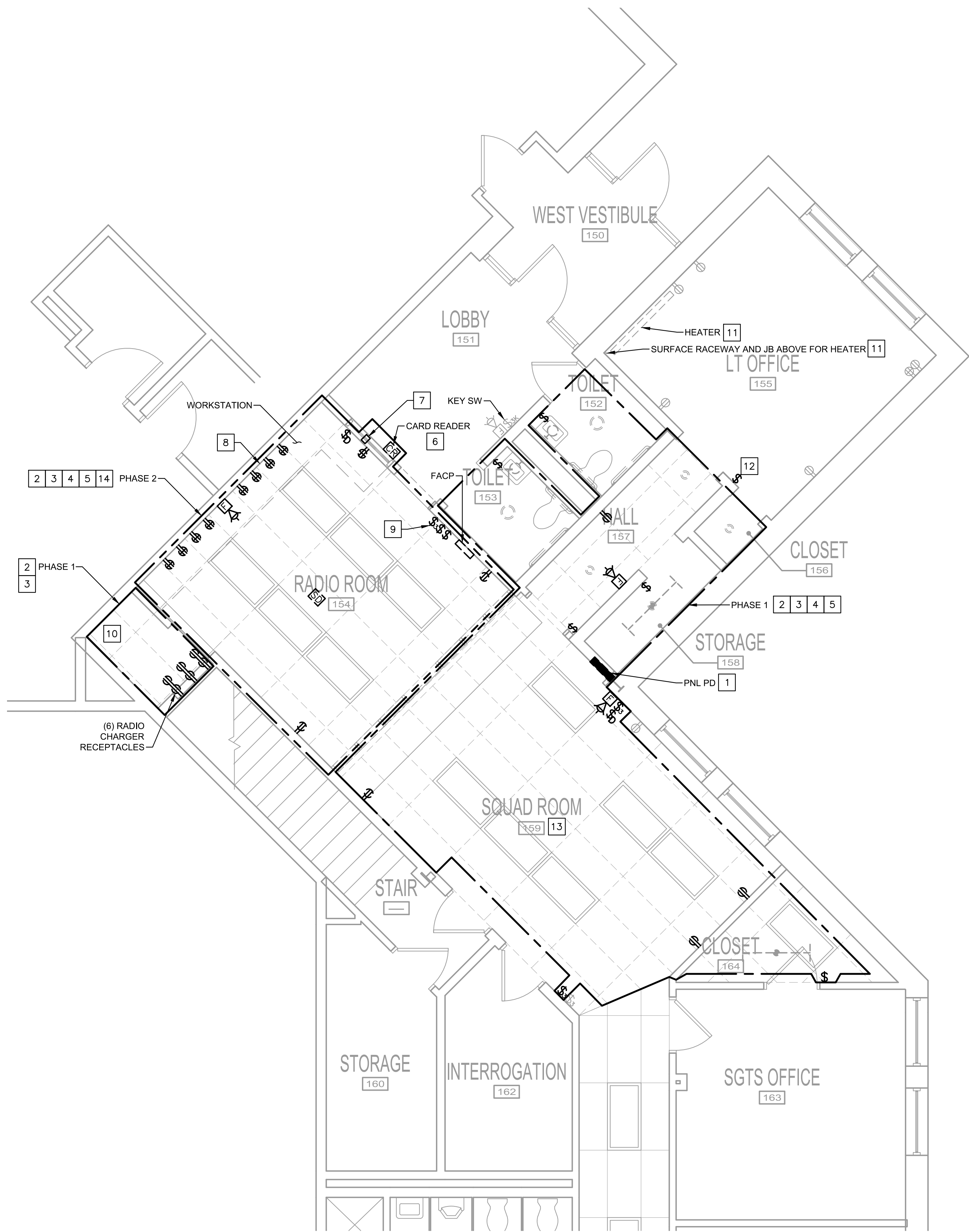
WORK SHALL BE DONE IN PHASES.
COORDINATE ALL WORK WITH OTHER
INSTALLATIONS.

DRAWING NOTES:

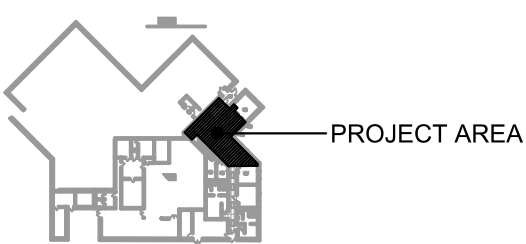
1. UNLESS NOTED OTHERWISE, EXISTING LIGHTING, EQUIPMENT, AND DEVICES SHALL REMAIN.
2. COORDINATE ELECTRICAL DEMOLITION WORK WITH HVAC EQUIPMENT DEMOLITION WORK.
3. COORDINATE AND SCHEDULE WITH AUTHORITY FOR ANY INTERRUPTION.
4. MAINTAIN CIRCUIT CONTINUITY FOR REMAINING RECEPTACLES AND LIGHTING FIXTURES THAT ARE ON THE SAME CIRCUITS WITH THOSE THAT ARE INDICATED TO BE DEMOLISHED.

REFERENCED NOTES (APPLY TO THIS DRAWING WHERE INDICATED):

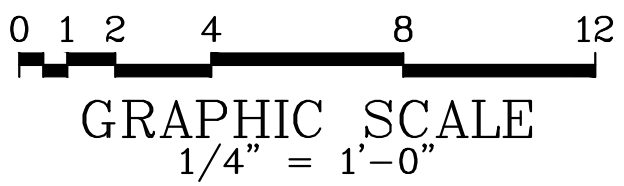
1. ONCE NEW PANEL IS INSTALLED, DISCONNECT AND REMOVE PANEL PD. PULL REMAINING WIRING UP TO ACCESSIBLE CEILING TO ALLOW FOR RECONNECTION TO NEW PANEL.
2. DISCONNECT AND REMOVE LIGHTING FIXTURES. REMOVE ASSOCIATED LIGHT SWITCHES. REMOVE WIRING AND CONDUITS BACK TO SOURCE.
3. DISCONNECT AND REMOVE RECEPTACLES. REMOVE ASSOCIATED WIRING AND CONDUITS BACK TO SOURCE.
4. DISCONNECT AND REMOVE LOW-VOLTAGE JACKS. REMOVE ASSOCIATED CABLING AND CONDUITS BACK TO SOURCE.
5. RELOCATION WORK FOR FIRE ALARM CONTROL PANEL AND ASSOCIATED CABLING BY OTHERS.
6. DEMOLITION WORK FOR CARD READER, DOOR LOCK, DOOR RELEASE BUTTON, AND ASSOCIATED CABLING BY OTHERS.
7. DEMOLITION WORK FOR INTERCOM SYSTEM ON WINDOW AND ASSOCIATED CABLING BY OTHERS.
8. TEMPORARILY MAINTAIN DISPATCH EQUIPMENT OPERATION UNTIL CUT OVER TO TEMPORARY WORKSTATION IN SQUAD ROOM.
9. THIS SWITCH IS WORKING IN CONJUNCTION WITH KEY SWITCH IN LOBBY FOR LOBBY LIGHTING. DISCONNECT, REMOVE, AND INSTALLED NEW SWITCH SHOWN ON LIGHTING PLAN TO KEEP LOBBY LIGHTING IN OPERATION.
10. COORDINATE WITH AUTHORITY AND DISPATCH EQUIPMENT VENDOR TO PREPARE THIS AREA FOR NEW EQUIPMENT RACK.
11. DISCONNECT ELECTRIC BASEBOARD HEATER. DETACH FIN TUBE BASEBOARD RADIATION'S CONTROL CABLING SUPPORTED ON THE ELECTRIC BASEBOARD HEATER'S SURFACE RACEWAY. REMOVE ELECTRIC BASEBOARD HEATER'S WIRING AND SURFACE RACEWAY BACK TO JUNCTION BOX MOUNTED HIGH ON WALL. COORDINATE WITH MECHANICAL TO REROUTE FIN TUBE BASEBOARD RADIATION'S CONTROL CABLING.
12. DISCONNECT AND REMOVE LIGHT SWITCH. RETAIN WIRING FOR RECONNECTION. PROTECT WIRING DURING PARTIAL WALL DEMOLITION.
13. COORDINATE WITH AUTHORITY AND DISPATCH EQUIPMENT VENDOR TO PREPARE THIS AREA FOR TEMPORARY WORKSTATION AND WALL-MOUNTED DISPLAY INSTALLATION.
14. REMOVE WIRING AND CONDUITS FOUND UNDER RAISED FLOOR. REROUTE ANY REMAINING CIRCUIT VIA WALLS AND ACCESSIBLE CEILING.



1
E-100 ELECTRICAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN
SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

**ELECTRICAL DEMOLITION
PLAN**

E-100

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 20

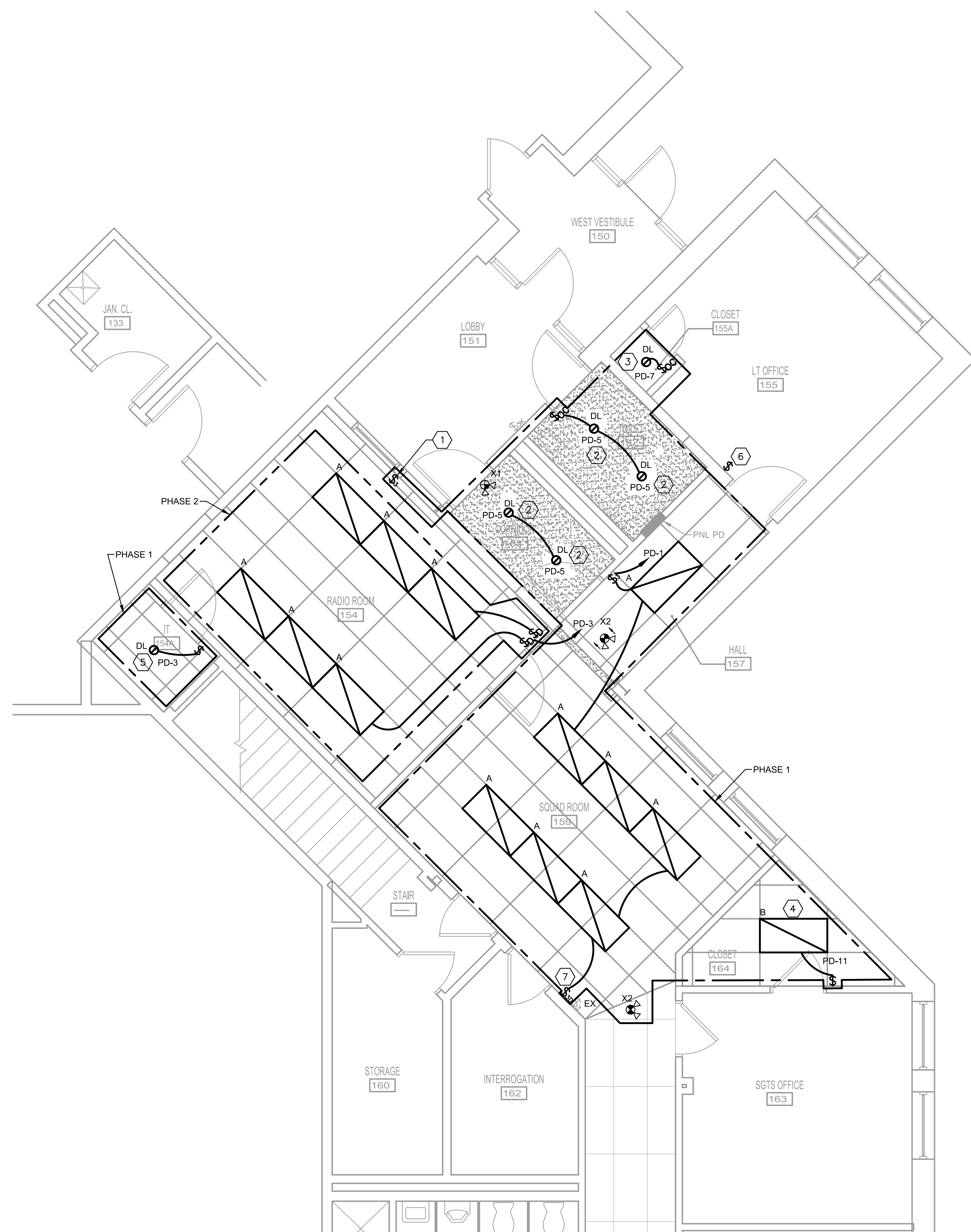
WORK SHALL BE DONE IN PHASES.
COORDINATE ALL WORK WITH OTHER
INSTALLATIONS.

DRAWINGS NOTES:

- COORDINATE WITH CEILING INSTALLATION.
- CONNECT EXIT SIGNS TO THE SAME CIRCUIT SERVING AREAS AHEAD OF ANY SWITCHING DEVICES.

SPECIFIC NOTES (APPLY TO THIS DRAWING WHERE INDICATED):

- CONNECT TO CONTROL EXISTING LOBBY LIGHTING FIXTURES.
- CONNECT TO EXISTING LOBBY LIGHTING CIRCUIT INDICATED.
- CONNECT TO EXISTING LT OFFICE'S LIGHTING CIRCUIT INDICATED.
- CONNECT TO EXISTING SGT'S OFFICE'S LIGHTING CIRCUIT INDICATED.
- CONNECT TO EXISTING RADIO ROOM'S LIGHTING CIRCUIT INDICATED.
- PROVIDE LIGHT SWITCH AND CONNECT TO EXISTING CIRCUIT WIRING.
- PROVIDE DOUBLE GANG WALL PLATE FOR NEW DIMMER AND EXISTING LIGHT SWITCH.

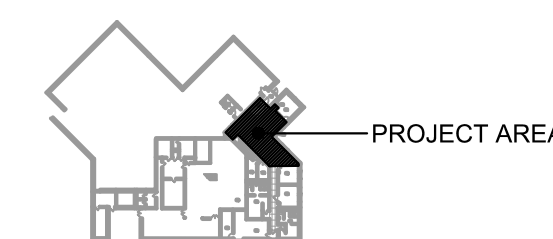


1 LIGHTING PLAN
SCALE: 1/4" = 1'-0"

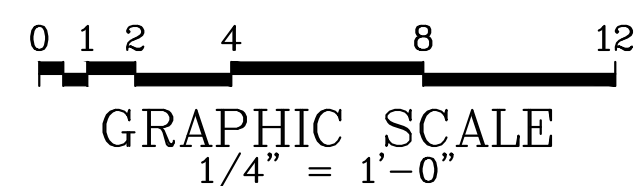
LIGHTING FIXTURE SCHEDULE										
TYPE	DESCRIPTION	VOLTS	LAMP TYPE	WATTS	LUMENS	KELVIN	MOUNTING	MANUFACTURER	MODEL SERIES	REMARKS/ACCESSORIES
A	2' X 4' LED CENTER RECTANGULAR BASKET, 80+ CRI, 0-10V DIMMING, IC/PLENUM/AIR RETURN RATED	UNV 120-277	LED	36.2	4276	3500	RECESSED	DAYBRITE	FG FLUXGRID SERIES	PROVIDE COMPATIBLE DIMMERS.
B	2' X 4' FLAT PANEL LED, 80+ CRI, 0-10V DIMMING, IC/PLENUM/AIR RETURN RATED	UNV 120-277	LED	38	4118	3500	RECESSED	LITHONIA OR DAYRITE	EPANL LED SERIES OR FXP FLUXPANEL LED SERIES	
DL	6" ROUND LED DOWNLIGHT, SPECULAR REFLECTOR, WHITE FLANGE, 0-10V DIMMING, IC/PLENUM/AIR RETURN RATED	UNV 120-277	LED	21	2000	3500	RECESSED	LIGHTOLIER	LYTEPROFILE SERIES	
X1	LED COMBO EXIT SIGN WITH DUAL HEADS, SINGLE-FACE, NI-CAD BATTERY, SELF-DIAGNOSTICS, CHEVRONS	120	LED	4.3	-	-	WALL SURFACE	LITHONIA	LHQM LED SERIES	
X2	LED COMBO EXIT SIGN WITH DUAL HEADS, DOUBLE-FACE, NI-CAD BATTERY, SELF-DIAGNOSTICS, CHEVRONS	120	LED	4.3	-	-	CEILING SURFACE	LITHONIA	LHQM LED SERIES	

LIGHTING FIXTURE SCHEDULE GENERAL NOTES:

- LETTER AT LIGHTING FIXTURE IS THE FIXTURE TYPE. NL = NIGHT LIGHT THAT CONNECTED AHEAD OF SWITCHING DEVICES.
- ALL LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS, IN STRICT ACCORDANCE WITH NEC ARTICLE 410, AND SHALL PROPERLY AND SUITABLY SUPPORT THE WEIGHT OF ANY FIXTURE INSTALLED.
- MANUFACTURERS LISTED ARE BASIS OF DESIGN. IF OTHER THAN BASIS OF DESIGN MANUFACTURERS ARE SUBMITTED, PROVIDE FIXTURE CUTSHEETS AND EXPLANATION OF DIFFERENCES BETWEEN BASIS OF DESIGN AND PROPOSED ALTERNATE FIXTURE. ALL NON BASIS OF DESIGN SUBMITTED FIXTURES ARE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.



KEY PLAN
SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING - DISPATCH CENTER REHAB

LIGHTING PLAN

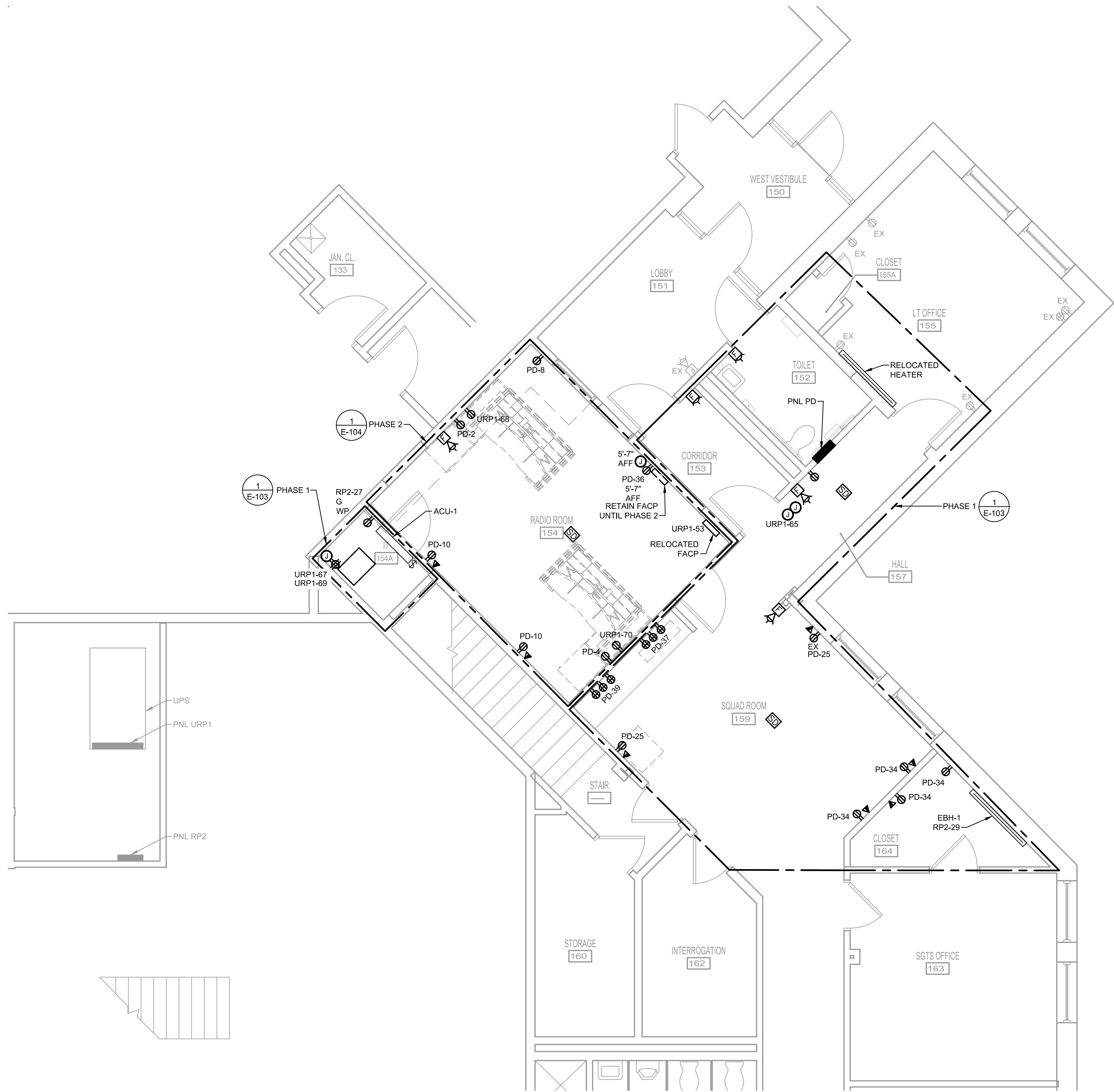
E-101

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 21

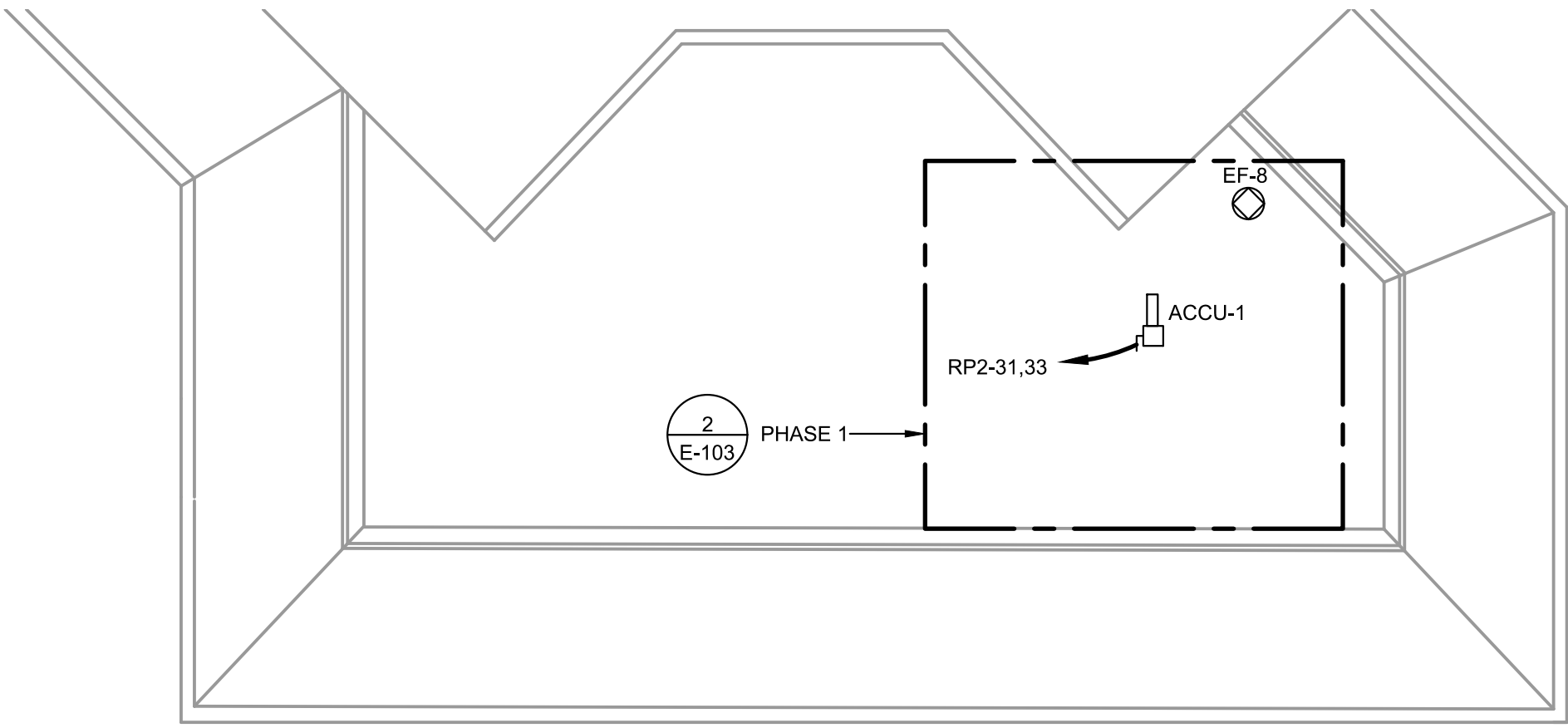
WORK SHALL BE DONE IN PHASES.
COORDINATE ALL WORK WITH OTHER
INSTALLATIONS.

DRAWING NOTES:

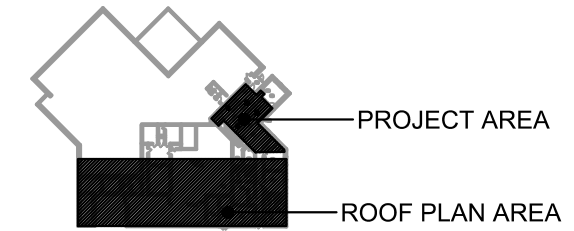
1. REFER TO PHASE 1 AND PHASE 2 PLANS FOR SPECIFIC NOTES.
2. REFER TO E-105 FOR SECURITY ACCESS SYSTEM REQUIREMENTS.



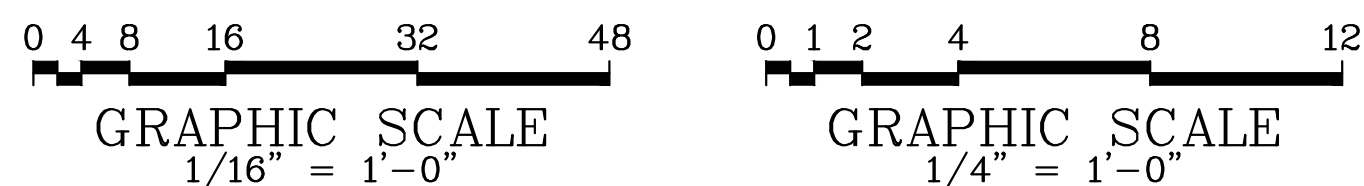
1 POWER AND LOW-VOLTAGE PLANS - OVERALL
E-102 SCALE: 1/4" = 1'-0"



2 ROOF PLAN
E-102 SCALE: 1/16" = 1'-0"



KEY PLAN
SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING - DISPATCH CENTER REHAB

POWER AND LOW-VOLTAGE PLANS - OVERALL

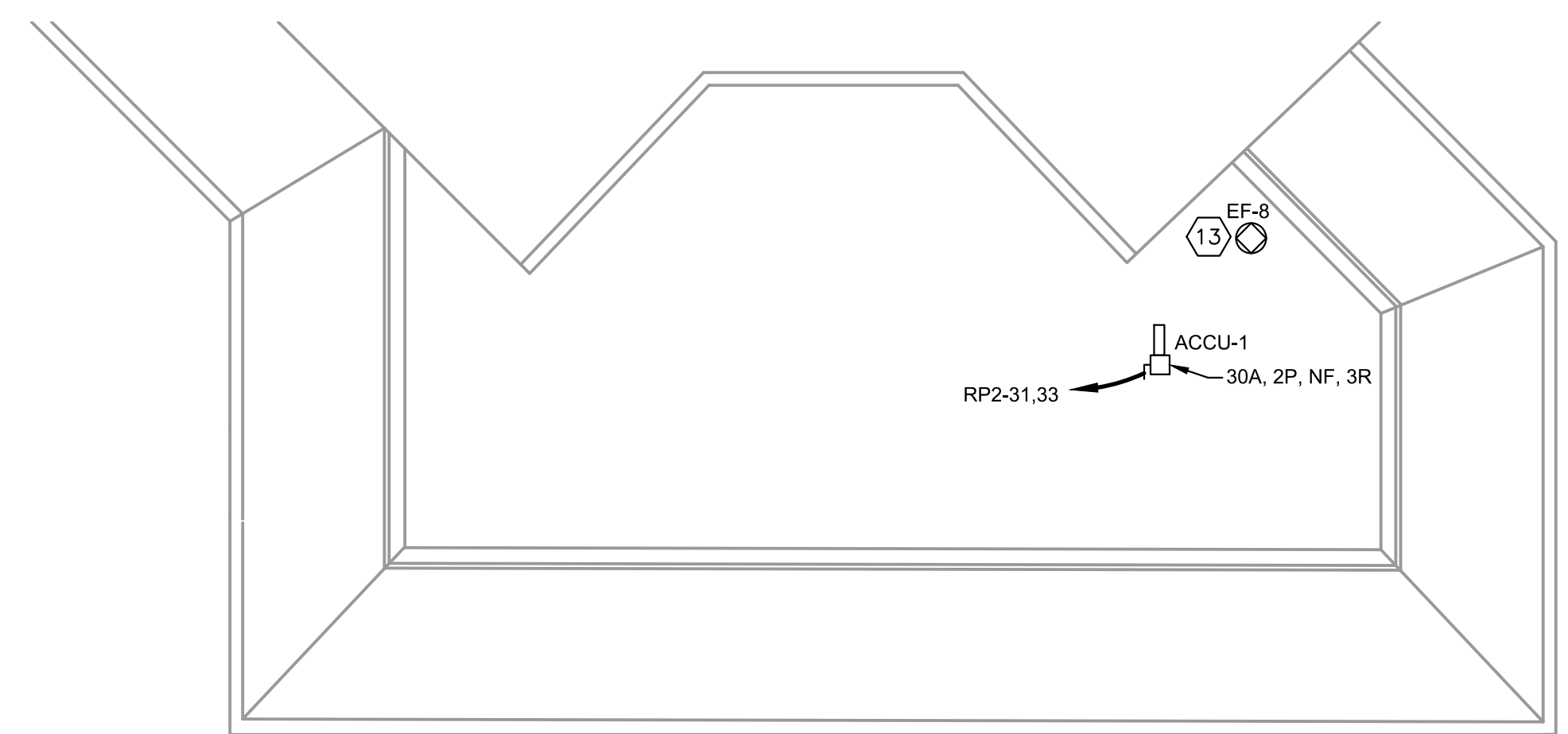
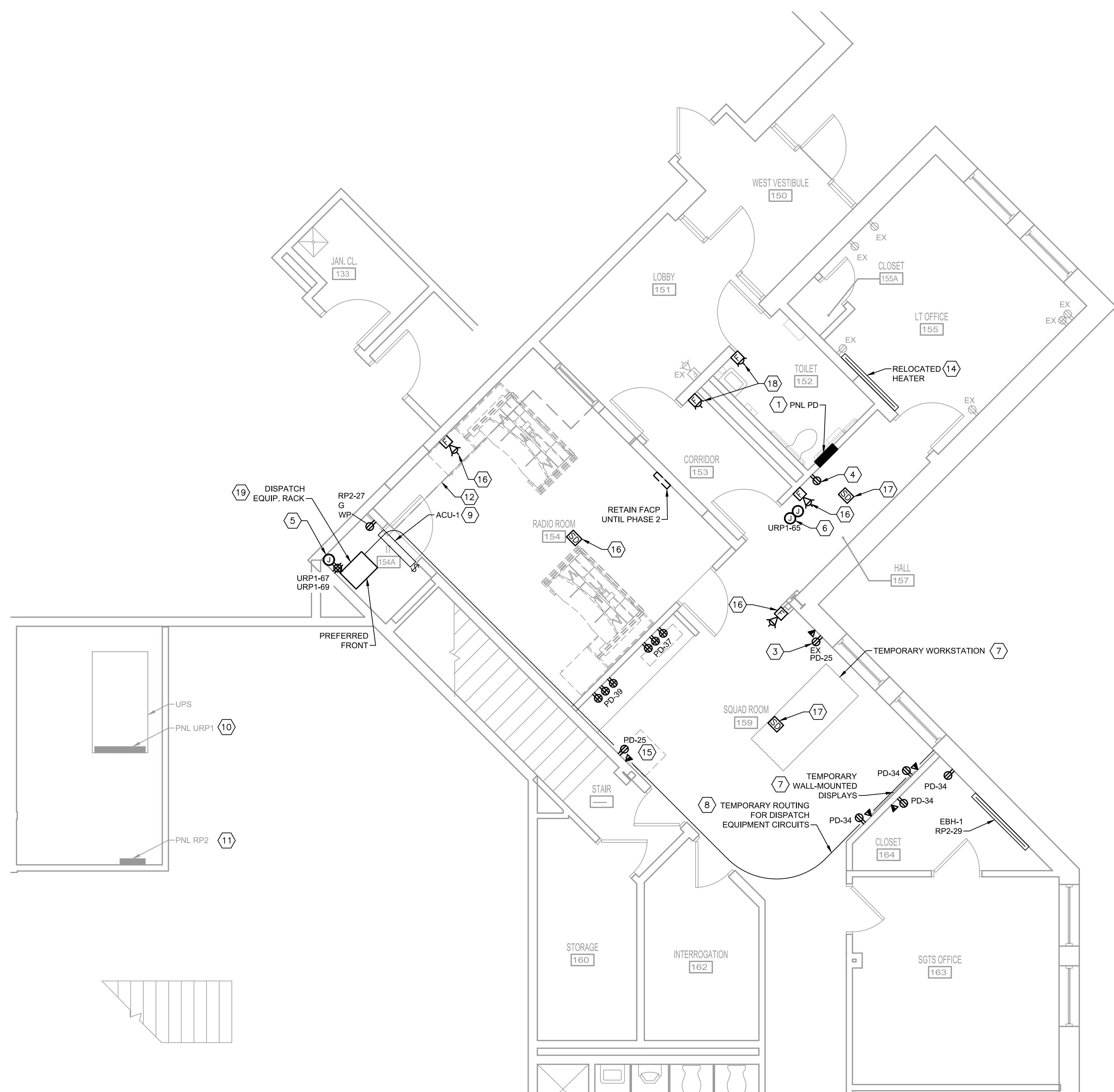
E-102

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 22

WORK SHALL BE DONE IN PHASES.
COORDINATE ALL WORK WITH OTHER
INSTALLATIONS.

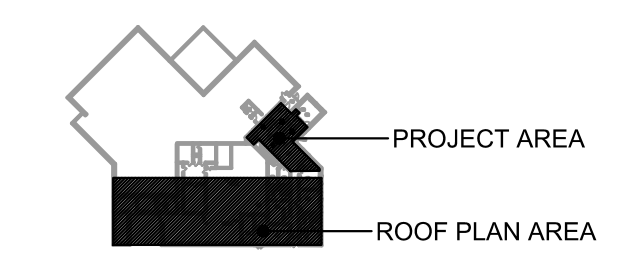
**SPECIFIC NOTES (APPLY TO THIS
DRAWING WHERE INDICATED):**

- 1 TRANSFER ALL EXISTING CIRCUITS TO THIS PANEL PRIOR TO REMOVING EXISTING PANEL. INTERCEPT EXISTING FEEDER AND BRANCH CIRCUITS WITH JUNCTION BOXES ABOVE ACCESSIBLE CEILING. PROVIDE WIRING AND CONDUITS TO EXTEND CIRCUITS TO THIS PANEL. COORDINATE WITH DUCTWORK AND PIPING INSTALLATIONS.
- 2 RECESSED BOX WITH CABLE-THROUGH COVER PLATE FOR WALL-MOUNTED DISPLAY. FIELD VERIFIED AND COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH DISPATCH EQUIPMENT VENDOR (ACTIVU).
- 3 REPLACE RECEPTACLE AND COVER PLATE.
- 4 CONNECT TO EXISTING RECEPTACLE CIRCUIT SERVING THE AREA. EXTEND EXISTING CIRCUIT WIRING AS REQUIRED.
- 5 PROVIDE PULL BOX FOR DATA CABLING.
- 6 PROVIDE POWER AND SECURITY BOXES ABOVE ACCESSIBLE CEILING FOR DOOR SECURITY SYSTEM CONNECTIONS (CORRIDOR 153 DOORS, RADIO ROOM 154 DOOR, AND CLOSET 164 DOOR).
- 7 UTILIZE EXISTING RECEPTACLES FOR TEMPORARY WORKSTATION AND WALL-MOUNTED DISPLAY. WORKSTATION AND WALL-MOUNTED DISPLAYS SHALL BE RELOCATED TO RADIO ROOM IN PHASE 2. COORDINATE ALL WORKS WITH AUTHORITY AND DISPATCH EQUIPMENT VENDOR.
- 8 ALL CABLING SHALL BE PROVIDED BY DISPATCH EQUIPMENT VENDOR.
- 9 CONNECT INDOOR UNIT TO OUTDOOR UNIT WITH 3#12, 1#12G IN3/4"C VIA SWITCH.
- 10 CONNECT DISPATCH EQUIPMENT RACK'S RECEPTACLES AND DOOR SECURITY EQUIPMENT TO EXISTING 20A/1P CIRCUIT BREAKERS INDICATED. UPDATE CIRCUIT DIRECTORY.
- 11 CONNECT CONDENSATE PUMP RECEPTACLE AND EBH-1 TO EXISTING 20A/1P CIRCUIT BREAKERS INDICATED. PROVIDE 30A/2P CIRCUIT BREAKER IN AVAILABLE SLOTS FOR OUTDOOR UNIT ACCU-1. UPDATE CIRCUIT DIRECTORY.
- 12 TEMPORARILY MAINTAIN EXISTING WORKSTATION AND WALL-MOUNTED DISPLAYS OPERATIONAL UNTIL CUTOVER.
- 13 DISCONNECT EXISTING TO ALLOW FOR FAN REPLACEMENT. REPLACE EXISTING WIRING BACK TO PANEL P IN ELECTRICAL ROOM BELOW. WIRING SHALL BE 3#12, 1#12G IN EXISTING 3/4" CONDUIT. CONNECT TO MECHANICAL PROVIDED DISCONNECT AND DRIVE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 14 EXTEND EXISTING CIRCUIT IN JUNCTION BOX TO RELOCATED ELECTRIC BASEBOARD HEATER WITH 2#12, 1#12G IN METAL SURFACE RACEWAY.
- 15 PROVIDE TEMPORARY 20A POWER STRIP WITH (6) RECEPTACLES FOR RADIO CHARGERS. COORDINATE WITH OWNER FOR EXACT LOCATION.
- 16 REINSTALLATION OF FIRE ALARM DEVICE / APPLIANCE AND ASSOCIATED CABLING BY OTHERS.
- 17 FIRE ALARM DEVICE AND ASSOCIATED CABLING BY OTHERS.
- 18 FIRE ALARM STROBE AND ASSOCIATED CABLING BY OTHERS.
- 19 COORDINATE WITH DISPATCH EQUIPMENT VENDOR TO REQUIRE 36" CLEARANCE FROM FRONT AND 24" CLEARANCE ON ON SIDE.



1 POWER AND LOW-VOLTAGE PLANS - PHASE 1
E-103 SCALE: 1/4" = 1'-0"

2 ROOF PLAN
E-103 SCALE: 1/16" = 1'-0"



KEY PLAN
SCALE: NONE

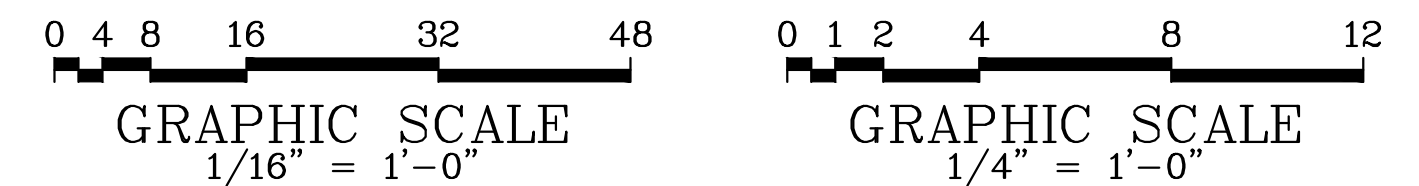


DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY

CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

**POWER AND
LOW-VOLTAGE PLANS –
PHASE 1** E-103

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 23



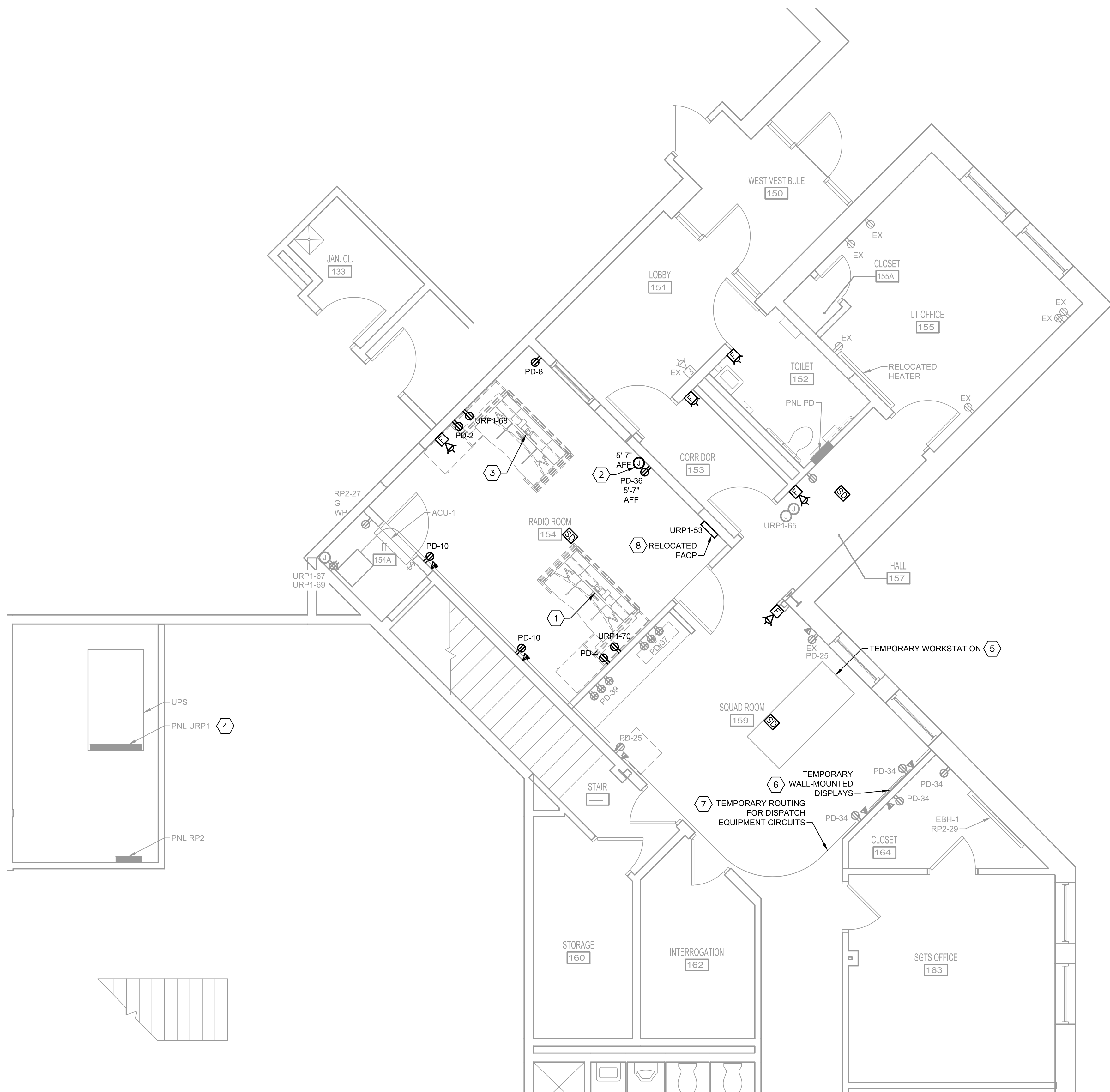
REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED

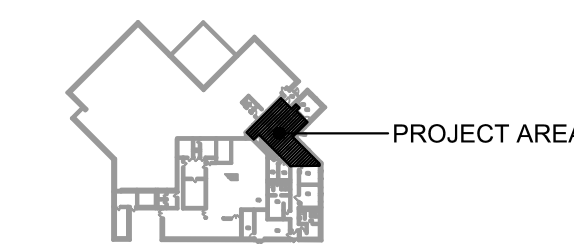
WORK SHALL BE DONE IN PHASES.
COORDINATE ALL WORK WITH OTHER
INSTALLATIONS.

**SPECIFIC NOTES: (APPLY TO THIS
DRAWING WHERE INDICATED):**

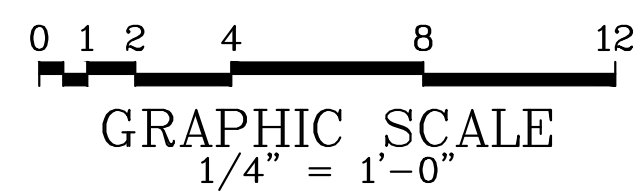
- 1 INSTALL RECEPTACLES FOR THIS WORKSTATION PRIOR TO REMOVING EXISTING WORKSTATION.
- 2 RECESSED BOX WITH CABLE-THROUGH COVER PLATE FOR WALL-MOUNTED DISPLAY. FIELD VERIFIED AND COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH DISPATCH EQUIPMENT VENDOR.
- 3 ONCE EXISTING WORKSTATION REMOVED, INSTALL RECEPTACLES FOR THIS RELOCATED WORKSTATION FROM SQUAD ROOM.
- 4 CONNECT WORKSTATION'S RECEPTACLES TO EXISTING 20A/1P CIRCUIT BREAKERS INDICATED. UPDATE CIRCUIT DIRECTORY.
- 5 RELOCATE TEMPORARY WORKSTATION TO RADIO ROOM.
- 6 RELOCATE DISPLAYS TO RADIO ROOM.
- 7 REMOVE TEMPORARY CABLING.
- 8 RELOCATION WORK FOR FIRE ALARM CONTROL PANEL AND ASSOCIATED CABLING BY OTHERS.



1 POWER AND LOW-VOLTAGE PLAN - PHASE 2
E-104 SCALE: 1/4" = 1'-0"



KEY PLAN
SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED



DELAWARE RIVER AND BAY AUTHORITY
CAPE MAY – LEWES FERRY






CONTRACT NO. CMLF-C19-06
TERMINAL POLICE AND ADMINISTRATION
BUILDING – DISPATCH CENTER REHAB

**POWER AND
LOW-VOLTAGE PLAN –
PHASE 2**

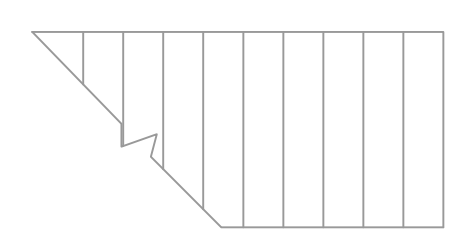
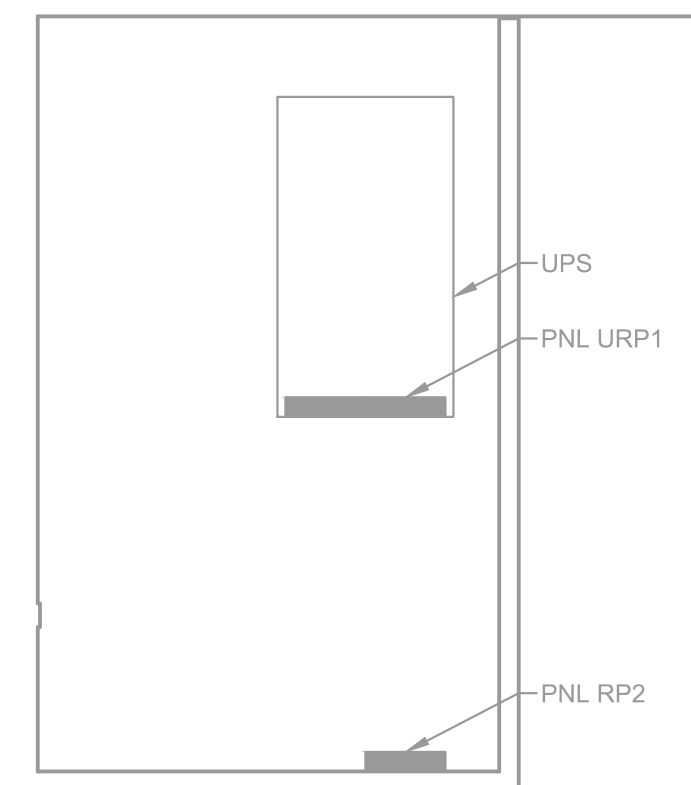
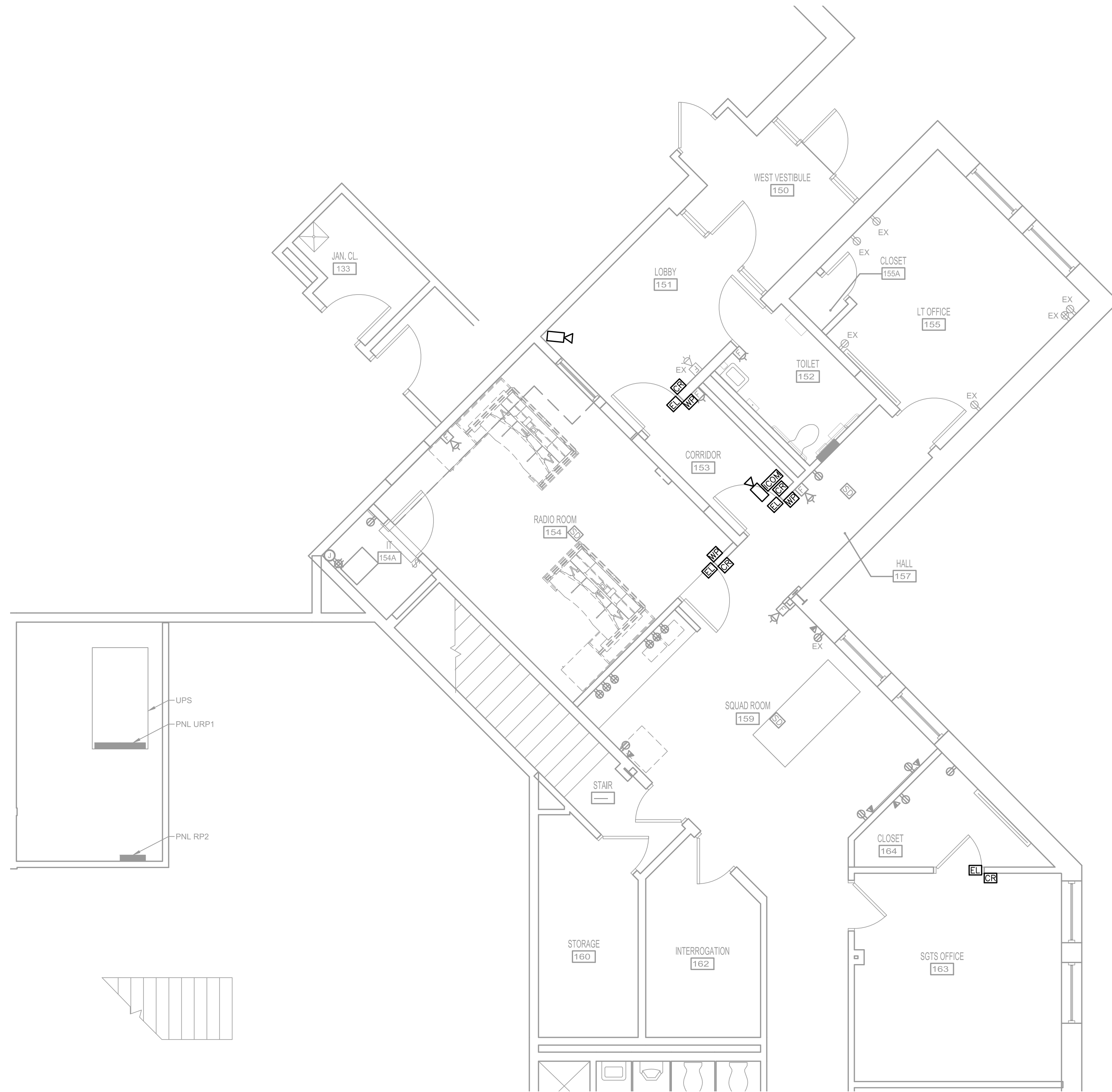
E-104

DATE: MAY 2022 SCALE: AS NOTED SHEET NO. 24

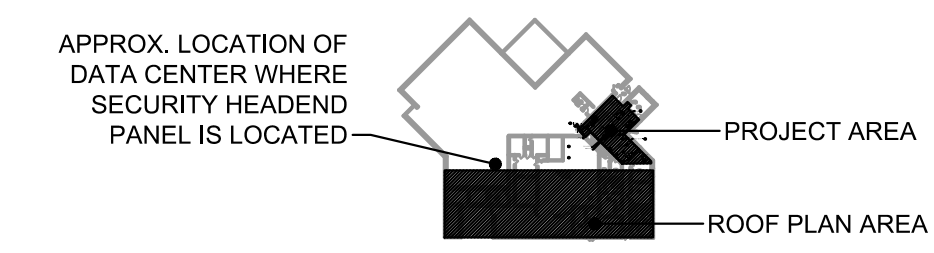
SECURITY ACCESS LEGEND

-  CARD READER
-  WAVE PLATE
-  ELECTRIC LOCK / STRIKE
-  VIDEO INTERCOM SYSTEM WITH CAMERA, MICROPHONE AND SPEAKER
-  IP CAMERA, DOME TYPE

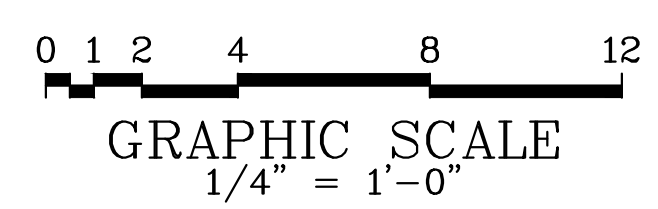
SECURITY ACCESS SYSTEM COMPONENTS.
RELATED CABLING AND CONDUITS ARE BY OTHERS.



1 SECURITY ACCESS PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN
SCALE: NONE



REVISION			
NO.	DATE	DESCRIPTION	BY

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
PLAZA 273, 56 W. MAIN STREET,
SUITE 100-A, NEWARK, DE 19702
Phone: (302) 525-6022 Fax: (443) 589-2401
www.centuryeng.com
© 2018 ALL RIGHTS RESERVED



DELAWARE RIVER AND BAY AUTHORITY CAPE MAY – LEWES FERRY	
CONTRACT NO. CMLF-C19-06 TERMINAL POLICE AND ADMINISTRATION BUILDING – DISPATCH CENTER REHAB	
SECURITY ACCESS PLAN	E-105
DATE: MAY 2022	SCALE: AS NOTED
SHEET NO. 25	

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT DOCUMENTS

FOR

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

September 2022

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

TABLE OF CONTENTS

Advertisement for Bids A-1
Bid Bid Page-1
Breakout Sheet Bid Page-7
Bid Bond Bid Page-9
Consent of Surety Bid Page-11
Stockholders or Partners Owning More Than 10% of Bidding Organization Bid Page-12
Certified Corporate Resolution Bid Page-13
Non-Collusion Affidavit Bid Page-14
Joint Venture Statement Bid Page-15
Qualification Questionnaire Bid Page-17
Example Form of Contract C-1
Example Form of Contract Bond CB-1
Example Form of Maintenance Bond MB-1
Example Form of Contractor’s Release of Liens CR-1

Project Provisions and Specifications:

Standard Specifications S-1
Special Provisions:
 Part I - Amendments to General Provisions of the Standard Specifications S-2
 Part II - Additional General Provisions S-15
 Part III - Amendments to Standard Technical Specifications S-16
 Part IV - Additional Technical Specifications S-19

Attachment A – Plans

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

September 14, 2022

ADVERTISEMENT FOR BIDS

Sealed Bids for the above project will be accepted during normal business hours by the Delaware River and Bay Authority (“DRBA” or the “Authority”) Procurement Department, located at the intersection of I-295 & New Castle Avenue (DE Route 9), Administration Building #6, New Castle, Delaware, 19720, until 11:00 a.m. local time on October 20, 2022, at which time and place said Bids will be opened.

The project is located at the Cape May Terminal Police Dispatch Center located within the Cape May Police and Administration Building. The project work consists of demolition of existing and installation of new architectural, electrical, plumbing & mechanical systems (including appurtenances), and associated architectural renovations. The Contractor will be required to coordinate with Authority trades and contractors for specialized network equipment, fire alarm systems, and with the video wall visualization system vendor.

All work on the project must be completed within One Hundred and Ninety-Five (195) calendar days after the start date listed on the “Notice to Proceed” correspondence issued by the Authority. It is the intent of the Authority to authorize the Contractor to proceed with the work in Winter 2023. **TIME IS OF THE ESSENCE.**

A non-mandatory pre-bid meeting and site visit will be held on September 27, 2022, at 11:00 a.m. local time at the Cape May Ferry Administration Building, 1200 Lincoln Blvd., North Cape May, New Jersey 08204. All visitors must check-in with the DRBA Police Department at Building C-2 to obtain a Visitor I.D. badge and must wait at the Administration Building entrance area for further instructions from DRBA staff. All visitors must follow the personal protective equipment requirements in accordance with DRBA policy. Unsupervised access to the project site is prohibited.

ELECTRONIC AND MAILED BIDDING IS STRONGLY ENCOURAGED. Bidders are encouraged to mail any hardcopy bid documents required by the Authority in advance and to use CapEx to submit their numeric bid electronically. Electronic Bids can be revised, withdrawn and/or resubmitted until bids are due. Bid documents may also be delivered in-person at DRBA Administration Building #6, located at the intersection of I-295 & New Castle Avenue (DE Route 9), New Castle, Delaware, 19720, during normal business days from 8:30AM to 4:30PM.

Bids received after the due date and time will not be considered. The DRBA reserves the right to reject any or all bids or portions thereof, and to waive irregularities.

Bidders may obtain contract documents from CapEx Manager (“CapEx”), the Authority’s online project management system. A link to CapEx is available at www.drba.net by clicking the “Procurement” link, then the link labeled “See Open Projects”.

Bidders may choose to submit the numeric portion of the bid electronically via CapEx or may incorporate a hard copy of the numeric portion of the bid. In addition to the numeric portion of the bid (whether submitted electronically or via hard copy), all bidders must submit the applicable approved bid forms identified within the Contract Documents. Bidders must complete and submit the “Qualification Questionnaire” form on behalf of themselves and for any subcontractor intended to perform twenty percent (20%) or more of the total value of the work.

Each bid must be accompanied by one of the following acceptable forms of bid guaranty:

- (i) A cashier’s check, made payable to the “Delaware River and Bay Authority”, in the sum of not less than one percent (1%) of the Total Base Bid, except that the amount of the check shall not be less than \$2,000 and need not exceed \$20,000;

OR

- (ii) A bid bond, on the form furnished by the Authority and included in the contract documents, for a sum of not less than ten percent (10%) of the Total Base Bid.

As applicable, any cashier’s checks submitted as bid guaranty will be returned to each non-awarded Bidder as soon as possible following the bid opening.

Bidders must be registered as a vendor and subscribe to this project in CapEx in order to be eligible to submit a bid. If a bidder has the ability to submit a bid under more than one company name, the company that actually submits the bid must be registered as a bidder in CapEx. If submitting a bid as a joint venture, the joint venture must be registered in CapEx and subscribed to this project. Bids submitted by firms who have not registered the bidding company name as a vendor or who have not subscribed to this project in CapEx will be rejected.

All questions concerning the plans or specifications must be forwarded to the Authority in writing via CapEx. Questions must be received by 11:00 a.m. local time, not later than six (6) business days prior to the bid opening date. The Authority has no obligation to answer any question received after the above-stated time. Questions and corresponding answers will be included as Contract Addenda released to all subscribed parties.

Bidders must submit their bid (other than the numeric portion of the bid if submitted via CapEx) within a sealed envelope. The envelope containing the bid forms must be marked “Bid for Contract No. CMLF-C19-06R2, CAPE MAY TERMINAL POLICE DISPATCH CENTER REHABILITATION”. If the bidder has submitted its numeric bid via CapEx the envelope shall be marked: “NUMERIC BID SUBMITTED VIA CAPEX”.

Together, parts (i) and (ii) below, as modified by any special provision(s) or by documents of any description furnished by the DRBA as part of this project, shall form the “Standard Specifications” and shall govern the execution of the project:

- (i) Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction, dated December 15, 2014*; and
- (ii) Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction, Revision #2 – June 2022*, including *Standard Items and Special Provisions 2020*, as published on the DelDOT website (“DelDOT Standard Specifications”).

Any applicable provision set forth in the Standard Specifications, as defined above, that is not modified by or in conflict with the Special Provisions shall be understood to remain in full force and effect.

Registered Bidders who subscribe to this project are provided with, via CapEx, a digital edition of Division 100 – General Provisions of the DRBA’s Standard Specifications. To access the DelDOT Standard Specifications, Bidders may visit www.deldot.gov, click the Quick Link labeled “Publications”, then scroll down to the section marked “Manuals” and select “Standard Specifications” and lastly select “Standard Specifications - Revision #2 - June 2022”.

The Authority encourages supplier diversity and the participation of disadvantaged, minority-owned and women-owned firms on all of its projects.

Bidders are advised that, pursuant to DRBA Resolution 15-12, this project is *not* subject to the DRBA’s Prevailing Wage Policy.

DELAWARE RIVER AND BAY AUTHORITY

By: James N. Hogan, Chairman
Thomas J. Cook, Executive Director

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

BID

To: Delaware River and Bay Authority
I-295 & New Castle Avenue
New Castle, Delaware 19720

Sirs:

The undersigned bidder has carefully examined the site and location of the proposed work, the proposed form of Contract to be known as Contract No. ILG-21-02; Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction*, dated December 15, 2014; Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction*, Revision #2 – June 2022, including *Standard Items and Special Provisions 2020*, as published on the DelDOT website (“DelDOT Standard Specifications”); and DRBA Special Provisions and binds himself on award to him by the Delaware River and Bay Authority (herein called “Authority”) under this Bid, to execute an Agreement in accordance with such award, of which Agreement this Bid and said General Provisions and Special Provisions shall be part, and to provide all necessary machinery, tools, labor, and other means of construction, and to do all work and furnish all materials necessary to perform and complete the requirements of said Authority, at the following named unit and lump sum prices for the various scheduled items:

ATTENTION: In accordance with General Provision 102.09 'Delivery of Bids', if you have subscribed to a project and wish to submit a Bid, you may submit the numeric portion of your Bid either: 1) online via CapEx or 2) in hard copy along with all of the other required Bid forms as provided by the Authority. See below instructions:

- 1) If you choose to submit your numeric Bid online, you must complete the Bid pages using CapEx. Once you have selected the project from the 'Project List', you will be redirected to the 'RFB Summary' page. Near the bottom of the page, under the 'Bid Detail' section, click the 'Take Bidder Role' button, which will unlock the 'Bid' tab at the top of the page. Next, click the 'Bid' tab and enter your Bid information under the 'Line Items Specified' section. Note, when submitting a numeric Bid online, the envelope containing the additional required Bid Forms in hard copy shall be marked "NUMERIC BID SUBMITTED VIA CAPEX".

OR

- 2) If you choose to submit a hard copy of your numeric Bid, you must print a copy of the Bid pages from CapEx. Once you have selected the project from the 'Project List', you will be redirected to the 'RFB Summary' page. Scroll down to the 'Procurement Detail' section, and click the link marked 'Proposal Pages'. This link will open a .pdf of the numeric Bid page(s) for the Bidder to print (one-sided), complete and submit along with all of the other required Bid Forms in hard copy.

Bidders are cautioned to choose only ONE of the numeric Bid submission methods above. Note that in accordance with the General Provisions, "if the Bidder has submitted the numerical portion of his, her or its Bid both online and in hard copy format, the hard copy shall supersede the online submission unless the hard copy version has been specifically withdrawn by the Bidder in accordance with Subsection 102.10."

This page will be removed and replaced with the awarded Bidder's numeric Bid Page in the final set of executable Contract Documents

NOTE: ALL PAY ITEM FIELDS MUST BE COMPLETED OR THE BID WILL BE DISQUALIFIED

Unless a bid is rejected pursuant to subsection 102.07, or the bidder is disqualified pursuant to subsection 102.12 of the General Provisions of the DRBA Standard Specifications for Road and Bridge Construction, award will be made to the responsible bidder who submits the lowest responsive base bid.

If, during the tabulation of bids, the price on any bid is found to be incorrectly computed, the Authority reserves the right to make such corrections in computation as are necessary in the extended amounts and price on the basis of the unit and lump sum prices given and the approximate quantities stated for the scheduled items herein.

Together, parts (i) and (ii) below, as modified by any special provision(s) or by documents of any description furnished by the DRBA as part of this project, shall form the “Standard Specifications” and shall govern the execution of this project:

- (i) Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction, dated December 15, 2014*; and
- (ii) Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction, Revision #2 – June 2022*, including *Standard Items and Special Provisions 2020*, as published on the DelDOT website (“DelDOT Standard Specifications”).

Registered Bidders who subscribe to this project are provided with, via CapEx, a digital edition of Division 100 – General Provisions of the DRBA’s Standard Specifications. To access the DelDOT Standard Specifications, Bidders may visit www.deldot.gov, click the Quick Link labeled “Publications”, then scroll down to the section marked “Manuals” and select “Standard Specifications” and lastly select “Standard Specifications - Revision #2 - June 2022”.

Any applicable provision set forth in the Standard Specifications, as defined above, that is not modified by or in conflict with the Special Provisions shall be understood to remain in full force and effect.

Capitalized terms used in these Bid Pages and not otherwise defined shall have the meaning set forth in the Standard Specifications.

The cost of any work performed, materials furnished, services provided, or expenses incurred, which are not specifically delineated in the Contract Documents, but which are necessary or proper for or incidental to the scope, intent, execution, and completion of the Contract, shall be deemed to have been included in the prices bid for the various items scheduled hereinabove.

Each bid must be accompanied by one of the following forms of bid guaranty:

- (i) A cashier’s check, made payable to the “Delaware River and Bay Authority”, in the sum of not less than one percent (1%) of the Total Base Bid (i.e., the aggregate sum of

the bid), except that the amount of the check need not exceed \$20,000 and shall not be less than \$2,000;

OR

- (ii) A bid bond, on the form furnished by the Authority and included in the contract documents, for a sum of not less than ten percent (10%) of the Total Base Bid.

Failure on the part of the Bidder to whom the Contract has been awarded to execute and deliver the Contract Agreement and all other documents listed in Subsection 103.06 in the Standard Specifications and in the manner and within the time prescribed therein shall be just cause for the Authority to annul the Award, to recover under the terms and provisions of the Bid Bond, and to exclude the Bidder from bidding on subsequent Authority projects for such period as the Authority may deem appropriate.

It is understood and agreed by said Bidder that if the Award is annulled for the above reasons, the Authority will proceed with one of following actions, depending on the form of bid guaranty submitted by the Bidder:

- (i) The Bid Guaranty in the form of a cashier's check shall become the property of the Authority, not as a penalty but as Liquidated Damages;

OR

- (ii) The Authority will proceed to recover under the terms and provisions of the Bid Bond at the discretion of the Chairman.

The provisions of Resolution No. 98-31 Part 2, Subparagraphs (b), (c), (d) and (e) of the Delaware River and Bay Authority govern the procedures for the solicitation and award of this Contract. The above-mentioned Subparagraphs are as follows:

“2. b. All construction management contracts and all construction contracts entered into by the Authority for construction, reconstruction, demolition, alteration, and repair work and maintenance work with any person, partnership, corporation, company association or similar entity or any affiliate thereof, which contract individually exceeds \$50,000, shall be pursuant to a contract entered into by the Authority after competitive bidding. The advertisement for such bids shall be published at least once a week for two consecutive weeks in one newspaper of general circulation in each of the states of Delaware and New Jersey. The advertisement shall indicate the character, quantity, and location of the work, the time and place where the plans and specifications or descriptions may be obtained and where proposals are to be received.

c. Any person proposing to bid on such contract may be required by the Authority to complete a questionnaire and file a financial statement containing a complete statement of that person's financial ability and experience in performing such work. If the Authority is not satisfied with the sufficiency of the answers to the questionnaire or the financial statement, it may refuse to furnish the person submitting such unsatisfactory answers or financial statement any request for proposals or any plans or specifications for the work and the bid of any such person may be disregarded.

d. Any person to whom a construction management contract or construction contract is awarded must be bondable in the full amount of the construction contract and any request for proposals disseminated by the Authority for such a contract shall include a copy of the Authority's form of construction contract which shall be part of the proposal to be reviewed by prospective bidders. In addition, with respect to any construction management contract, the construction manager will be required to obtain at least three bids for each subcontractor category (unless it is determined by the Authority not to be in the best interest of the Authority to so require) and no work shall be awarded to any subcontractor without the prior approval of the Authority.

e. All materiel and supply contracts, non-professional service contracts and all construction management contracts or construction contracts are to be awarded to the lowest responsible bidder unless, in the opinion of the Authority or its delegated representative, the interest of the Authority is better served by awarding the contract to another bidder and, in addition, the Authority reserves the right to reject any or all bids, to advertise for new bids, to proceed to do the work otherwise, or to abandon the work if in the judgment of the Authority its best interest will be promoted thereby. In determining how the interest of the Authority is better served in making an award to other than the lowest responsible bidder, the Authority may take into consideration all relevant factors, including, but not limited to (i) the unsatisfactory performances on any previously awarded contracts by the bidder being rejected, (ii) lack of relevant experience on similar projects, (iii) lack of adequate manpower or supervisory staff; (iv) poor track record of timely completion within the industry or for the Authority; (v) track record of requesting unreasonable change orders, (vi) bonding capacity, (vii) low or no percentage of DBE, (viii) past claims or current legal problems or (ix) questionable subcontractor list.

Remainder of page intentionally left blank

Bidders that have chosen to submit a hard copy of the numeric portion of the bid (as opposed to submitting the bid electronically via CapEx) must acknowledge receipt of all Addenda by listing each Addendum number and date received in the following space. If no Addenda were issued, please write "None":

Acknowledgment is hereby made that the undersigned Bidder has visited the work site, examined the condition of the area to be renovated under the Contract, and correlated personal observations with requirements of the Contract Documents. Failure to visit the work site does not excuse any error or omission contained in the Bid.

Firm Name of Bidder: _____

Address of Bidder: _____

By: _____
(Signature)

By: _____
(Print Name)

Title: _____

Phone Number: _____

(If Corporation, add Corporate Seal)

Witness or Attest: _____ Date: _____

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

BREAKOUT SHEET

Bidders are required to breakout (separately identify) the associated labor, material and other costs associated with the Lump Sum prices bid for each of the following Lump Sum Pay Items:

- **Pay Item 1: DIVISION 13: GENERAL ARCHITECTURAL**
- **Pay Item 2: DIVISION 20: GENERAL MECHANICAL/PLUMBING**
- **Pay Item 3: DIVISION 26: GENERAL ELECTRICAL**

This Breakout Sheet must be completed and submitted either with the Bid Documents, or within seven (7) calendar days following the Bid due date, after notification from the Authority, by the apparent low Bidder.

The Breakout Sheet is to be submitted to the Authority's Procurement Department and cannot be changed after preliminary award. The Authority will review the figures submitted on the Breakout Sheet to ensure they exactly match the corresponding lump sum Pay Item totals bid. The Authority reserves the right to return mathematically incorrect Breakout Sheets for immediate correction, or, in the alternative, the nonconforming Bid will be rejected as non-responsive.

PAY ITEM 1: DIVISION 13: GENERAL ARCHITECTURAL, BREAKOUT	
SECTION/DESCRIPTION	COST
024110 Demolition	\$
033000 Cast-In-Place Concrete	\$
040511 Mortar and Masonry Grout	\$
042000 Unit Masonry	\$
061000 Rough Carpentry	\$
064100 Architectural Wood Casework	\$
064200 Wood Paneling	\$
075300 Elastomeric Membrane Roofing	\$
076200 Sheet Metal Flashing and Trim	\$
078400 Firestopping	\$
079005 Joint Sealers	\$

079200 Joint Sealants	\$
081213 Hollow Metal Frames	\$
081416 Flush Wood Doors	\$
085653 Security Windows	\$
087100 Door Hardware	\$
088000 Glazing	\$
092116 Gypsum Board Assemblies	\$
093000 Tiling	\$
095100 Acoustical Ceilings	\$
096500 Resilient Flooring	\$
096813 Tile Carpeting	\$
099123 Interior Painting	\$
101400 Signage	\$
102641 Ballistics Resistant Panels	\$
102800 Toilet, Bath and Laundry Accessories	\$
104400 Fire Protection Specialties	\$
123217 Console Furniture	\$
TOTAL (Must Match Lump Sum Bid for Pay Item 1)	\$

PAY ITEM 2: DIVISION 20: GENERAL MECHANICAL/PLUMBING, BREAKOUT	
SECTION/DESCRIPTION	COST
200000 General Mechanical Requirements	\$
210000 Fire Protection	\$
220000 General Plumbing Requirements	\$
230000 Heating & Air Conditioning	\$
TOTAL (Must Match Lump Sum Bid for Pay Item 2)	\$

PAY ITEM 3: DIVISION 26: GENERAL ELECTRICAL, BREAKOUT	
SECTION/DESCRIPTION	COST
260000 General Electrical Requirements	\$
260500 Electrical Materials and Methods	\$
265000 Lighting	\$
TOTAL (Must Match Lump Sum Bid for Pay Item 3)	\$

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

BID BOND

We, the undersigned, _____

as principal (herein called the "Principal"), and _____

a _____ of the State of _____, which is legally authorized to do business in the State of New Jersey, where the work is to be performed, as surety (herein called the "Surety"), do hereby agree to be held and bound unto the Delaware River and Bay Authority (herein called the "Authority") for the sum of _____

_____ Dollars and _____ Cents (\$ _____), which sum is to be paid to the Authority for its use and benefit. Further, for such payment well and truly to be made, we do hereby bind ourselves and our heirs, executors, administrators, successors, and assigns, jointly and severally.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH that the obligation hereby undertaken shall not vest and become binding unless the Principal, who has submitted to the Authority a bid to enter into Contract No. CMLF-C19-06R2 for the performance of certain work for the Authority (herein called the "Contract"), shall be awarded the Contract. If the Contract is so awarded, the obligation hereby undertaken shall be and remain in full force and effect until discharged unless the Principal enters into and executes the Contract and furnishes such surety bond and proof of required insurance coverage as may be required by the terms of the Contract Documents and approved by the Authority, all within ten (10) calendar days after the date of official notice of the award thereof in accordance with the terms of the bid for the Contract.

IN WITNESS WHEREOF, the Principal and Surety have duly executed this Bid Bond as of _____, 20__.

[PRINCIPAL]

Name: _____

Address: _____

Witness or Attest:

By: _____

(Corporate Seal)

Title: _____

[SURETY]

Name: _____

Address: _____

Witness or Attest:

By: _____

(Corporate Seal)

Title: _____

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

CONSENT OF SURETY

Delaware River and Bay Authority:

We have reviewed the Bid of _____
(Name of Contractor)

of _____
(Contractor Address)

for Contract No. CMLF-C19-06R2 and wish to advise that should this Bid of the Contractor be accepted and the Contract awarded to said Contractor, this company agrees to become the surety on the Contract Bond and Maintenance Bond required by the Contract Documents.

We are duly authorized to do business in the state of New Jersey:

Surety Company Name/Address:

(Authorized Signature)

ATTEST:

[Attach Power of Attorney]

(Add Corporate Seal, if any. If no seal, write "No Seal" across this place and sign.)

**STOCKHOLDERS AND/OR PARTNERS
OWNING MORE THAN TEN PERCENT OF BIDDING ORGANIZATION**

If Bidder is a Corporation or Partnership, this form must be completed and submitted with the Bid. If no stockholder or partner owns ten percent or more of the Bidding organization, place a checkmark in the following box and skip to the signature line below:

List the name and address of each stockholder owning ten percent (10%) or more of any class of corporate stock of the Bidding organization or each individual partner owning ten percent (10%) or greater interest of the Bidding organization:

		PERCENT OF OWNERSHIP
NAME _____	ADDRESS _____	_____
NAME _____	ADDRESS _____	_____
NAME _____	ADDRESS _____	_____

If any stockholder or partner named above is itself a Corporation or Partnership, list the name and address of each stockholder owning ten percent (10%) or more of any class of corporate stock or ten percent (10%) or greater interest of said Corporation or Partnership. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member, exceeding the 10 percent ownership criteria established in this act, has been listed, using additional sheets as necessary.

		PERCENT OF OWNERSHIP
NAME _____	ADDRESS _____	_____
NAME _____	ADDRESS _____	_____
NAME _____	ADDRESS _____	_____

I certify that the foregoing information is correct.

Signature

Print Name and Title

of

Name of Bidding Organization

(This form must be completed and submitted with the Bid if Bidder is a Corporation or Partnership.)

CERTIFIED CORPORATE RESOLUTION
(CORPORATE BIDDERS ONLY)

RESOLVED, that _____ be
(Name of Officer)

authorized to sign and submit the bid of this corporation and be authorized to execute a contract and any other instrument of whatever nature entered into by this corporation for the following project:

DRBA CONTRACT NO. CMLF-C19-06R2, CAPE MAY TERMINAL POLICE DISPATCH CENTER REHABILITATION.

The foregoing is a true and correct copy of the resolution adopted by _____
_____ Corporation at a meeting of its Board of Directors held
on the _____ day of _____, 20____.

(Secretary)

(Seal)

(This form must be completed and submitted with the Bid if Bidder is a Corporation)

DELAWARE RIVER AND BAY AUTHORITY

CAPE-MAY LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

NON-COLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

I, _____ of the City

of _____, County of _____ and State of

_____, being of full age and duly sworn according to law on my oath
dispose and say:

That I, on behalf of _____, submitted and
executed a Bid for Contract No. CMLF-C19-06R2 to the Delaware River and Bay Authority, with
full authority to do so, and that said Bidder has not, directly or indirectly, entered into any
agreement, participated in any collusion, or otherwise taken any action in restraint of free,
competitive bidding in connection with the said Contract; and that all statements contained in said
Bid and in this Affidavit are true and correct and made with full knowledge that the said Authority
relies upon the truth of the statements contained in said Bid and in this Affidavit in awarding the
said Contract. I further warrant that no person or selling agency has been employed or retained to
solicit or secure the said Contract upon an agreement or understanding for a commission,
percentage, brokerage or contingent fee, except bona fide full-time employees.

By: _____

Sworn to and subscribed before me this _____ day of _____ 20____.

Notary Public

My commission expires _____, 20_____.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

JOINT VENTURE STATEMENT

STATE OF _____

COUNTY OF _____

We, the undersigned, being duly sworn according to law, upon our respective oaths depose and say that:

1. The following named contractors have entered into a Joint Venture for the purpose of carrying out all the provisions of Contract No. CMLF-C19-06R2:

(a) _____
 An Individual
 A Partnership
 A Corporation

(b) _____
 An Individual
 A Partnership
 A Corporation

(c) _____
 An Individual
 A Partnership
 A Corporation

2. The contractors, under whose names we have affixed our respective signatures, have duly authorized and empowered us to execute this Joint Venture Statement in the name of and on behalf of such contractors for the purpose hereinabove stated.

3. Under the provisions of such Joint Venture, the assets of each of the contractors named in Paragraph 1 hereof, and in case any contractor so named above is a partnership, the assets of the individual members of such partnership, will be available for the performance of such Joint Venture and liable therefore and for all obligations incurred in connection therewith.

4. The assets and liabilities of the named contractors for whom we respectively execute this Joint Venture Statement are set forth in the financial statement requirement of the "Qualification Questionnaire" for each contractor.
5. This Joint Venture Statement is executed so that the named contractors, as one organization, may under such Joint Venture, bid upon said Contract, and be awarded the Contract if they should become the successful bidder therefor. Any bid, bond and agreement relating to said Contract shall be executed by any of the undersigned, and when so executed shall bind this Joint Venture and each and every contractor named herein, severally and jointly. Simultaneous with the execution of the Contract, the contractors entering into this Joint Venture shall designate and appoint a Project Supervisor to act as their true and lawful agent with full power and authority to do and perform any and all acts of things necessary to carry out the work set forth in said Contract.
6. We bind the contractors for whom we respectively execute this Joint Venture Statement in firm agreement with the Delaware River and Bay Authority that each of the representations herein set forth is true.

Subscribed and sworn to before me,
 this _____ day of _____, 20__

(a) _____
 Name of Contractor

My commission expires _____

 Notary Public

By _____
 Print Name:

Subscribed and sworn to before me,
 this _____ day of _____, 20__

(b) _____
 Name of Contractor

My commission expires _____

 Notary Public

By _____
 Print Name:

Subscribed and sworn to before me,
 this _____ day of _____, 20__

(c) _____
 Name of Contractor

My commission expires _____

 Notary Public

By _____
 Print Name:

(If Bidder is a Joint Venture, this form must be completed and submitted with the Bid.)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

QUALIFICATION QUESTIONNAIRE

All Bidders and Subcontractors performing twenty percent (20%) or more of the total value of work of the Contract must complete and submit this form with the corresponding Bid. Use additional sheets as necessary.

Form submitted by _____, an
(Name of Bidder or Subcontractor)

- Sole Proprietorship (Individual)
- Partnership
- Limited Liability Company
- Corporation of _____ (State).

Principal Office Address and Telephone Number:

1. How many years has your organization been in business as a Contractor under your present business name? _____
2. How many years of experience does your organization have performing work as shown on the project Plans:

as a Contractor? _____ as a Subcontractor? _____
3. On a separate piece of paper and attach to this Questionnaire list any information which would indicate the size and capacity of your organization, such as number of employees, equipment owned by your organization, etc.
4. List below the name, address, contact person and telephone number **for each Subcontractor that your organization will use on this Project**, and the percentage (%) of the total dollar value of the Contract that each will perform. Indicate any subcontractors that are certified Minority-Owned, Women-Owned, or Disadvantaged Business Enterprises (collectively, "M/W/DBEs").

-
-
5. List below the requested information concerning projects your organization has completed in the last five (5) years for the type of work required in the Contract. (If additional space is required, the information may be listed on sheets prepared by the Contractor and attached to this Questionnaire.)

Project Title and Location	Contract Amount	Required Completion Date	Actual Completion Date	Name, Address, Contact Person and Phone of Owner

6. List below the requested information concerning projects of all types your organization will have underway as of the date Bids are to be received on the Contract:

Project Title and Location	Brief Description	Contract Amount	% Complete	% Sublet	Name, Address, Contact Person and Phone of Owner

7. During the previous ten (10) calendar years, has your organization failed to complete any work (including Subcontractor work) awarded to you? _____ If YES, describe the incident(s), date(s) and location of work on a separate piece of paper and attach to this Questionnaire.
8. During the past five (5) calendar years, has your organization defaulted on a contract or been terminated for any reason, including default? _____ If YES, provide information regarding each default and/or termination on a separate piece of paper and attach to this Questionnaire.
9. Has any officer or partner of your organization ever been an officer or partner of some other organization that failed to complete a construction contract? _____ If YES, state name of individual(s), name(s) of the other organization and reason(s) therefor on a separate piece of paper and attach to this Questionnaire.
10. Has any officer or partner of your organization ever failed to complete a construction contract handled in his or her own name? _____ If YES, state name of individual(s), name of owner(s) or client(s) and the reason(s) therefor on a separate piece of paper and attach to this Questionnaire.
11. Has any lien been filed against a construction project handled by your organization based on allegations of nonpayment against your organization? _____ If YES, state the name of the company filing the lien, the amount of the lien, and whether or not the lien was discharged on a separate piece of paper and attach to this Questionnaire.
12. In the last five (5) years, have liquidated damages been assessed on your organization? _____ If YES, provide information regarding every reason for the liquidated damages and the amount on a separate piece of paper and attach to this Questionnaire.
13. During the previous five (5) calendar years, has your organization been engaged in litigation relating to the performance of a contract? _____ If YES, with respect to each litigation, list the name of every adversary, each party, a description of every contract at issue in the litigation, the status and result(s) of each litigation and the jurisdiction(s), court(s) and docket number(s), on a separate piece of paper and attach to this Questionnaire.
14. During the previous five (5) calendar years, has your organization failed to pay a Subcontractor or supplier for work satisfactorily performed within thirty (30) days of receiving payment from the owner or client for that work? _____ If YES, provide information regarding all payment delays on a separate piece of paper and attach to this Questionnaire.
15. During the previous five (5) calendar years, has your organization incurred a work-related fatality to your workforce? _____ If YES, describe the incident(s), date(s) and location of work-related fatality(s) on a separate piece of paper and attach to this Questionnaire.
16. During the previous five (5) calendar years, has any owner, client, government or other

public entity requested or required enforcement of any of its rights under a surety agreement on the basis of default or in lieu of declaring your organization to be in default? _____ If YES, describe each event on a separate piece of paper and attach to this Questionnaire.

17. Has your organization received any regulatory government agency (i.e., OSHA, EPA, DOT) citations during the previous five (5) calendar years or currently undergoing an investigation or defending a citation, regardless of the nature of alleged violation and outcome? _____ If YES, list the agency, the total number of citations and the nature of each alleged violation on a on a separate piece of paper and attach to this Questionnaire.
18. Are your organization's field supervisors certified in any accredited safety courses (i.e., OSHA 10-hour Construction Safety, OSHA 30-hour Construction Safety, First Aid/CPR/AED)? _____ If YES, attach to this Questionnaire a list of all field supervisors by last and first name, title, and a copy of their safety-related certifications received within the past three (3) years.
19. During the previous five (5) calendar years, has your organization been debarred, suspended, proposed for debarment, declared ineligible, voluntarily excluded, or otherwise disqualified from bidding, proposing or contracting by any local, city, state or federal agency or government? _____ If YES, please provide details of each incident on a separate piece of paper and attach to this Questionnaire.
20. During the previous five (5) calendar years, has your organization experienced or been affected in any way that contributed or caused delay to the overall completion of projects that are the same or substantially similar to the Work contemplated in this Project? _____ If YES, provide information regarding each delay and appropriate mitigation measures on a separate piece of paper and attach it to this form.

Remainder of page intentionally left blank

Based upon the Contractor's answers to this Qualification Questionnaire, the Authority may reject the Bid on grounds of failure to provide adequate information, insufficient financial ability to perform the Contract, inadequate experience to undertake the project, documented failure to perform on prior contracts, prior judgments for breach of contract, criminal conviction, fraud, inadequate labor supply available to complete the project in a timely manner, previous debarment, previous revocation of a license, or previous bankruptcy proceedings, or other indication that the Contractor may not be capable of performing the work or completing the project to the satisfaction of the Authority.

The Authority reserves the right to inquire further with respect to the Contractor's responses; and the Contractor consents to such further inquiry and agrees to furnish all relevant documents and information as requested by the Authority. With the exception of willful falsification of or failure to report an answer, a response to this form which is or may be construed as unfavorable to the Contractor will not automatically result in a negative finding on the question of the Contractor's responsibility.

As an authorized representative of the Bidder/Subcontractor, the undersigned certifies that the information provided on this Qualification Questionnaire is true and accurate.

Name of Bidder/Subcontractor: _____

By: _____

Title: _____

Witness or Attest

(Corporate Seal)

Sworn to and subscribed before me this _____ day of _____ 20____.

Notary Public

My commission expires _____, 20_____.

Note to Bidders: Below is the standard form of contract approved for use by the DRBA which shall serve as the model contract that the DRBA and the Contractor will enter into. It is the responsibility of the Bidder to carefully review the below standard form of contract before submitting a Bid.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

CONTRACT

This Contract ("Contract"), by and between the DELAWARE RIVER AND BAY AUTHORITY, P.O. Box 71, New Castle, Delaware 19720, a body politic duly created by Compact and an agency for the State of Delaware and the State of New Jersey (herein called the "Authority"), party of the first part; and **CONTRACTOR, ADDRESS** (herein called the "Contractor"), party of the second part.

WITNESSETH, that the Contractor, for and in consideration of the payments hereinafter specified and agreed to be made by the Authority, hereby covenants and agrees as follows:

ARTICLE ONE. The Contractor shall and will provide and furnish all materials, machinery, implements, appliances and tools and perform all the work and labor required to complete all Work under Contract No. CMLF-C19-06R2 upon the property within the jurisdiction and control of the Authority, in strict conformity with this Contract, including the executed Contract, Advertisement for Bids, Bid, Consent of Surety, Bid Bond, Non-Collusion Affidavit, Qualification Questionnaire, Joint Venture Statement (if applicable), Contract Bond, Standard Specifications, Special Provisions, Plans and any Addenda, Change Orders, Supplemental Agreements and all other documents specifically issued in connection with this Project, all of which are to be treated as one instrument, and are hereby made a part of this Contract as fully and with the same effect as if the same had been set forth at length in the body of this Contract.

ARTICLE TWO. It is understood and agreed by and between the parties hereto that all the work included in this Contract is to be done under the direction of the Executive Director of the Authority and that his decision as to the true and accurate meaning of said Bid, Plans, Standard Specifications and Special Provisions shall be final. It is further understood and agreed by and between the parties hereto that any additional drawings and specifications as may be necessary to detail and illustrate the work to be done are to be furnished by said Executive Director of the Authority, and the parties hereto agree to conform to and abide by the same so far as it may be consistent with the purpose and intent of the original Bid, Plans, Standard Specifications and Special Provisions referred to in Article One. It is further agreed by and between the parties that the Contractor is responsible to perform work which is reasonably inferable from and consistent

Note to Bidders: Below is the standard form of contract approved for use by the DRBA which shall serve as the model contract that the DRBA and the Contractor will enter into. It is the responsibility of the Bidder to carefully review the below standard form of contract before submitting a Bid.

with the intent of the Specifications, Special Provisions, Plans and drawings, whether or not such work is explicitly stated.

ARTICLE THREE. The Contractor agrees to make payment of all proper charges for labor and materials required in the aforementioned work, and to indemnify, defend and save harmless the Authority, its commissioners, officers, agents, employees and servants, and each and every one of them, against and from all suits and costs of every name and description, and from all damages to which the Authority, or any of its commissioners, officers, agents or servants may be subjected by reason of injury to the person or property of others, inclusive of Authority property, resulting from the performance of said work, or through the negligence of said Contractor, its Subcontractors, agents, employees or servants, or through any improper or defective machinery, implements or appliances used by the Contractor in the aforesaid work, or through any act or omission on the part of said Contractor or its Subcontractors, agents, employees or servants.

ARTICLE FOUR. If the construction or work to be done under this Contract shall be abandoned, or if this Contract, or any part thereof, shall be sublet without the previous written consent of the Authority, or if the Contract shall be assigned by the Contractor, without the previous written consent of the Authority, or if at any time the Executive Director shall be of the opinion, and shall so certify in writing to the Authority, that the work, or any part thereof, is unnecessarily or unreasonably delayed, or that the Contractor has violated any provision of this Contract, the Authority may notify the Contractor to discontinue all work or any part thereof; and thereupon the Contractor shall discontinue such work or such part thereof as the Authority may designate, and the Authority may thereupon, by a Contract or otherwise, as it may determine, complete the work or part thereof and charge the entire expense of so completing the work or part thereof to the Contractor; and for such completion the Authority for itself or its contractors, may take possession of or use or cause to be used in the completion of the work or any part thereof, any of such machinery, implements, tools, or materials of any description as shall be found upon the line of said work, and thereafter accounting for, or paying to the Contractor a reasonable compensation for the use of said machinery, implements, tools, or materials.

All costs and charges, including additional expenses, that may be incurred under this Article or any damages including, but not limited to liquidated, actual and consequential damages, that should be borne by the Contractor shall be withheld or deducted from any monies then due, or to become due to the Contractor, under this Contract, or any part thereof; and in such accounting the Authority shall not be held to obtain the lowest cost for the work of completing the Contract or any part thereof, but all sums actually paid therefor shall be charged to the Contractor. In case the costs and charges incurred are less than the sum which would have been payable under the Contract, if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference and in case such costs and charges shall exceed the said sum, the Contractor shall pay the amount of excess to the Authority for the completion of the work.

ARTICLE FIVE. The Authority agrees to pay the Contractor for such work, when completed in accordance with this Contract, the total amount of _____ Dollars and _____ Cents (\$ _____). Estimated payments will be made according to the lump sum

Note to Bidders: Below is the standard form of contract approved for use by the DRBA which shall serve as the model contract that the DRBA and the Contractor will enter into. It is the responsibility of the Bidder to carefully review the below standard form of contract before submitting a Bid.

prices specified in the Contractor's Bid and in the manner and upon the conditions set forth in the Standard Specifications and Special Provisions.

ARTICLE SIX. It is further mutually agreed between the parties hereto that no estimate given or payment made under this Contract shall be evidence of the performance of this Contract either wholly or in part, and that no payment shall be construed to be an acceptance of defective work or improper materials.

ARTICLE SEVEN. This Contract shall be binding upon the successors in interest of both parties.

ARTICLE EIGHT. This Contract shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware. The Contractor hereby irrevocably consents, for itself and its heirs, legal representatives, partners, successors and assignees, to the exclusive jurisdiction of the Courts of the State of Delaware and of the United States District Court for the District of Delaware for all purposes in connection with any action or proceeding that arises from or relates to this Contract. The Contractor further waives any rights it may have to personal service of summons, complaint or other process in connection therewith, and agrees that service may be made by registered or certified mail addressed to Contractor at the address set forth in the bid documents.

ARTICLE NINE. Except as otherwise herein provided, any notices under or pursuant to this Contract or any of the documents incorporated herein shall be in writing and shall be delivered by personal delivery, by nationally recognized overnight courier or by certified or registered mail, return receipt requested, using the address set forth in the first paragraph above or at such other address as the party affected shall designate, subsequent to the date of the Contract, by written notice given in the manner hereinabove set forth. Notices shall be deemed given when delivered and receipted for (or upon the date of attempted delivery where delivery is refused), if hand-delivered; or when receipted for (or upon the date of attempted delivery where delivery is refused or a properly addressed and mailed notice is returned as undeliverable or unclaimed), if sent by certified or registered mail.

ARTICLE TEN. Should any part of this Contract be held to be invalid, illegal or unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Contract (including without limitation, each portion of any Article of this Contract containing any such part held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by law; (b) such part shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties hereto; and (c) to the fullest extent possible, the Articles of this Contract (including, without limitation, each portion of any Article of this Contract containing any such part held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

Note to Bidders: Below is the standard form of contract approved for use by the DRBA which shall serve as the model contract that the DRBA and the Contractor will enter into. It is the responsibility of the Bidder to carefully review the below standard form of contract before submitting a Bid.

ARTICLE ELEVEN. It is expressly understood and agreed that the Contractor, in performing its obligations under this Contract, shall be deemed an independent Contractor and not an agent or employee of the Authority. In furtherance of the foregoing, and not in limitation, the Contractor has no authority to enter into any contracts or other agreements with any person or entity on behalf of the Authority or to otherwise bind the Authority. Furthermore, nothing contained in this Contract shall either be construed to mean that the Authority and the Contractor are joint venturers, partners or the like, or to establish any contractual relationship between the Authority and any Subcontractor of the Contractor.

ARTICLE TWELVE. The effective date of this Contract shall be on the date the Assistant Secretary of the Authority attests that all parties to this Contract have executed the Contract, as shown on the signature page below.

Signatures on following page

Note to Bidders: Below is the standard form of contract approved for use by the DRBA which shall serve as the model contract that the DRBA and the Contractor will enter into. It is the responsibility of the Bidder to carefully review the below standard form of contract before submitting a Bid.

IN WITNESS WHEREOF, the undersigned have duly executed this Contract, effective upon the day and year below as attested by the Assistant Secretary of the Authority.

[CONTRACTOR]

By: _____

Name: _____

Title: _____

Date: _____

DELAWARE RIVER AND BAY AUTHORITY

By: _____

Chairman

By: _____

Vice Chairman

By: _____

Executive Director

Attest: _____

Assistant Secretary

Date: _____

Note to Bidders: Unless stated otherwise in the Special Provisions, after the Contractor has received the written notice of Contract Award, and before the Authority will begin its execution process of said Contract, the Contractor must furnish a Contract Bond to the Authority in a sum equal to the cost of the Base Bid plus any Alternate Pay Items (as applicable) that the Authority has elected to include in the Contract. Below is the form approved for use by the DRBA. For additional information see Section 103.05 Contract Performance and Payment Bonds.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

CONTRACT BOND

We, the undersigned, _____

as principal (herein called the "Principal"), and _____

a _____ of the State of _____, which is legally authorized to do business in the State of New Jersey, where the work is to be performed, as surety (herein called the "Surety"), do hereby agree to be held and bound unto the Delaware River and Bay Authority (herein called the "Authority") for the sum of _____

Dollars and _____ Cents (\$ _____), which sum is to be paid to the Authority for its use and benefit. Further, for such payment well and truly to be made, we do hereby bind ourselves and our heirs, executors, administrators, successors, and assigns, jointly and severally.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal, to whom the Authority has awarded Contract No. CMLF-C19-06R2 (herein called the "Contract") for the performance of certain work for the Authority, which Contract is incorporated herein by reference, shall well and truly provide and furnish all the materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and of the Bid, Plans, Standard Specifications, Special Provisions and Technical Specifications contained therein, or any changes or modifications thereto made as therein provided, and shall also indemnify, defend and save harmless the Authority from all costs, damages and expenses growing out of or by reason of the performance of the Contract and shall well and truly pay all and every

Note to Bidders: Unless stated otherwise in the Special Provisions, after the Contractor has received the written notice of Contract Award, and before the Authority will begin its execution process of said Contract, the Contractor must furnish a Contract Bond to the Authority in a sum equal to the cost of the Base Bid plus any Alternate Pay Items (as applicable) that the Authority has elected to include in the Contract. Below is the form approved for use by the DRBA. For additional information see Section 103.05 Contract Performance and Payment Bonds.

person furnishing material or performing labor in and about the performance of the work under the Contract, all and every sum or sums of money due him, them or any of them, for all such labor and materials for which the Principal is liable; then this obligation shall be void; otherwise it shall be and remain in full force and effect.

If for any cause the Principal fails or neglects to so fully perform and complete such work, the Surety, for value received, hereby stipulates and agrees, if requested by the Authority:

(i) to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof; or

(ii) to pay to the Authority upon demand amounts necessary to pay all costs incurred by the Authority (including appropriately allocated internal costs of the Authority) to enable the Authority to fully perform and complete the work to be performed under the Contract (but not exceeding the amount set forth in the first paragraph hereof);

If the Authority requests option (i) above, the Surety further agrees to commence such work of completion within twenty (20) calendar days after written notice thereof from the Authority and to complete such work within such reasonable time as the Authority may determine.

The Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of the Surety and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, change, delay or disruption in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and the Surety does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to the Surety as though done or omitted to be done by or in relation to the Principal.

The Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract, or in or to the Plans, Standard Specifications, Special Provisions and Technical Specifications therefor, shall in any way affect its obligation under this Contract Bond.

Note to Bidders: Unless stated otherwise in the Special Provisions, after the Contractor has received the written notice of Contract Award, and before the Authority will begin its execution process of said Contract, the Contractor must furnish a Contract Bond to the Authority in a sum equal to the cost of the Base Bid plus any Alternate Pay Items (as applicable) that the Authority has elected to include in the Contract. Below is the form approved for use by the DRBA. For additional information see Section 103.05 Contract Performance and Payment Bonds.

Remainder of page intentionally left blank

Note to Bidders: Unless stated otherwise in the Special Provisions, after the Contractor has received the written notice of Contract Award, and before the Authority will begin its execution process of said Contract, the Contractor must furnish a Contract Bond to the Authority in a sum equal to the cost of the Base Bid plus any Alternate Pay Items (as applicable) that the Authority has elected to include in the Contract. Below is the form approved for use by the DRBA. For additional information see Section 103.05 Contract Performance and Payment Bonds.

IN WITNESS WHEREOF, the Principal and Surety have duly executed this Contract Bond as of _____, 20____.

[PRINCIPAL]

Name: _____

Witness or Attest:

Address: _____

By: _____

(Corporate Seal)

Title: _____

[SURETY]

Name: _____

Witness or Attest:

Address: _____

By: _____

Title: _____

(Corporate Seal)

Note to Bidders: Unless stated otherwise in the Special Provisions, at the Conclusion of Work the Authority will not make final payment until the Contractor has furnished the below Maintenance Bond to the Authority in a sum equal to five percent (5%) of the final Contract amount. Below is the form approved for use by the DRBA. For additional information see Section 105.20 Project Acceptance; Guaranty Against Defective Work.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

MAINTENANCE BOND

We, the undersigned, _____

as principal (herein called the "Principal"), and _____

a _____ of the State of _____, which is legally authorized to do business in the State of New Jersey, where the work has been performed, as surety (herein called the "Surety"), do hereby agree to be held and bound unto the Delaware River and Bay Authority (herein called the "Authority") for the sum of _____

_____ Dollars and _____ Cents

(\$ _____), which sum is to be paid to the Authority for its use and benefit.

Further, for such payment well and truly to be made, we do hereby bind ourselves and our heirs, executors, administrators, successors, and assigns, jointly and severally.

WHEREAS the Principal entered into a contract with the Authority known as Contract No. CMLF-C19-06R2 (herein called the "Contract"), which Contract is incorporated herein by reference; and

WHEREAS the Principal has represented that it has completed the Contract in strict and entire conformity with the Plans and Specifications therefor on file at the office of the Authority;

Note to Bidders: Unless stated otherwise in the Special Provisions, at the Conclusion of Work the Authority will not make final payment until the Contractor has furnished the below Maintenance Bond to the Authority in a sum equal to five percent (5%) of the final Contract amount. Below is the form approved for use by the DRBA. For additional information see Section 105.20 Project Acceptance; Guaranty Against Defective Work.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if, within two (2) years from the date of final written acceptance of the work by the Authority, no faulty workmanship shall be disclosed in the performance of the Contract, including any Change Orders or Supplemental Agreements thereto, and if it shall appear that no defective materials were furnished thereunder, and if it shall appear that all work was performed and all materials were furnished thereunder in strict and entire conformity with the terms of the Contract, including any Change Orders or Supplemental Agreements thereto, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

If, within said period of two (2) years, faulty workmanship is disclosed or it appears that defective materials were furnished, or it appears that the work was not performed or the materials were not furnished in strict and entire conformity with the terms of the Contract documents, then the Authority shall so notify the Principal in writing and the Principal shall promptly repair, replace and make good all defective work or materials. In the event that the Principal, after having been so notified, shall refuse or neglect to repair, replace or make good such work or materials within five (5) days from the receipt of such notice (or within such other time as the Executive Director of the Authority may direct), or shall fail to complete such work within the time prescribed by said Executive Director, then the Authority will proceed to have the work done by others, and the Principal and Surety hereunder shall jointly and severally be liable to pay the cost thereof, subject to the monetary limitation first written above. In case of an emergency, as determined by said Executive Director, the Authority reserves the right to immediately effect both temporary and permanent repairs, or to arrange for others to effect such repairs, without immediate notification to the Principal, and the Principal and Surety hereunder shall jointly and severally be liable to pay the cost thereof.

Further, if in the event no faulty workmanship defective materials or nonconforming work, is disclosed or discovered within the two-year period, this shall in no way bar, or be used as a defense to the Authority's ability to bring a cause of action for breach, negligence, or other theory, within the term allowed by law, against Contractor and other responsible parties.

Remainder of page intentionally left blank

Note to Bidders: Unless stated otherwise in the Special Provisions, at the Conclusion of Work the Authority will not make final payment until the Contractor has furnished the below Maintenance Bond to the Authority in a sum equal to five percent (5%) of the final Contract amount. Below is the form approved for use by the DRBA. For additional information see Section 105.20 Project Acceptance; Guaranty Against Defective Work.

IN WITNESS WHEREOF, the Principal and Surety have duly executed this Maintenance Bond as of _____, 20__.

[PRINCIPAL]

Name: _____

Witness or Attest:

Address: _____

By: _____

Title: _____

(Corporate Seal)

[SURETY]

Name: _____

Address: _____

Witness or Attest:

By: _____

Title: _____

(Corporate Seal)

Note to Bidders: Unless stated otherwise in the Special Provisions, at the Conclusion of Work the Authority will not make final payment until the Contractor has furnished the below Contractor's Release of Liens. Below is the form approved for use by the DRBA. For additional information see Section 109.10 Final Payment.

DELAWARE RIVER AND BAY AUTHORITY

CAPE-MAY LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

CONTRACTOR'S RELEASE OF LIENS

Date: _____

Delaware River and Bay Authority
Post Office Box 71
New Castle, Delaware 19720

Re: Contract No. CMLF-C19-06R2
CAPE MAY TERMINAL POLICE DISPATCH CENTER REHABILITATION

Gentlemen:

This is to certify that all just liens, claims and demands for labor, materials and rental of equipment arising out of the prosecution of the work under the above-named contract are fully paid and satisfied and that all of the work is fully released, freed and discharged from all liens, claims and demands, whatsoever, whether just or otherwise of any contractors, subcontractors, materialmen, suppliers, laborers, artisans or architects.

In consideration of the final payment of said contract, we hereby remise, release and forever discharge the Delaware River and Bay Authority, its commissioners, officers, representatives, employees, agents, and servants from any and all manner of actions and cause of actions, suits, debts, accounts, bonds, covenants, contracts, agreements, judgments, liens, demands and liability of whatever nature in law and in equity from anything done or furnished or in any manner growing out of the doing of the work under the above-named contract including any and all extra or reduction orders issued thereunder and any agreements supplementary thereto, and anything whether known or unknown, suspected or unsuspected or which we ever had, now have or which our heirs, executors, administrators, successors or assigns shall or may have; and we hereby agree to indemnify, defend and hold harmless the Delaware River and Bay Authority against any and all

Note to Bidders: Unless stated otherwise in the Special Provisions, at the Conclusion of Work the Authority will not make final payment until the Contractor has furnished the below Contractor's Release of Liens. Below is the form approved for use by the DRBA. For additional information see Section 109.10 Final Payment.

claims which hereafter may be made or instituted against it by any contractors, subcontractors, materialmen, suppliers, laborers, artisans or architects for the purpose of enforcing a lien, claim or demand arising out of the prosecution of the work under the above-named contract.

Compliance with the foregoing, as related to statutory liens, is a matter of administrative convenience. It is the Authority's position that the property of the Authority, as an agency of the States of Delaware and New Jersey, is not subject to the filing of statutory liens as a matter of law.

Contractor: _____

Address: _____

Witness or Attest:

By: _____

Title: _____

(Corporate Seal)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

STANDARD SPECIFICATIONS

Together, parts (i) and (ii) below, as modified by any Special Provisions or by documents of any description furnished by the DRBA as part of the Contract, form the “Standard Specifications” and shall govern the execution of the Contract:

- (i) Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction, dated December 15, 2014*; and
- (ii) Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction, Revision #2 – June 2022*, including *Standard Items and Special Provisions 2020*, as published on the DelDOT website (“DelDOT Standard Specifications”).

The Standard Specifications, as defined above, are hereby made a part of the Contract as fully and with the same effect as if set forth at length herein.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

SPECIAL PROVISIONS - PART I

AMENDMENTS TO GENERAL PROVISIONS
OF THE STANDARD SPECIFICATIONS

The following clauses represent modifications to Division 100 - General Provisions of the *Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction*, dated December 15, 2014 (the "General Provisions").

Any modifications given herein will specifically identify the Section or Subsection of the General Provisions within which the modification is to occur and whether that modification is an insertion, deletion or replacement of the original provision.

Any provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of this Part I shall be understood to remain in full force and effect.

101.75.2 Standard Specifications.

Delete the provisions of Subsection 101.75.2 and replace with the following:

Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction, dated December 15, 2014*; and Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction, Revision #2 – June 2022*, including *Standard Items and Special Provisions 2020*, as published on the DelDOT website.

101.83.2 Supplemental Specifications (DelDOT Supplemental Specifications).

Delete the provisions of Subsection 101.83.2 and replace with the following:

Approved DelDOT additions or revisions to Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction, Revision #2 – June 2022*, as published on the DelDOT website.

102.05 Examination of Plans, Specifications, Contract Documents, and Site of Work.

Insert the following after the last paragraph:

A non-mandatory pre-bid meeting and site visit will be held on September 27, 2022, at 11:00 a.m. local time at the Cape May Ferry Administration Building, 1200 Lincoln Blvd., North Cape May, New Jersey 08204. All visitors must check-in with the DRBA Police Department at Building C-2 to obtain a Visitor I.D. badge and must wait at the Administration Building entrance area for further instructions from DRBA staff. All visitors must follow the personal protective equipment requirements in accordance with DRBA policy. Unsupervised access to the project site is prohibited.

102.08 Bid Guaranty.

Delete all and replace with the following:

The Bid, when submitted, shall be accompanied by one (1) of the following forms of bid guaranty:

- (i) A cashier’s check, made payable to the “Delaware River and Bay Authority”, in the sum of not less than one percent (1%) of the Total Base Bid (i.e., the aggregate sum of the bid), except that the amount of the check need not exceed \$20,000 and shall not be less than \$2,000;

OR

- (ii) A bid bond, on the form furnished by the Authority and included in the contract documents, for a sum of not less than ten percent (10%) of the Total Base Bid.

As applicable, any cashier's checks submitted as bid guaranty will be returned to each non-awarded Bidder as soon as possible following the bid opening, and no later than within fourteen (14) Days following the bid opening.

103.04 Return of Bid Guaranty.

Delete all and replace with the following:

In the event the award of the Contract is annulled because the Bidder to whom the award is made fails to execute and have delivered on time the Contract and other prescribed documents, that Bidder's Bid Bond shall become operative, as provided in Subsection 103.07.

103.10 Insurance.

Insert the following prior to all paragraphs of this Subsection:

***BIDDERS: DO NOT BID ON THIS PROJECT UNTIL YOU HAVE REVIEWED THE FOLLOWING PROVISIONS WITH YOUR INSURANCE PROVIDER. AFTER THE BID DUE DATE HAS PASSED, THESE PROVISIONS BECOME NON-NEGOTIABLE. THE AWARDED BIDDER WILL BE REQUIRED TO PROVIDE EVIDENCE OF MEETING THE FOLLOWING INSURANCE PROVISIONS PRIOR TO FINAL EXECUTION OF THE CONTRACT.**

Remove the fourth sentence of the second paragraph and replace with the following:

Notwithstanding the foregoing, the Authority reserves the right to request evidence of insurance, including a copy of the policy(ies) and/or endorsement(s), at such additional intervals as it determines in its sole discretion.

Remove the fifth sentence of the second paragraph and replace with the following:

In the event of cancellation, non-renewal, expiration, termination or alteration (whether by the insurer or the Contractor) of such policy(ies) or in the event the coverage thereof is altered below the limits required by the Contract, Contractor shall provide the Authority with thirty (30) Days prior written notice of such cancellation, non-renewal, expiration, termination or alteration.

Insert the following after the final paragraph of Subsection:

The Contractor is responsible for subcontractor performance and shall require all Subcontractors to possess adequate insurance coverage. The minimum requirements of insurance to be carried by the Contractor and any Subcontractor shall be as follows:

- A. Workers' Compensation and Employer's Liability Insurance. **The prevailing NCCI policy form which shall be used is WC 00 00 00C 01-05.**
 - i. State Act / Employer's Liability: \$1,000,000/\$1,000,000/\$1,000,000 as required by the statutory limits according to the laws of the State of New Jersey.

The insurer shall waive, and the Contractor shall be responsible for confirming that the insurer has waived, any right of subrogation against the Authority to the maximum extent permitted by law. Any deductible shall be the responsibility of the Contractor and shall not be claimed against the Authority.

B. Commercial General Liability. The prevailing ISO policy form which shall be used is CG 00 01 04-13.

Commercial General Liability policy with limits of not less than One Million Dollars (\$1,000,000) each occurrence, Two Million Dollars (\$2,000,000) products liability/completed operations aggregate and Two Million Dollars (\$2,000,000) general aggregate (applicable per project). Products/completed operations coverage to remain in effect for a period not less than the New Jersey statute of repose after the work has been completed. Any aggregate to be by project and the policy shall not contain any XCU exclusions.

C. Business Automobile Liability Insurance. The prevailing ISO policy form which shall be used is CA 00 01 11-20.

Business Automobile Liability to provide the following coverage for all owned, non-owned, hired or borrowed vehicles and registered equipment:

- i. Bodily Injury and Property Damage Liability with a Combined Single Limit of not less than One Million Dollars (\$1,000,000) for all damages because of bodily injury and property damage suffered by one or more persons as the result of any one accident.

D. Contractor's Pollution Liability and Clean-up Costs.

A Contractor's Pollution Liability and Clean-up Costs policy with limits of not less than One Million Dollars (\$1,000,000) each claim and Two Million Dollars (\$2,000,000) aggregate. The policy retro date shall be concurrent with, or prior to, the contract and coverage is to remain in effect for no less than three (3) years after the Work has been completed.

- i. At minimum, coverage shall include Clean-up costs, 3rd party bodily injury/property damage, 3rd party property loss of use, Emergency response costs, Non-Owned Disposal Sites and Pollution Transportation.
- ii. Include the Authority as additional insured.
- iii. Provide primary and non-contributory language for the Authority.
- iv. Provide a 30-day notice of cancellation and waiver of subrogation to the Authority.

E. Umbrella or Excess Liability.

An Umbrella or Excess Liability policy with a limit of not less than Five Million Dollars (\$5,000,000) (applicable per project) in excess of and including the coverage stipulated in

the primary policies as stated above under Sections A, B and C. The umbrella policy should include additional insured/primary and non-contributory provisions for DRBA's benefit.

F. Additional Insured.

With respect to the minimum insurance requirements outlined above, the Contractor and all Subcontractors are to name the Authority as additional insured under Section B on a primary and non-contributory basis using forms #CG 2010, #CG 2037 and #CG 2038. (*Note: Form #CG 2038 may be waived by the DRBA if no Subcontractors will be providing Work*). Furthermore, the Authority is to be added as an additional insured under Sections C, D and E on a primary and non-contributory basis. The Umbrella policy outlined in Section E should be written to follow form of the coverages afforded in Sections A, B and C. In addition, the insurer for the Contractor and all Subcontractors shall waive, and the Contractor and its Subcontractors shall be responsible for confirming that the insurer of all policies has waived, any right of subrogation against the Authority to the maximum extent permitted by law. The Contractor and all Subcontractors agree to indemnify the Authority from any costs or liabilities arising in the Court if the Contractor's insurer fails to waive subrogation as required. Any deductible or self-insured retention shall be the responsibility of the Contractor and shall not be claimed against the Authority.

If any policy above has a deductible or self-insured retention, the Contractor and any Subcontractor shall not claim against the DRBA for any reimbursement of said deductible or self-insured retention, regardless of the cause of loss. The Insurance Certificate(s) shall indicate all deductibles and/or self-insured retentions.

Duration of Insurance. The insurance policies as required by sections A, B, C, D and E shall be kept in full force and effect during the performance of this Contract and until the Contractor has fully performed all work hereunder. In addition, under section B after the work is completed/accepted by the Authority, the products/completed operations coverage is to remain in effect for a period not less than the New Jersey statute of repose. Regarding the insurance required by section D above, the coverage is to remain in effect for not less than three (3) years after work has been completed.

105.08 Cooperation Between Contractors.

Add the following after the last paragraph:

The Contractor is advised that work by Authority maintenance and operations personnel will be working simultaneously with the Work required under the Contract. The Contractor is expected to accommodate Authority maintenance and operations personnel while performing its duties under the Contract. The Contractor is required to provide notice to the Authority in writing, within a reasonable time if problems coordinating with other contractors or Authority personnel should arise. The reasonability of Contractor's notice shall be determined at the sole discretion of the Authority.

105.20 Project Acceptance.

Under the part titled “Guaranty Against Defective Work”, replace the first, second and third paragraphs with the following:

Before final payment is made as provided in Subsection 109.10, the Contractor shall furnish a Maintenance Bond to the Authority in a sum equal to five percent (5%) of the final Contract price. The Maintenance Bond shall be on the form furnished by the Authority and with Surety satisfactory to the Authority. The Maintenance Bond shall remain in full force and effect for a period of two (2) years from the date of final acceptance of the Project by the Authority. The Contractor shall also furnish a Contractor’s Release of Liens before final payment is made.

Before semifinal payment is made following the suspension of Work as provided in Subsection 104.07 and Subsection 109.07, the Contractor shall furnish a Maintenance Bond in a sum equal to five percent (5%) of the estimated value of the Work completed prior to the time the Project was suspended, and the Maintenance Bond shall remain in effect for a period of two (2) years from the date of suspension.

The Maintenance Bond (in either case) shall provide that the Contractor guarantees to replace for said period of two (2) years all Work performed and Materials furnished that were not performed or furnished according to the terms of the Contract, and make good defects thereof, regardless of cause, which have become apparent before the expiration of said period of two (2) years.

Under the part titled “Guaranty Against Defective Work”, replace the ninth paragraph with the following:

If within twenty-four (24) months after final acceptance of the Work there shall appear or be discovered any weakness, any deficiency, any failure, or any breaking down or deterioration caused by a deficiency in design, workmanship, or material furnished by the Contractor, and all other, materials, machinery, or equipment, damage to which was caused by such defective work, materials, machinery or equipment (herein called a “guarantee deficiency”), such guarantee deficiency shall be made good, at the Contractor’s expense, to meet the requirements of the Specifications and this Contract.

106.07 Storage and Handling of Materials

Insert the following after the last paragraph of Subsection 106.07:

Recycling and Processing Facility Records: The Contractor shall provide the Authority with documentation that indicates the receipt and acceptance of recyclable waste by recycling and processing facilities permitted to accept recyclable waste. The Contractor shall provide manifests, weight tickets, receipts, and invoices. All regulated materials sent on a manifest must be signed by a representative of the Authority’s Environmental, Health and Safety (“EHS”) Department.

107.02 Permits, Licenses and Taxes

Insert the following after the last paragraph of Subsection 107.02:

The Contractor shall submit and obtain a written permit prior to performing “Hot Work” (i.e., welding or cutting) or operating other flame-producing/spark-producing devices, from a representative of the Authority’s Environmental, Health and Safety (“EHS”) Department. The Contractor shall provide at least two 9 kg 20-pound 4A:20 BC-rated extinguishers for normal “Hot Work”. The extinguishers must be current inspection tagged and contain an approved safety pin and tamper-resistant seal. It is also mandatory to have a designated fire watch for any “Hot Work” done at this activity. The fire watch must be trained in accordance with NFPA 51B and must remain on-site for a minimum of one (1) hour after completion of the task or as specified on the “Hot Work” permit. The fire watch shall not perform any other duties in combination with fire watch activities.

Before starting work in any Authority facility, the Contractor personnel shall familiarize themselves with the location of the nearest fire alarm boxes and have ready access to the local fire department emergency phone number. **THE CONTRACTOR MUST REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE AUTHORITY REPRESENTATIVE IMMEDIATELY.**

107.06 Construction Safety, Health, and Sanitary Standards

Insert the following after the first paragraph of Subsection 107.06:

Prior to beginning Work, the Contractor shall prepare a Health & Safety Plan for the review and approval of the Authority’s Environmental, Health and Safety (“EHS”) Department. The Health & Safety Plan should address the following areas, including but not limited to: hot work, crane lifts, working at heights, emergency response, hazardous materials management and disposal, respiratory protection and storm water management. The Health & Safety Plan shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The Health & Safety Plan shall interface with the Contractor’s overall safety and health program. Any portion of the Contractor’s overall safety and health program that is referenced in the Health & Safety Plan shall be included as appropriate. The Health & Safety Plan must include the following:

1. SIGNATURE SHEET. Title, signature, and phone number of the following:
 - a. Plan preparer (qualified person such as Contractor’s safety personnel).
 - b. Plan must be approved, by company/corporate officers authorized to obligate the company (e.g., owner, company president, regional vice president, etc.).
 - c. Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC).

2. BACKGROUND INFORMATION. List the following:
 - a. Contractor
 - b. Contract number
 - c. Project name

- d. Brief project description, description of work to be performed, and location (map)
 - e. Contractor accident experience (provide information such as experience modification rate (“EMR”), Occupational Safety and Health Administration (“OSHA”) 300 Forms, corporate safety trend analyses, etc.).
3. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of current corporate/company Safety and Health Policy Statement.
4. RESPONSIBILITIES AND LINES OF AUTHORITIES.
- a. Identification and accountability of personnel responsible for safety - at both corporate and project level. (Contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume as part of the Qualifications Questionnaire)
 - b. Lines of authority.
5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:
- a. Identification of Subcontractors and suppliers (if known);
 - b. Means for controlling and coordinating Subcontractors and suppliers; and
 - c. Safety responsibilities of Subcontractors and suppliers.
 - d. Waste haulers must supply their EPA ID number and relevant RCRA/DOT training to the EHS Department.
 - i. Only authorized members of the EHS Department may sign regulated waste manifests.
6. TRAINING.
- a. List subjects to be discussed with employees in safety indoctrination.
 - b. List mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, PPE) and any requirements for periodic retraining/recertification.
 - c. Outline requirements (who attends, when given, who will conduct, etc.) for supervisory and employee safety meetings.
7. SAFETY AND HEALTH INSPECTIONS. Provide details on:
- a. Who will conduct safety inspections (e.g., PM, safety professional, QC, supervisors, employees), proof of inspector’s training/qualifications, when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc. The names of competent and/or qualified person(s) and proof of competency/ qualification to meet specific OSHA-competent/qualified person(s) requirements must be attached.
 - b. Any external inspections/certifications that may be required.
 - c. “Hot work” permits must be signed-off by the EHS Department (template will be provided during pre-construction meeting).
 - d. All crane lifts must be reviewed by the EHS Department (template will be provided during

pre-construction meeting).

8. SAFETY AND HEALTH EXPECTATIONS AND COMPLIANCE.

- a. The company's written safety program goals, objectives, and accident experience goals for this contract shall be provided.
- b. Policies and procedures regarding noncompliance with safety or environmental requirements (to include disciplinary actions for violation of requirements) shall be identified.
- c. Provide written company procedures for holding managers and supervisors accountable for safety.
- d. Chemicals must be stored appropriately and securely in containers that are in good condition (e.g., no rust, dents, etc.).
- e. 55-gallon drums of flammable liquids are not permitted to be stored at Authority properties.
- f. All containers and equipment must be covered to prevent runoff into the Stormwater system.
- g. Spill response equipment must be readily available in the event of a release.

9. INCIDENT REPORTING. The Contractor shall identify who, how, and when the following will be completed:

- a. Exposure data (man-hours worked);
- b. Incident investigations, reports, and logs;
- c. Immediate notification of major accidents;
- d. Environmental incidents must be reported to the NRC/DNREC/NJDEP within 15 minutes of the release;
 - i. DRBA Project Engineer and EHS Department must be notified immediately after notification to responding agency.

10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements including rescue and medical duties for those employees who are to perform them, and the name(s) of on-site Contractor personnel trained in first aid and CPR. Must also identify which medical facilities will be contacted in the event of an incident.

11. PERSONAL PROTECTIVE EQUIPMENT (“PPE”). Outline procedures (who, when and how) for conducting hazard assessments and written certifications for use of PPE. Outline procedures to be followed to assure the proper use, selection, and maintenance of personal protective and lifesaving equipment (e.g., protective footwear, protective gloves, hard hats, safety glasses, hearing protection, body harnesses, lanyards). PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes the following:

- a. Hard Hat.
- b. Long Pants.
- c. Appropriate Safety Shoes.

- d. Class III Reflective Vests.
- e. Fall protection must be worn within 6 feet of the edge of a building if no railing is present.
- f. Fall protection must be worn in all man lifts (scissor lifts, bucket trucks, etc.).

12. FALL PROTECTION PROGRAM:

- a. Establish a site-specific fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation.
- b. Training: Institute a fall protection training program. As part of the fall protection and prevention plan, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection. Document training and practical application of the competent person in accordance with OSHA § 1926.503 (a).
- c. Fall Protection Equipment and Systems: Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the site-specific fall protection and prevention plan at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards.

13. CONTRACTOR INFORMATION. The Contractor shall provide information on how they will meet the requirements of applicable items within the plan. As a minimum, excavations, scaffolding, medical and first-aid requirements, sanitation, PPE, fire prevention, electrical safety, public safety requirements shall be addressed as applicable.

107.07 Public Convenience and Safety.

Insert the following after the first sentence of Subsection 107.07:

The Contractor shall provide emergency contact information to the DRBA at the pre-construction meeting. The information shall include the following and be posted at the project site:

EMERGENCY CONTACT INFORMATION

CONTRACT _____

Contact the following in the event of an emergency or hazardous condition on this construction project

Contractor Superintendent

Name _____

Cell Phone Number _____

Emergency Contact Number _____

Contractor Information

Firm Name _____

Home Office Address _____

City, State _____

Home Office Phone _____

107.14 Hazardous Material.

Insert the following after the fourth paragraph of Subsection 107.14:

Hazardous Material Use: Each hazardous material must be approved in writing by the Authority's Environmental, Health and Safety ("EHS") Department prior to being brought onto the project site or prior to any other use in connection with this Contract. Allow a minimum of ten (10) working days for processing of the request for use of a hazardous material.

Hazardous Material Exclusions: Notwithstanding any other hazardous material used in this Contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls ("PCBs"), di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Authority, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low-mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further approval. Notify the EHS Department prior to excepted items of radioactive material and devices being brought on Authority property.

Unforeseen Hazardous Material: Materials such as PCBs, lead paint, and friable and non-friable asbestos and other Occupational Safety and Health Administration (OSHA)-regulated chemicals (i.e., 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during construction operations, stop that portion of work and notify the Authority immediately. Within fourteen (14) calendar days the Authority will determine if the material is hazardous. During this fourteen (14) calendar day period, Contractor shall continue all other portions of the Work and, without additional compensation, coordinate and adjust the order of the Work to minimize impact to the overall Project completion date set forth in Section 108.08. If material is not hazardous or poses no danger, the Authority will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Authority will issue a modification pursuant to Differing Site Conditions as specified in subsection 104.06.

108.01 Subletting of the Contract.

Delete the third and fourth paragraphs and replace with the following paragraphs:

Except by special written consent of the Authority to do otherwise, the Contractor shall perform Work of a value of no less than thirty percent (30%) of the awarded Contract with the Contractor's own organization and with the assistance of workers under the Contractor's immediate supervision.

Contract Award shall not be construed to be an approval of any subcontract, supply contract or any associated terms. Each Subcontractor agrees, as a condition of entering into a subcontract on the Project, to make no claim whatsoever against the Authority or its commissioners, officers, servants, agents or employees for any Work performed or thing done by reason of said subcontract

or for any other cause whatsoever that may arise by reason of the relationship created between the Contractor and Subcontractor by the subcontract. Prior to the issuance of the Notice to Proceed, the Contractor shall provide to the Authority a complete list of all Subcontractors anticipated to work on Authority property and, for the Contractor and all Subcontractors, a valid copy of the current state business license appropriate to the state in which the work will occur. This list shall also include certified statements that each Subcontractor is acquainted with all the provisions of the Contract and agrees thereto. The Contractor shall be responsible for keeping to-date the Subcontractor list and all associated state business licenses throughout the duration of the Project.

108.02 Notice to Proceed.

Delete all and replace with the following:

Following the Contract execution, the Engineer may schedule a preconstruction meeting. Before a “Notice to Proceed” date is issued, the Contractor shall submit to the Engineer:

- (a) A list of anticipated subcontractors;
- (b) For both the Contractor and all subcontractors, proof of a valid state business license appropriate to the state(s) in which the work will occur per Subsection 108.01; and
- (c) Progress schedule per Subsection 108.04.

The Engineer will issue to the Contractor a Notice to Proceed which will stipulate the date on or before which the Contractor is expected to begin Work. The date specified in the Notice to Proceed will be at least ten (10) Calendar Days subsequent to the date of issuance of the Notice to Proceed. No Work is to be started before receipt of the Notice to Proceed. The specified Contract Time shall begin on the Day the Work actually starts or on the date stipulated in the Notice to Proceed, whichever is earlier.

108.04 Progress Schedules.

Add the following before the first sentence:

Within ten (10) calendar days of the execution of the Contract, the Contractor shall furnish to the Authority a progress schedule including all relevant activities, satisfactory to the Authority, shop drawing submittals and long-lead delivery materials and dates. It is the intent of the Authority to issue the Notice to Proceed upon acceptance of the schedule. The work schedule shall accommodate the time necessary to acquire materials, including long lead items, and to complete all work as described in the Contract Documents, taking into account any and all regulatory permit requirements and restrictions and other special requirements. Calendar days shall be charged against the schedule upon the first day of actual work per the approved progress schedule regardless of the Contractor’s continued presence on the site. Actual start dates are to be agreed upon between the Contractor and the Authority.

108.08 Failure to Complete on Time.

Delete the first sentence of the first paragraph and replace with the following:

All work on the project must be completed within One Hundred and Ninety-Five (195) calendar days after the start date listed on the “Notice to Proceed” correspondence issued by the Authority. It is the intent of the Authority to authorize the Contractor to proceed with the work in Winter 2023. **TIME IS OF THE ESSENCE.**

108.09 Schedule of Liquidated Damages.

Delete the first sentence of the first paragraph and replace with the following:

For each day that the Contractor is in default following the passing of the completion date as stipulated in Subsection 108.08, the Contractor shall pay the Authority Liquidated Damages in accordance with the following Table:

Awarded Contract Value		Amount Charged to Contractor Per Day
For More Than	To and Including	
\$50,000	\$100,000	\$430
\$100,000	\$500,000	\$670
\$500,000	\$1,000,000	\$870
\$1,000,000	\$2,000,000	\$1,220
\$2,000,000	\$5,000,000	\$1,300
\$5,000,000	\$10,000,000	\$1,440
\$10,000,000	\$15,000,000	\$1,610
\$15,000,000	\$20,000,000	\$2,700
\$20,000,000	\$25,000,000	\$3,750

109.02 Scope of Payment.

Delete the first paragraph and replace with the following:

The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all Materials and for performing Work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of every kind arising out of the nature of the Work or the performance thereof, and for any additional expenses on account of unforeseen difficulties encountered, for all expenses incurred in consequence of the suspension or discontinuance of the Work, for settlement of claims and for replacement of defective Work and Materials for two (2) years after acceptance of the Project by the Authority as provided in Section 105.20 and subject to the provisions of Section 107.13.

[End of Special Provisions - Part I]

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

SPECIAL PROVISIONS

PART II – ADDITIONAL GENERAL PROVISIONS

The following clauses represent general provisions which shall be added to Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction*, dated December 15, 2014. In a case of conflicting requirements, this Part II shall govern over:

- (i) Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction*, dated December 15, 2014; and
- (ii) Part I of the Special Provisions provided herein.

Any applicable provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of Parts I-II shall be understood to remain in full force and effect. In any case where there exists an inconsistency among the additional General Provisions and the Standard Specifications, the additional General Provisions of this Part II shall govern.

[NO ADDITIONAL GENERAL PROVISIONS]

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

SPECIAL PROVISIONS - PART III

AMENDMENTS TO STANDARD TECHNICAL SPECIFICATIONS

The following clauses represent amendments to the technical specifications of Divisions 200 through 1000 of the Delaware Department of Transportation (“DelDOT”) *Standard Specifications for Road and Bridge Construction, Revision #2 – June 2022*, including *Standard Items and Special Provisions 2020*, as published on the DelDOT website (“DelDOT Standard Specifications”), which are to be modified for purposes of the above Contract.

In case of conflicting requirements, this Part III shall govern over:

- (i) The DelDOT Standard Specifications, as defined above; and
- (ii) Division 100 – General Provisions of the Delaware River and Bay Authority *Standard Specifications for Road and Bridge Construction*, dated December 15, 2014; and
- (iii) Part I of the Special Provisions provided herein; and
- (iv) Part II of the Special Provisions provided herein.

Any modification given in this Part will specifically identify the Division, Section and Subsection within which the amendment is to occur and whether that modification is an insertion, a deletion, or a replacement for the designated DelDOT Standard Specification.

Any applicable provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of Parts I-III shall be understood to remain in full force and effect.

THE FOLLOWING ARE BROAD MODIFICATIONS TO BE MADE WITHIN DIVISIONS 200-1000 OF THE DELDOT STANDARD SPECIFICATIONS, DATED AUGUST 2016:

Chief Traffic Engineer. The term “Chief Traffic Engineer” shall mean “Engineer” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Delaware MUTCD or DE MUTCD. Any reference to “Delaware MUTCD” or “DE MUTCD” throughout the DelDOT Standard Specifications shall mean “MUTCD” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

DelDOT Contact. Any reference to a “DelDOT Contact” throughout the DelDOT Standard Specifications shall mean an “Authority Contact”.

DelDOT Owned. Any reference to “DelDOT Owned” throughout the DelDOT Standard Specifications shall mean “Authority-owned”.

DelDOT Personnel. Any reference to “DelDOT Personnel” throughout the DelDOT Standard Specifications shall mean “Authority Personnel”.

DelDOT Project. Any reference to “DelDOT Project” throughout the DelDOT Standard Specifications shall mean “Authority Project”.

DelDOT Project Resident. Any reference to “DelDOT Project Resident” throughout the DelDOT Standard Specifications shall mean “Engineer”.

DelDOT’s Safety Section. Any reference to “DelDOT’s Safety Section” shall mean the “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

DelDOT Transportation Management Center (TMC). The term “DelDOT Transportation Management Center” or “TMC” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Department. The term “Department” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Department’s District Maintenance Yard. Any reference to the “Department’s District Maintenance Yard” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

District Engineer. Any reference to “District Engineer” throughout the DelDOT Standard Specifications shall mean the “Engineer” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

District Maintenance Yard. Any reference to the “District Maintenance Yard” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Materials and Research Section. Reference to the “Materials and Research Section” or the “Department’s Materials and Research Section” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Materials and Research Laboratory. Any reference to “Materials and Research Laboratory” throughout the DelDOT Standard Specifications shall mean the “Authority’s Laboratory”.

Storm Water Section. Any reference to “Storm Water Section” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Traffic Safety Section. Any reference to “Traffic Safety Section” shall mean “Authority” as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Any reference to **Section 104.08** shall be deleted and revised to **Subsection 104.07, Suspension of Work/Annulment of Contract**

Any reference to **Section 106.08** shall be deleted and revised to indicate **Subsection 106.09, Disposal of Unacceptable Materials**

[End of Special Provisions - Part III]

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

SPECIAL PROVISIONS - PART IV

ADDITIONAL TECHNICAL SPECIFICATIONS

The following clauses represent technical specifications which shall be added to Divisions 200 through 1000 of the *Delaware Department of Transportation ("DelDOT") Standard Specifications for Road and Bridge Construction*, dated June 2021, including any Standard Items and Special Provisions, as published on the DelDOT website ("DelDOT Standard Specifications").

In a case of conflicting requirements, this Part IV shall govern over:

- (i) The DelDOT Standard Specifications, as defined above; and
- (ii) Division 100 – General Provisions of the *Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction*, dated December 15, 2014; and
- (iii) Part I of the Special Provisions provided herein; and
- (iv) Part II of the Special Provisions provided herein; and
- (v) Part III of the Special Provisions provided herein.

Any applicable provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of Parts I-IV shall be understood to remain in full force and effect.

DIVISION 13: GENERAL ARCHITECTURAL
SECTION/DESCRIPTION
024110 Demolition
033000 Cast-In-Place Concrete
040511 Mortar and Masonry Grout
042000 Unit Masonry
061000 Rough Carpentry
064100 Architectural Wood Casework
064200 Wood Paneling
075300 Elastomeric Membrane Roofing
076200 Sheet Metal Flashing and Trim
078400 Firestopping
079200 Joint Sealants
079005 Joint Sealers
081213 Hollow Metal Frames
081416 Flush Wood Doors
085653 Security Windows
087100 Door Hardware
088000 Glazing
092116 Gypsum Board Assemblies
093000 Tiling
095100 Acoustical Ceilings
096500 Resilient Flooring
096813 Tile Carpeting
099123 Interior Painting
101400 Signage
102641 Ballistics Resistant Panels
102800 Toilet, Bath and Laundry Accessories
104400 Fire Protection Specialties
123217 Console Furniture

SECTION 024100
DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes.

1.02 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 - PRODUCTS -- NOT USED

PART 3 - EXECUTION

3.01 SCOPE

- A. Remove select building elements as indicated in the Construction Documents and as otherwise required to complete the work of the contract.
- B. Remove other items indicated, for salvage and relocation.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Comply with applicable requirements of NFPA 241.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Provide, erect, and maintain temporary barriers and security devices.
 - 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 6. Do not close or obstruct roadways or sidewalks without permit.
 - 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

8. Obtain written permission from DRBA's of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property, and propose measures for protecting individuals and property, for environmental protection and dust and noise control, if necessary.
- B. Do not begin removal until receipt of notification to proceed from DRBA.
 - C. Protect existing structures and other elements that are not to be removed.
 1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
 4. Strengthen or add new supports when required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least seven (7) days prior written notification to DRBA.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least three (3) days prior written notification to DRBA.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain. Indicate how long utility services, other than ones indicated to remain in service, will be interrupted.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Plans showing existing construction and utilities are based on casual field observation and existing record documents only.

1. Verify that construction and utility arrangements are as indicated.
 2. Report discrepancies to Engineer before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
1. Provide, erect, and maintain temporary dustproof partitions of construction indicated on drawings.
 2. Provide temporary partitions as indicated and as otherwise required to separate work areas from DRBA-occupied areas, to prevent penetration of dust and moisture into DRBA-occupied areas, and to prevent damage to existing materials and equipment.
 3. Construction: Framing and reinforced polyethylene with plywood overlay. Tape joints in polyethylene and seal all edges and penetrations. Extend polyethylene to deck.
- C. Remove existing work as indicated and as required to accomplish new work.
1. Remove items as indicated on Plans.
- D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 3. Verify that abandoned services serve only abandoned facilities before removal.
 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- E. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
 4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

3.06 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.07 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 024100

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Concrete reinforcement.
- C. Concrete curing.

1.02 REFERENCE STANDARDS

- A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).
- C. ACI 301 - Specifications for Structural Concrete; 2016.
- D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- F. ACI 305R - Guide to Hot Weather Concreting; 2010.
- G. ACI 308R - Guide to External Curing of Concrete; 2016.
- H. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).
- I. ACI 347R - Guide to Formwork for Concrete; 2014, with Errata (2017).
- J. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018, with Editorial Revision.
- K. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement; 2016.
- L. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2018a.
- M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

- N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2018.
- O. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.
- P. ASTM C150/C150M - Standard Specification for Portland Cement; 2019a.
- Q. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.
- R. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- S. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.
- T. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2017.
- U. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2014.
- V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.
- W. ASTM C1116/C1116M - Standard Specification for Fiber-Reinforced Concrete; 2010a (Reapproved 2015).
- X. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2011.
- Y. ASTM D994/D994M - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type); 2011 (Reapproved 2016).
- Z. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004, with Editorial Revision (2013).
- AA. ASTM E1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 2014.
- AB. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.
- AC. NSF 61 - Drinking Water System Components - Health Effects; 2017.
- AD. NSF 372 - Drinking Water System Components - Lead Content; 2016.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- B. Mix Design: Submit proposed concrete mix design.
 - 1. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.

1.04 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. For slabs required to include moisture vapor reduction admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement.

PART 2 - PRODUCTS

2.01 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Unfinished, unless otherwise indicated.
- B. Dowels: ASTM A615/A615M, Grade 60 (60,000 psi).
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Galvanized in accordance with ASTM A767/A767M, Class I, unless otherwise indicated.
- C. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.
 - 1. WWR Style: 6 x 6, W1.4 x W1.4.
- D. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.02 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal Portland type.
 1. Acquire all cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C 33.
 1. Acquire all aggregates for entire project from same source.
- C. Water: Clean and not detrimental to concrete.

2.03 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. Waterproofing Admixture: Admixture formulated to reduce permeability to liquid water, with no adverse effect on concrete properties.
 1. Admixture Composition: Crystalline, functioning by growth of crystals in capillary pores.
 2. Potable Water Contact Approval: NSF certification for use on structures holding potable water, based on testing in accordance with NSF 61 and NSF 372.
 3. Products:
 - a. PENETRON International, Ltd, distributed by GCP Applied Technologies; PENETRON Admix: www.penetron.com; www.gcpat.com/#sle.

2.04 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
 1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

2. Products:

- a. ISI Building Products; Viper VaporCheck II 15-mil (Class A):
www.isibp.com/#sle
- b. W. R. Meadows, Inc; PERMINATOR Class A - 15 mils (0.38 mm):
www.wrmeadows.com/#sle
- c. Stego Industries, LLC; Stego Wrap Vapor Barrier 15-mil (Class A):
www.stegoindustries.com.

2.05 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

1. Products:

- a. Kaufman Products Inc.; SureBond: www.kaufmanproducts.net/#sle
- B. Waterproofing Admixture Slurry: Slurry coat of Portland cement, sand, and crystalline waterproofing additive, mixed with water in proportions recommended by manufacturer to achieve waterproofing at cold joints in concrete.

2.06 CURING MATERIALS

A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.

B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.

C. Curing and Sealing Compound, Moisture Emission Reducing: Liquid, membrane-forming, clear sealer, for application to newly placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.

1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
2. Comply with ASTM C309 and ASTM C1315 Type I Class A.
3. VOC Content: Less than 100 g/L.
4. Solids Content: 25 percent, minimum.
5. Products:

- a. Floor Seal Technology, Inc; VaporSeal 309 System: www.floorseal.com/#sle
- D. Curing and Sealing Compound: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C309.
 - 1. Products:
 - a. BRICKFORM; BRICKFORM Gem Cure and Seal 309 - 100 VOC: www.brickform.com/#sle.

2.07 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to the Engineer for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch.
 - 2. Water-Cement Ratio: Maximum 40 percent by weight.
 - 3. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
 - 4. Maximum Slump: three (3) inches.
 - 5. Maximum Aggregate Size: 5/8 inch.

2.08 MIXING

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
 - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
 - 2. Use latex bonding agent only for non-load-bearing applications.
- B. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
- C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- D. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum six (6) inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
 - 1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Ensure reinforcement and inserts will not be disturbed during concrete placement.
- D. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by

removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

- E. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:

1. Exposed Concrete Floors: 1/4 inch in 10 ft.
2. Under Seamless Resilient Flooring: 1/4 inch in 10 ft.
3. Under Carpeting: 1/4 inch in 10 ft.

B. Correct the slab surface if tolerances are less than specified.

- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.06 CONCRETE FINISHING

A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:

1. Surfaces to Receive Thick Floor Coverings: “Wood float” as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
2. Surfaces to Receive Thin Floor Coverings: “Steel trowel” as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
3. Other Surfaces to Be Left Exposed: “Steel trowel” as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Surfaces Not in Contact with Forms:

1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
2. Final Curing: Begin after initial curing but before surface is dry.

3.08 FIELD QUALITY CONTROL

- A. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- C. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- D. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
- E. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.09 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to the Engineer and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of the Engineer for each individual area.

3.10 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

3.11 METHOD OF MEASUREMENT

- A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.12 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 033000

SECTION 040511
MORTAR AND MASONRY GROUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Mortar for masonry.
- B. Grout for masonry.

1.02 RELATED REQUIREMENTS

- A. Section 042000 - Unit Masonry: Installation of mortar and grout.

1.03 REFERENCE STANDARDS

- A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.
- B. ASTM C5 - Standard Specification for Quicklime for Structural Purposes; 2018.
- C. ASTM C91/C91M - Standard Specification for Masonry Cement; 2018.
- D. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2017a.
- E. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- F. ASTM C150/C150M - Standard Specification for Portland Cement; 2019a.
- G. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
- H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019.
- I. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar; 2017.
- J. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2018.
- K. ASTM C476 - Standard Specification for Grout for Masonry; 2019.

1.04 SUBMITTALS

- A. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of the contract documents.
- B. Refer to Structural Drawings for additional Quality Assurance requirements and Inspection requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.07 FIELD CONDITIONS

- A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- B. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 - PRODUCTS

2.01 MORTAR AND GROUT APPLICATIONS

- A. At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.
- B. Mortar Mix Designs: ASTM C270, Property Specification.
 - 1. Interior, Loadbearing Masonry: Type N.
 - 2. Interior, Non-loadbearing Masonry: Type O.
- C. Grout Mix Designs:
 - 1. Engineered Masonry: 3,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C 94/C 94M.
 - a. Fine grout for spaces with smallest horizontal dimension of two (2) inches or less.
 - b. Coarse grout for spaces with smallest horizontal dimension greater than two (2) inches.

2.02 MATERIALS

- A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
 - 1. Type: As indicated above.
- B. Packaged Dry Material for Grout for Masonry: Premixed cementitious materials and dried aggregates; capable of producing grout of the specified strength in accordance with ASTM C476 with the addition of water only.
 - 1. Type: fine and/or coarse as required by field conditions.
- C. Portland Cement: ASTM C150/C150M.
 - 1. Type: Type I - Normal; ASTM C150/C150M.
 - 2. Color: Standard gray.
- D. Masonry Cement: ASTM C91/C91M.
 - 1. Type: Types as scheduled in this section; ASTM C91/C91M.
- E. Hydrated Lime: ASTM C207, Type S.
- F. Quicklime: ASTM C5, non-hydraulic type.
- G. Mortar Aggregate: ASTM C144.
- H. Grout Aggregate: ASTM C404.
- I. Water: Clean and potable.
- J. Bonding Agent: Latex type.

2.03 MORTAR MIXING

- A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, re-temper only within two hours of mixing.

2.04 GROUT MIXING

- A. Mix grout in accordance with ASTM C94/C94M.

- B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Apply bonding agent to existing concrete surfaces.

3.02 INSTALLATION

- A. Install mortar to requirements of Section 042000 – Unit Masonry.

3.03 GROUTING

- A. Use either high-lift or low-lift grouting techniques, at Contractor's option, subject to other limitations of contract documents.
- B. Low-Lift Grouting:
 - 1. Limit height of pours to twelve (12) inches.
 - 2. Limit height of masonry to sixteen (16) inches above each pour.
 - 3. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.
- C. High-Lift Grouting:
 - 1. Verify that horizontal and vertical reinforcement is in proper position and adequately secured before beginning pours.
 - 2. Place grout for spanning elements in single, continuous pour.

3.04 METHOD OF MEASUREMENT

- A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.05 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals

necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 040511

SECTION 042000
UNIT MASONRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 040511 - Mortar and Masonry Grout.
- B. Section 079000 - Joint Sealants: Backing rod and sealant at control and expansion joints.

1.03 REFERENCE STANDARDS

- A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.
- C. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
- E. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2018.
- F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018, with Editorial Revision.
- G. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019.
- H. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2019a.
- I. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- J. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2012 (Reapproved 2019).

- K. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 2017.
- L. ASTM C67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile; 2017.
- M. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2016a.
- N. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2017.
- O. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units; 2018a.
- P. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2019.
- Q. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019.
- R. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2019.
- S. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.
- T. IMIABC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.
- U. IMIABC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.
- V. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 SUBMITTALS

- A. Product Data: Provide data for masonry units, mortar, and masonry accessories.
- B. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of the contract documents.
 - 1. Maintain one copy of each document on project site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum ten years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of the type specified

and with at least five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- B. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 - PRODUCTS

2.01 MORTAR AND GROUT MATERIALS

- A. Mortar and grout: As specified in Section 040511 Mortar and Masonry Grout.

2.02 REINFORCEMENT AND ANCHORAGE

- A. Manufacturers of Joint Reinforcement and Anchors:
 - 1. Blok-Lok Limited: www.blok-lok.com/#sle
 - 2. Hohmann & Barnard, Inc: www.h-b.com
 - 3. WIRE-BOND: www.wirebond.com/#sle
- B. Single Wythe Joint Reinforcement: Truss or Ladder type; ASTM A 82/A 82M steel wire, hot dip galvanized after fabrication to ASTM A 153/A 153M, Class B-2; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.

2.03 LINTELS

- A. Precast Concrete Lintels: Precast units made from concrete matching concrete masonry units in color, texture, and compressive strength and with reinforcing bars required to support loads indicated. Cure precast lintels by same method used for concrete masonry units.
- B. Masonry Lintels: prefabricated or built-in-place masonry lintels made from bond beam concrete masonry units with reinforcing bars placed as required and filled with coarse grout.

2.04 MORTAR AND GROUT MIXES

- A. Mortar and Grout mixes as specified in Section 040511 – Mortar and Masonry Grout.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

- A. Direct and coordinate placement of items supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

3.04 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar and mortar smears as work progresses.
- E. Interlock intersections and external corners.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Mortar Joints:

1. Concave struck where masonry wall is exposed or painted.
2. Smooth struck where masonry is to receive furring or applied finish.

3.05 REINFORCEMENT AND ANCHORAGE - GENERAL

- A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement sixteen (16) inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum sixteen (16) inches each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum eight (8) inches.
- E. Fasten new masonry walls to existing masonry walls with anchors flexible anchors and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of sixteen (16) inches horizontally and sixteen (16) inches vertically.
- F. Embed ties and anchors in mortar joint and extend into masonry unit a minimum of 1-1/2 inches with at least 5/8 inch mortar cover to the outside face of the anchor.

3.06 LINTELS

- A. Install precast concrete lintels over openings, where shown on drawings.
- B. Install pre-cast lintels over openings where steel or precast concrete lintels are not scheduled.
- C. Maintain minimum 8 inch bearing on each side of opening.

3.07 BUILT-IN WORK

- A. As work progresses, install built-in metal door frames, glazed frames, fabricated metal frames, window frames, anchor bolts, plates, and boxes and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
 1. Fill adjacent masonry cores with grout minimum twelve (12) inches from framed openings.

- D. Do not build into masonry construction organic materials that are subject to deterioration.

3.08 TOLERANCES

- A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft.
- C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 20ft.
- E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- F. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.09 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.10 CLEANING

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

3.11 PROTECTION

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

3.12 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.13 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be

considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 042000

SECTION 061000
ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Nonstructural dimension lumber framing.
- B. Rough opening framing for doors, windows, and roof openings.
- C. Concealed wood blocking, nailers, and supports.
- D. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS – NOT USED

1.03 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
- B. PS 20 - American Softwood Lumber Standard; 2020.
- C. SPIB (GR) - Grading Rules; 2014.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Stud Framing (2 by 2 through 2 by 6):
 - 1. Grade: No. 2.
- E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.02 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

- D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.03 CLEANING

- A. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- B. Prevent sawdust and wood shavings from entering the storm drainage system.

3.04 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.05 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 061000

SECTION 064100
ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Hardware.

1.02 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.03 REFERENCE STANDARDS

- A. AWI (QCP) - Quality Certification Program; Current Edition.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).
- C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1; 2017, with Errata (2019).
- D. BHMA A156.9 - American National Standard for Cabinet Hardware; 2015.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
 - 1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.
 - 2. Provide the information required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
 - 3. Include certification program label.
- B. Product Data: Provide data for hardware accessories.
- C. Samples: Submit sample of finish materials in manufacturer's full range for color/finish selection by the DRBA.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum ten years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Quality Certification:
 - 1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.

1.07 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 - PRODUCTS

2.01 CABINETS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Plastic Laminate Faced Cabinets: Custom grade.
- C. Cabinets:
 - 1. Finish - Exposed Exterior Surfaces: Decorative laminate.
 - 2. Finish - Exposed Interior Surfaces: Decorative laminate.
 - 3. Finish - Semi-Exposed Surfaces: Decorative laminate
 - 4. Finish - Concealed Surfaces: Manufacturer's option.
 - 5. Door and Drawer Front Edge Profiles: Square edge with thin applied band.
 - 6. Door and Drawer Front Retention Profiles: Fixed panel.
 - 7. Casework Construction Type: Type A - Frameless.

8. Interface Style for Cabinet and Door: Style 2 - Finish Inset; reveal overlay.
9. Cabinet Design Series: As indicated on drawings.
10. Adjustable Shelf Loading: 50 lbs. per sq. ft.
 - a. Deflection: L/144.
11. Cabinet Style: Flush overlay.
12. Cabinet Doors and Drawer Fronts: Flush style.

2.02 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

2.03 LAMINATE MATERIALS

- A. Manufacturers:

1. Formica Corporation: www.formica.com/#sle
2. Wilsonart LLC: www.wilsonart.com/#sle
3. Or Approved Equal.

- B. Provide specific types as indicated.

1. Horizontal Surfaces: PLAM-1, 0.039 inch nominal thickness, through color, color as selected, finish as indicated.
2. Vertical Surfaces: PLAM-2, 0.020 inch nominal thickness, through color, color as selected, finish as indicated.
3. Cabinet Liner: CLS, 0.020 inch nominal thickness, color as selected, finish as indicated.
4. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.04 COUNTERTOPS

- A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.

2.05 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.

- B. Plastic Edge Banding: Extruded PVC, convex shaped; smooth finish; self-locking serrated tongue; of width to match component thickness.
 - 1. Color: As selected by the Engineer from manufacturer's standard range.
 - 2. Use at all exposed plywood edges.
 - 3. Use at all exposed shelf edges.
- C. Vinyl Countertop Edge: PVC anchor type tee-molding edging in width to match thickness of countertop, color as indicated, used at locations as indicated.
- D. Fasteners: Size and type to suit application.
- E. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- F. Concealed Joint Fasteners: Threaded steel.

2.06 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Adjustable Shelf Supports: Standard side-mounted system using surface mounted metal shelf standards or multiple holes for pin supports and coordinated self-rests, polished chrome finish, for nominal 1 inch spacing adjustments.
- C. Drawer and Door Pulls: "U" shaped wire pull, steel with chrome finish, 4 inch centers.
- D. Cabinet Locks: Keyed cylinder, two keys per lock, master keyed, steel with chrome finish.
- E. Drawer Slides:
 - 1. Type: Full extension.
 - 2. Static Load Capacity: Heavy Duty grade.
 - 3. Mounting: Side mounted.
 - 4. Stops: Integral type.
 - 5. Features: Provide self-closing/stay closed type.
- F. Hinges: Concealed (fully mortised) self-closing type, steel with polished finish.

2.07 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
 - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 - 2. Cap exposed plastic laminate finish edges with material of same finish and pattern.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Secure cabinets to floor using appropriate angles and anchorages.
- E. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

3.03 ADJUSTING

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

3.05 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.06 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 064100

SECTION 064200
WOOD PANELING

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2019b.
- B. AWI (QCP) - Quality Certification Program; Current Edition.
- C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).
- D. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1; 2017, with Errata (2019).
- E. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2016.

1.02 SUBMITTALS

- A. Product Data: Provide data on fire-retardant treatment materials and application instructions.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1.03 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum ten years of documented experience.
- B. Quality Certification:
 - 1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle

1.04 MOCK-UP

- A. Construct mock-up, minimum four feet long by four feet wide, illustrating full panel sheet, edge trim, joint trim, applied finish.
- B. Mock-up may remain as part of the Work when approved.

PART 2 - PRODUCTS

2.01 PANELING

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless otherwise indicated.
- B. Flat Paneling:
 - 1. Species: Oak.
 - 2. Cut: Match existing.
 - 3. Panels: Veneer of full width and balanced sequence matched.
 - a. Panels More Than One Leaf High: Architectural end matching.
 - 4. Visible Edges and Reveals: Overlay trim of same species.
 - 5. Outside Corners: Overlay trim of same species.

2.02 WOOD-BASED MATERIALS - GENERAL

- A. Hardwood Plywood: HPVA HP-1 Grade A; veneer core, type of glue recommended for application; of grain quality suitable for transparent finish.

2.03 ADHESIVES AND FASTENERS

- A. Adhesives: Type suitable for intended purpose, complying with applicable air quality regulations.

2.04 WOOD-TREATMENT PROCESSES

- A. Fire-Retardant Treatment (FR-S Type) for Lumber: Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.

2.05 FABRICATION

- A. Shop prepare and identify panels for grain matching during site erection.
- B. Prepare panels for delivery to site, permitting passage through building openings.
- C. Finish exposed edges of panels as specified by grade requirements.

2.06 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.
- D. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
 - 1. Transparent:
 - a. System - 1, Lacquer, Nitrocellulose.
 - b. Stain: Match existing.
 - c. Sheen: Flat.
 - E. Wood Sealer: Factory-applied, water-based polymer, water-repellent sealer that reacts chemically with untreated, natural wood surfaces.

2.07 ACCESSORIES

- A. Lumber for Shimming, Blocking: Softwood lumber of douglas fir species.
- B. Wood Filler: Tinted to match surface finish color.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated on shop drawings.
- B. Verify adequacy of backing and support framing.
- C. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Do not begin installation until wood materials have been fully acclimated to interior conditions.
- C. Set and secure materials and components in place, plumb and level, using concealed fasteners wherever possible.

- D. Where necessary to cut and fit on site, scribe work abutting other components.
- E. Set exposed fasteners, fill with wood filler, and finish to match panel finish.
- F. Touch up damaged finish to match original, using materials provided by fabricator; replace components that cannot be refinished like new.

3.03 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

3.04 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.05 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 064200

SECTION 075300
ELASTOMERIC MEMBRANE ROOFING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Elastomeric roofing membrane, adhered conventional application.

1.02 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry: Wood nailers and curbs.

1.03 REFERENCE STANDARDS

- A. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2015.
- B. NRCA (WM) - The NRCA Waterproofing Manual; 2005.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of associated counter flashings installed under other sections.
- B. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

1.05 SUBMITTALS

- A. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
- B. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and paver layout.
- C. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in DRBA's name and registered with manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals

and labels intact.

- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.
- D. Protect foam insulation from direct exposure to sunlight.

1.07 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- D. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.08 WARRANTY

- A. Correct defective Work within a two year period after Date of Substantial Completion.
- B. Provide 30 year manufacturer's material and labor warranty to cover failure to prevent penetration of water.

PART 2 - PRODUCTS

2.01 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane: Fully-adhered Ethylene-propylene-diene-monomer (EPDM); externally reinforced with fabric; complying with minimum properties of ASTM D4637/D4637M and 30 year warranty requirements.
 - 1. Thickness: 0.090 inch (90 mil)
 - 2. Color: Match existing.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Membrane Fasteners: As recommended by and approved by membrane manufacturer.
- D. Flexible Flashing Material: Same material as membrane.

2.02 ACCESSORIES

- A. Membrane Adhesive: As recommended by membrane manufacturer.
- B. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- C. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- D. Sealants: As recommended by membrane manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 MEMBRANE APPLICATION

- A. Install elastomeric membrane roofing system in accordance with manufacturer's recommendations and NRCA (WM) applicable requirements.
- B. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- C. Shingle joints on sloped substrate in direction of drainage.
- D. Spot Adhered Application: Mechanically fasten adhesion discs to substrate. Apply adhesive to discs and bond membrane. Fully adhere one roll before proceeding to adjacent rolls.
- E. Overlap edges and ends and seal seams by contact adhesive, minimum three (3) inches (75 mm). Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- F. At intersections with vertical surfaces:
 - 1. Extend membrane over cant strips and up a minimum of four (4) inches (100 mm) onto vertical surfaces.
 - 2. Fully adhere flexible flashing over membrane and up to nailing strips.

- 3. Secure flashing to nailing strips at four (4) inches (100 mm) on center.
- G. Around roof penetrations, seal flanges and flashings with flexible flashing.
- H. Coordinate installation of roof drains and sumps and related flashings.

3.03 CLEANING

- A. Remove bituminous markings from finished surfaces.
- B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- C. Repair or replace defaced or damaged finishes caused by work of this section.

3.04 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

3.05 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.06 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 075300

SECTION 076200
SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Sealants for joints within sheet metal fabrications.

1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2019a.
- B. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2012 (Reapproved 2019).
- C. ASTM B749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products; 2014.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- E. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).
- F. CDA A4050 - Copper in Architecture - Handbook; current edition.
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.03 SUBMITTALS

- A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Maintain one copy of each document on site.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

- B. Prevent contact with materials that could cause discoloration or staining.

PART 2 - PRODUCTS

2.01 SHEET MATERIALS

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) (0.61 mm) thick base metal.
- B. Lead Sheet: ASTM B749, 0.047 inch (1.19 mm) minimum thickness; UNS Number L51121.
- C. Copper: ASTM B370, cold rolled 16 oz/sq ft (24 gage) (0.0216 inch) (0.55 mm) thick; natural finish.

2.02 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch (450 mm) long legs; seam for rigidity, seal with sealant.
- F. Fabricate flashings to allow toe to extend two (2) inches (50 mm) over roofing gravel. Return and brake edges.

2.03 ACCESSORIES

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- E. Plastic Cement: ASTM D4586/D4586M, Type I.
- F. Reglets: Surface mounted type, galvanized steel; face and ends covered with plastic tape.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.
- C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil (0.4 mm).

3.03 INSTALLATION

- A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted.
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- D. Seal metal joints watertight.

3.04 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.05 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 076200

SECTION 078400
FIRESTOPPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Firestopping systems.
- B. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

- A. Section 042000 - Unit Masonry: Masonry walls and partitions.
- B. Section 092116 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.03 REFERENCE STANDARDS

- A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2019.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).
- C. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems; 2015 (Reapproved 2019).
- D. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies; 2013 (Reapproved 2017).
- E. ITS (DIR) - Directory of Listed Products; current edition.
- F. FM 4991 - Approval Standard for Firestop Contractors; 2013.
- G. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- H. SCAQMD 1168 - Adhesive and Sealant Applications; 1989 (Amended 2017).
- I. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems; Current Edition, Including All Revisions.
- J. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 SUBMITTALS

- A. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- B. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- C. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Certificate from authority having jurisdiction indicating approval of materials used.
- F. Qualification statements for installing mechanics.

1.05 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
 - 1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
 - 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
 - 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
 - 1. With minimum five years documented experience installing work of this type.

1.06 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 - PRODUCTS

2.01 FIRESTOPPING - GENERAL REQUIREMENTS

A. Manufacturers:

1. A/D Fire Protection Systems Inc: www.adfire.com ;
2. 3M Fire Protection Products: www.3m.com/firestop ;
3. Hilti, Inc: www.us.hilti.com ;
4. Nelson FireStop Products, an Appleton Group Company: www.appleton.emerson.com/en-us; or
5. Approved Equal.

B. Firestopping Materials with Volatile Content: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.

C. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

2.02 FIRESTOPPING ASSEMBLY REQUIREMENTS

A. Head-of-Wall Firestopping at Joints Between Non-Rated Floor and Fire-Rated Wall: Use any system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of floor or wall, whichever is greater.

1. Movement: In addition, provide systems that have been tested to show movement capability as indicated.

B. Floor-to-Floor, Wall-to-Wall, and Wall-to-Floor Joints, Except Perimeter, Where Both Are Fire-Rated: Use any system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.

1. Movement: In addition, provide systems that have been tested to show movement capability as indicated.
2. Air Leakage: In addition, provide systems that have been tested to show L Rating as indicated.
3. Watertightness: In addition, provide systems that have been tested to show W Rating as indicated.
4. Listing by UL, FM, or Intertek in their certification directory will be considered evidence of successful testing.

- C. Through Penetration Firestopping: Use any system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
1. Temperature Rise: In addition, provide systems that have been tested to show T Rating as indicated.
 2. Air Leakage: In addition, provide systems that have been tested to show L Rating as indicated.
 3. Listing by UL, FM, or Intertek in their certification directory will be considered evidence of successful testing.

2.03 FIRESTOPPING FOR FLOOR-TO-FLOOR, WALL-TO-FLOOR, AND WALL-TO-WALL JOINTS

A. Concrete and Concrete Masonry Walls and Floors:

1. Top of Wall Joints at Concrete/Concrete Masonry Wall to Concrete Over Metal Deck Floor:
 - a. 2 Hour Construction: UL System HW-D-0181; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - b. 2 Hour Construction: UL System HW-D-1037; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
2. Concrete/Concrete Masonry Wall to Wall Joints:
 - a. 2 Hour Construction: UL System WW-D-0017; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
 - b. 2 Hour Construction: UL System WW-D-0032; Hilti CP 606 Flexible Firestop Sealant.

B. Gypsum Board Walls:

1. Wall to Wall Joints:
 - a. 2 Hour Construction: UL System WW-D-0067; Hilti CP 606 Flexible Firestop Sealant.
 - b. 1 Hour Construction: UL System WW-D-0067; Hilti CP 606 Flexible Firestop Sealant.

2.04 FIRESTOPPING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY CONSTRUCTION

A. Blank Openings:

1. In Walls:
 - a. 2 Hour Construction: UL System C-AJ-0090; Hilti FS-ONE Intumescent Firestop Sealant.
- B. Penetrations Through Walls By:
 1. Multiple Penetrations in Large Openings:
 - a. 2 Hour Construction: UL System C-AJ-8143; Hilti FS-ONE Intumescent Firestop Sealant.
 2. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System C-AJ-1421; Hilti FS-ONE Intumescent Firestop Sealant or CP 604 Self-Leveling Firestop Sealant.
 - b. 2 Hour Construction: UL System C-AJ-1498; Hilti CP 680-P/M Cast-In Device.
 3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System C-AJ-2109; Hilti CP 643N/644 Firestop Collar.
 - b. 2 Hour Construction: UL System C-BJ-2021; Hilti CP 643N Firestop Collar.
 4. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System C-AJ-3216; Hilti CP 658 Firestop Plug.
 - b. 2 Hour Construction: UL System W-J-3198; Hilti CFS-SL RK Retrofit Sleeve Kit for existing cables.
 - c. 2 Hour Construction: UL System W-J-3199; Hilti CFS-SL SK Firestop Sleeve Kit.
 5. Cable Trays with Electrical Cables:
 - a. 3 Hour Construction: UL System C-AJ-4035; Hilti FS-ONE Intumescent Firestop Sealant.
 6. Insulated Pipes:
 - a. 2 Hour Construction: UL System C-AJ-5048; Hilti FS-ONE Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CP 601S Elastomeric Firestop Sealant, or CP 604 Self-Leveling Firestop Sealant.
 7. HVAC Ducts, Uninsulated:

- a. 2 Hour Construction: UL System C-AJ-7111; Hilti FS-ONE Intumescent Firestop Sealant.
- b. 2 Hour Construction: UL System C-AJ-7084; Hilti FS-ONE Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CP 601S Elastomeric Firestop Sealant, or CP 604 Self-Leveling Firestop Sealant.

C. Penetrations Through Walls By:

- 1. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-J-1067; Hilti FS-ONE Intumescent Firestop Sealant.
- 2. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System W-J-3060; Hilti FS-ONE Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant, or CP 618 Firestop Putty Stick.
 - b. 2 Hour Construction: UL System W-J-3143; Hilti CP 658T Firestop Plug.
- 3. Insulated Pipes:
 - a. 2 Hour Construction: UL System W-J-5041; Hilti FS-ONE Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System W-J-5042; Hilti FS-ONE Intumescent Firestop Sealant.
 - c. 2 Hour Construction: UL System W-J-5028; Hilti FS-ONE Intumescent Firestop Sealant.
- 4. HVAC Ducts, Uninsulated:
 - a. 2 Hour Construction: UL System W-J-7109; Hilti FS-ONE Intumescent Firestop Sealant or CP 606 Flexible Firestop Sealant.
- 5. HVAC Ducts, Insulated:
 - a. 2 Hour Construction: UL System W-J-7112; Hilti FS-ONE Intumescent Firestop Sealant.

2.05 FIRESTOPPING PENETRATIONS THROUGH GYPSUM BOARD WALLS

A. Blank Openings:

- 1. 2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.

B. Penetrations By:

1. Multiple Penetrations in Large Openings:
 - a. 2 Hour Construction: UL System W-L-1389; Hilti FS-ONE Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System W-L-1408; Hilti FS-ONE Intumescent Firestop Sealant.
 - c. 2 Hour Construction: UL System W-L-8071; Hilti FS-ONE Intumescent Firestop Sealant.
 - d. 2 Hour Construction: UL System W-L-8079; Hilti FS-ONE Intumescent Firestop Sealant.
 - e. 2 Hour Construction: UL System W-L-8087; Hilti FS 657 Fire Block.
2. Uninsulated Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-L-1054; Hilti FS-ONE Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System W-L-1164; Hilti FS-ONE Intumescent Firestop Sealant.
 - c. 2 Hour Construction: UL System W-L-1206; Hilti FS-ONE Intumescent Firestop Sealant.
3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
 - a. 2 Hour Construction: UL System W-L-2078; Hilti CP 643N/644 Firestop Collar.
 - b. 2 Hour Construction: UL System W-L-2411; Hilti CP 648-E Firestop Wrap Strip.
 - c. 2 Hour Construction: UL System W-L-2128; Hilti FS-ONE Intumescent Firestop Sealant.
4. Electrical Cables Not In Conduit:
 - a. 2 Hour Construction: UL System W-L-3065; Hilti FS-ONE Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant, or CP 618 Firestop Putty Stick.
 - b. 2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.

- c. 2 Hour Construction: UL System W-L-3393; Hilti CFS-SL RK Retrofit Sleeve Kit for existing cables.
 - d. 2 Hour Construction: UL System W-L-3394; Hilti CFS-SL SK Firestop Sleeve Kit.
 - e. 2 Hour Construction: UL System W-L-3395; Hilti CP653 Speed Sleeve.
5. Cable Trays with Electrical Cables:
- a. 2 Hour Construction: UL System W-L-4011; Hilti FS 657 Fire Block.
 - b. 2 Hour Construction: UL System W-L-4060; Hilti FS-ONE Intumescent Firestop Sealant.
6. Insulated Pipes:
- a. 2 Hour Construction: UL System W-L-5028; Hilti FS-ONE Intumescent Firestop Sealant.
 - b. 2 Hour Construction: UL System W-L-5029; Hilti FS-ONE Intumescent Firestop Sealant.
 - c. 2 Hour Construction: UL System W-L-5096; Hilti FS-ONE Intumescent Firestop Sealant.
 - d. 2 Hour Construction: UL System W-L-5257; Hilti FS-ONE Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, or CP 601S Elastomeric Firestop Sealant.
 - e. 2 Hour Construction: UL System W-L-5244; Hilti CP 648-E Firestop Wrap Strip.
7. HVAC Ducts, Insulated:
- a. 2 Hour Construction: UL System W-L-7156; Hilti FS-ONE Intumescent Firestop Sealant.

2.06 FIRESTOPPING SYSTEMS

- A. Firestopping: Any material meeting requirements. Foam, caulk, putty or manufactured device.
- 1. Fire Ratings: Use any system listed by UL, FM, or ITS (Warnock Hersey) or that has F Rating equal to fire rating of penetrated assembly and minimum T Rating of 0 and that meets all other specified requirements.
 - 2. Fire Ratings: See Drawings for required systems and ratings.

- B. Firestopping at Uninsulated Metallic Pipe and Conduit Penetrations, of diameter four (4) inches or less: Any material meeting requirements.
- C. Firestopping at Cable Tray Penetrations: Any material meeting requirements.
- D. Firestopping at Cable Penetrations, not in Conduit or Cable Tray: Any material meeting requirements.
- E. Firestopping at Control and Expansion Joints (without Penetrations): Any material meeting requirements and caulk.

2.07 MATERIALS

- A. Firestopping Sealants: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No. 1168.
- B. Elastomeric Silicone Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
- C. Foam Firestopping: Single component silicone foam compound.
- D. Fibered Compound Firestopping: Formulated compound mixed with incombustible non-asbestos fibers.
- E. Fiber Firestopping: Mineral fiber insulation used in conjunction with elastomeric surface sealer forming airtight bond to opening.
- F. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authority having jurisdiction.
- C. Install labeling required by code.

3.04 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

- A. Clean adjacent surfaces of firestopping materials.
- B. Protect adjacent surfaces from damage by material installation.

3.06 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.07 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 078400

SECTION 079005
JOINT SEALERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backer rods.
- B. Pre-compressed foam sealers.

1.02 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants; 2017.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- D. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2014.
- E. ASTM D1667 - Standard Specification for Flexible Cellular Materials - Poly (Vinyl Chloride) Foam (Closed-Cell); 2017.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with other sections referencing this section.

1.04 SUBMITTALS

- A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- B. Samples: Submit two samples, 2 x 1/2 in size illustrating sealant colors for selection.
- C. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten (10) years documented experience.

- C. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years' experience.

1.06 MOCK-UP

- A. Construct mock-up with specified sealant types and with other components noted.
- B. Locate where directed.

1.07 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 COORDINATION

- A. Coordinate the work with all sections referencing this section.

1.09 WARRANTY

- A. Correct defective work within a five year period after Date of Substantial Completion.
- B. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Preformed Compressible Foam Sealers and backer rods:
 1. Sandell Manufacturing Company, Inc: www.sandellmfg.com ;
 2. Emseal Joint Systems, Ltd: www.emseal.com ;
 3. Dayton Superior Corporation: www.daytonsuperior.com ; or
 4. Approved Equal.

2.02 SEALANTS

- A. General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single component.
 1. Color: Standard colors matching finished surfaces.
 2. Applications: Use for:

- a. Control, expansion, and soft joints in masonry.
 - b. Joints between concrete and other materials.
 - c. Joints between metal frames and other materials.
 - d. Other exterior joints for which no other sealant is indicated.
3. Polyurethane Products:
- a. Pecora Corporation: www.pecora.com
 - b. Approved Equal.
- B. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
1. Color: Standard colors matching finished surfaces.
 2. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.
 3. Products:
 - a. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
 - b. Sherwin-Williams Company; White Lightning 3006 Siliconized Acrylic Latex Caulk: www.sherwin-williams.com
 - c. Approved Equal.
- C. Fixture/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
1. Applications: Use for:
 - a. Joints between plumbing fixtures and accessories and floor and wall surfaces.
 2. Products:
 - a. Pecora Corporation; 898NST Sanitary Silicone Sealant - Class 50: www.pecora.com
 - b. Sika Corporation; Sikasil GP: www.usa-sika.com

- c. Approved Equal.
- D. Acoustical Sealant: acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
- 1. Applications: Use for concealed locations only:
 - a. Sealant bead between top stud runner and structure and between bottom stud track and floor and where shown on plans.
 - 2. Products:
 - a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant: www.pecora.com.
 - b. Tremco Global Sealants: www.tremcosealants.com
 - c. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com
 - d. Approved Equal.
- E. Silicone Sealant: ASTM C920, Grade NS, Class 25 minimum; Uses NT, A, G, M, O; single component, neutral curing, non-sagging, non-staining, fungus resistant, non-bleeding.
- 1. Color: To be selected by the Engineer from manufacturer's full range.
 - 2. Movement Capability: Plus and minus 25 percent.
 - 3. Service Temperature Range: -65 to 180 degrees F.
 - 4. Shore A Hardness Range: 15 to 35.
 - 5. Products:
 - a. Pecora Corporation; 890NST Ultra Low Modulus Architectural Silicone Sealant - Class 100: www.pecora.com
 - b. Approved Equal.

2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.

3.04 CLEANING

- A. Clean adjacent soiled surfaces.

3.05 PROTECTION

- A. Protect sealants until cured.

3.06 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.07 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 079005

SECTION 079200
JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS – NOT USED

1.02 REFERENCE STANDARDS

- A. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2018.
- B. ASTM C834 - Standard Specification for Latex Sealants; 2017.
- C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2018.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- E. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2016.
- F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- G. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2018.

1.03 SUBMITTALS

- A. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Substrates for which use of primer is required.
 - 6. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
 - 7. Sample product warranty.

- B. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- D. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

1.04 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 1. Adhesion Testing: In accordance with ASTM C794.
 - 2. Compatibility Testing: In accordance with ASTM C1087.
 - 3. Allow sufficient time for testing to avoid delaying the work.
 - 4. Deliver to manufacturer sufficient samples for testing.
 - 5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
 - 6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

1.05 WARRANTY

- A. Correct defective work within a five year period after Date of Substantial Completion.
- B. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 - PRODUCTS

2.01 NONSAG JOINT SEALANTS

- A. Type 1 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.

1. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
 2. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 3. Color: Match adjacent finished surfaces.
- B. Type 2 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: To be selected by the Engineer from manufacturer's standard range.
 2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
 3. Manufacturers:
 - a. Pecora Corporation; AC-20 +Silicone: www.pecora.com/#sle
 - b. Approved equal.
- C. Type 3 - Acrylic Latex Sealant: ASTM C834; for use as acoustical sealant and in firestopping systems for expansion joints and through penetrations.
1. Color: To be selected by the Engineer from manufacturer's standard range.
 2. Manufacturers:
 - a. Pecora Corporation; AC-20 FTR (Fire and Temperature Rated): www.pecora.com/#sle
 - b. Approve equal.

2.02 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 METHOD OF MEASUREMENT

- A. Measurement of work shall not be performed.

3.05 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 079200

SECTION 081213
HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Steel frames for wood doors.
- B. Bullet-resistant steel frames for wood doors.

1.02 RELATED REQUIREMENTS

- A. Section 087100 - Door Hardware.
- B. Section 099123 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2017.
- C. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2019a.
- E. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2016.
- F. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).
- G. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2007.
- H. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.
- I. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
- B. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
- C. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
- D. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five (5) years of documented experience.
- C. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with NAAMM HMMA 840.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Steel Door Frames:
 - 1. Assa Abloy Ceco, Curries, or Fleming: www.assaabloydss.com/#sle ;
 - 2. Republic Doors, an Allegion brand: www.republicdoor.com/#sle ;
 - 3. Steelcraft: www.steelcraft.com ;
 - 4. Phillip Manufacturing Company: www.phillipsmfg.com ; or
 - 5. Approved Equal.

2.02 DOORS AND FRAMES

- A. Requirements for All Door Frames:

1. Accessibility: Comply with ANSI/ICC A117.1.
2. Finish: Factory primed, for field finishing.

2.03 STEEL FRAMES

A. General:

1. Comply with the requirements of grade specified for corresponding door.
2. Finish: Factory primed, for field finishing.
3. Frames Wider than forty-eight (48) Inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

B. Interior Door Frames, Non-Fire-Rated: Fully welded type.

1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
2. Finish: Factory primed, for field finishing.

C. Interior Door Frames - Ballistic Resistant: Fully welded type.

1. Ballistic Resistance: UL Laboratories, UL-752, Level 2 Ballistic Resistance.
2. Frame Metal Thickness: 14 gage, 0.067 inch, minimum.
3. Finish: Factory primed, for field finishing.

D. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

E. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

F. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.05 ACCESSORY MATERIALS

- A. Glazing: As specified in Section 088000 - Glazing, factory installed.
- B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.
- C. Silencers: Resilient rubber or vinyl, fitted into drilled hole; three (3) on strike side of single door, three (3) on center mullion of pairs, and two (2) on head of pairs without center mullions.
- D. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation. 8 mil D.F.T.

3.03 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Coordinate frame anchor placement with wall construction.
- C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- D. Coordinate installation of hardware.
- E. Touch up damaged factory finishes.

3.04 TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.05 ADJUSTING

- A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE - SEE DRAWINGS

3.5 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.6 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 081213

SECTION 081416
FLUSH WOOD DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors; flush and flush glazed configuration; fire rated, acoustical, and smoke rated.
- B. Attack-resistant door opening assemblies.

1.02 RELATED REQUIREMENTS

- A. Section 081213 - Hollow Metal Frames.
- B. Section 087100 - Door Hardware.

1.03 REFERENCE STANDARDS

- A. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.
- B. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.
- C. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; 2013.

1.04 SUBMITTALS

- A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- B. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing.
- C. Manufacturer's Installation Instructions: Indicate special installation instructions.
- D. Warranty, executed in DRBA's name.

1.05 QUALITY ASSURANCE

- A. Maintain one (1) copy of the specified door quality standard on site for review during installation and finishing.

- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 PROJECT CONDITIONS

- A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.08 WARRANTY

- A. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- B. Provide warranty for the following term:
 - 1. Interior Doors: Warranty - Provide for replacing, including cost of rehanging and refinishing, at no cost to DRBA, wood doors exhibiting defects in materials or workmanship including warp and delaminating for the life of installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Wood Veneer Faced Doors:
 - 1. Graham Wood Doors: www.grahamdoor.com
 - 2. VT Industries www.VTindustries.com
 - 3. Marshfield DoorSystems, Inc: www.marshfielddoors.com/#sle

4. Oshkosh: www.oshkoshdoor.com
5. Approved Equal.

2.02 DOORS

- A. All Doors: See drawings for locations and additional requirements.
 1. Quality Level: Custom Grade, Extra Heavy Duty performance, in accordance with WDMA I.S.1-A.
 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches; thick unless otherwise indicated; flush construction.
 1. Bullet Resistant Doors: UL 752, Level 2.
 2. Wood veneer facing with factory transparent finish.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type structural composite lumber core (SCLC), plies and faces as indicated above.
- B. Bullet Resistant Doors: Equivalent to type, with bonded particleboard core (PC); rating; plies and faces as indicated above.

2.04 DOOR FACINGS

- A. Wood Veneer Facing for Transparent Finish: White oak "A", veneer grade as specified by quality standard.
 1. Cut: Plain Sliced.
 2. Veneer match: Book match and balanced.
 3. Vertical Edges: Same species as face veneer.
- B. Facing Adhesive: Type II - water resistant.

2.05 ACCESSORIES

- A. Glazing Stops: Rolled steel channel shape, mitered corners; prepared for countersink style tamper proof screws.

2.06 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.

- B. Cores Constructed with stiles and rails:
 - 1. Provide solid blocks at lock edge for hardware reinforcement.
 - 2. Provide solid blocking for other through bolted hardware.
- C. Fit door edge trim to edge of stiles after applying veneer facing.
- D. Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
- E. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- F. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- G. Provide edge clearances in accordance with the quality standard specified.

2.07 BULLET RESISTANT DOOR OPENING ASSEMBLIES

- A. Provide assemblies meeting referenced general and bullet resistance performance requirements.
 - 1. Performance Level: UL 752, Level 2.
- B. Opening Sizes:
 - 1. Single Openings: As indicated on drawings.
- C. Door Frames:
 - 1. As specified in section 081213 – Hollow Metal Frames.
- D. Door Types:
 - 1. Flush wood doors with wood veneer facing.
- E. Glazing:
 - 1. Performance Level: UL 752, Level 2.
 - 2. Installation: Factory glazing is required.
 - 3. Glass Type: Clear laminated glass, see Section 088000 - Glazing.
 - 4. Size: As indicated on drawings.

5. Safety and Security Glazing Film: Manufacturer's standard transparent polyester film for permanent bonding to glass.
 - a. Application: On secure side of glass.
 - b. Thickness: 0.023 inch, minimum.
 - c. Color: Clear.
 - d. Construction: Multi-ply laminate.
 - e. Adhesive Type: Pressure-sensitive acrylic.
 6. Door Lite Metal Glazing Frame: Manufacturer's standard.
 - a. Minimum Glass Bite: 3/8 inch.
 - b. Minimum Steel Gauge: 14 gauge, 0.078 inch.
 - c. Through-bolt the lite kit into the door.
- F. Door Hardware: Match project elements with similar functionality and performance requirements, and as follows:
1. Hardware Locks: Manufacturer's standard.
 2. Balance of door hardware, see Section 087100 – Door Hardware.

2.08 FACTORY FINISHING - WOOD VENEER DOORS

- A. Factory finish doors in accordance with specified quality standard:
 1. Transparent Finish: Transparent catalyzed polyurethane, Custom quality, semi-gloss sheen.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

3.03 TOLERANCES

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.
- C. Maximum Diagonal Distortion (Warp): 1/8 inch measured with straight edge or taut string, corner to corner, over an imaginary thirty-six (36) by eighty-four (84) inches surface area.
- D. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taut string, top to bottom, over an imaginary thirty-six (36) inches by eighty-four (84) inches surface area.
- E. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary thirty-six (36) by eighty-four (84) inches surface area.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

3.05 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.06 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 081416

SECTION 085653
SECURITY WINDOWS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Security transaction windows.

1.02 RELATED REQUIREMENTS

- A. Section 042000 - Unit Masonry: Installation of anchorage items embedded in masonry.
- B. Section 092116 - Gypsum Board Assemblies: Bullet-resistant sheathing and wallboard for bullet-resistant partitions and walls.

1.03 REFERENCE STANDARDS

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- B. SSPC-Paint 33 - Coal-Tar Mastic Coating, Cold Applied; 2015.
- C. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Furnish anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, to be embedded into concrete or masonry, with setting diagrams and installation, to applicable installer in time for installation.
- B. Preinstallation Meeting: Prior to start of installation arrange a meeting on site to familiarize installer and installers of related work with requirements relating to this work.

1.05 SUBMITTALS

- A. Product Data: Manufacturer's published data showing materials, construction details, dimensions of components, and finishes.
- B. Shop Drawings: Drawings prepared specifically for this project, showing plans, elevations, sections, details of construction, anchorage to other work, hardware, and glazing.
 - 1. For existing openings show verified field dimensions.
 - 2. For new work show required opening dimensions and allowance for field deviation.

- C. Test Reports: Test reports for specific window model and glazing to be furnished, showing compliance with specified requirements; window and glazing may be tested separately, provided window test sample adequately simulates the glazing to be used.
 - 1. Include testing agency qualifications.
 - 2. For structural, forced entry, and ballistic tests, provide details on method of anchorage to test frame.
- D. Coordination Drawings: For each window opening, show locations and details of items necessary to anchor windows that must be installed by others, in sufficient detail that installer of those items can do so correctly without reference to the actual window itself.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm with at least ten years' experience in the manufacture of windows of the type specified and able to provide test reports showing that their standard manufactured products meet the specified requirements; custom designed products not acceptable.
- B. Testing Agency Qualifications: Independent testing agency able to show experience in conducting tests of the type specified and:
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.07 WARRANTY

- A. Provide manufacturer's warranty agreeing to repair or replace windows and window components that fail within three years after Date of Substantial Completion due to, but not limited to, the following:
 - 1. Structural failure, failure of welds, and deterioration of metals and finishes beyond that expected under detention use and normal weathering.
 - 2. Failure of glazing due to excessive deflection of supporting members under wind load.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Security Transaction Windows and Accessories:
 - 1. Insulgard Security Products: www.insulgard.com ;
 - 2. North American Bullet Proof: www.nabulletproof.com ;

3. Quikserv Corp: www.quikserv.com/#sle ;
4. Total Security Solutions: www.tssbulletproof.com ;
5. U.S. Bullet Proofing: www.usbulletproofing.com ; or
6. Approved Equal.

2.02 ASSEMBLIES – NOT USED

2.03 SECURITY TRANSACTION WINDOWS

A. Security Transaction Windows with Pass-Through Device:

1. Location: Built within interior wall, as indicated on drawings.
2. Type of Use: Walk-up.
3. Ballistic Resistance: Tested to meet UL 752, Level 2, minimum.
4. Window Type: Fixed.
 - a. Overall Window Frame Size: As indicated on drawings.
 - b. Frame Material: Stainless steel.
5. Glazing: Single (monolithic), clear, and ballistic resistant.
6. Pass-Through Device: Deal tray built into window sill.
7. Communication: Integrated microphone, speaker, and call button.

2.04 ASSEMBLY COMPONENTS

- A. Stainless Steel Framing: ASTM A666, Type 304; 14 gauge, 0.0781 inch minimum thickness.
- B. Frame Anchors: Mild steel plates, shapes, or bars, concealed in completed construction; provide anchorage devices as necessary to securely fasten windows to adjacent construction; use security fasteners for exposed anchors.
 1. For Setting in Masonry: Minimum 3/16 inch thick angles or plates, minimum four (4) inches long with hooked ends, welded to back of window frame.
 2. Provide minimum of two anchors per side of window plus one additional anchor for each eighteen (18) inches or fraction thereof more than thirty-six (36) inches in height or width.

- C. Glazing Seals: Factory installed; molded EPDM or neoprene compressible gaskets and compression strips.
- D. Security Fasteners: Operable only by tools produced by fastener manufacturer or manufacturer's licensee; head style appropriate to installation conditions, strength, and finish of materials being fastened; use countersunk heads wherever possible.
- E. Deal Trays: Formed stainless steel, recessed into counter or sill for mounting under glazing frame.
 - 1. Style: Plain curved recess welded into counter or sill.
 - 2. Clear Opening Height: 1-1/2 inches.
 - 3. Tray Dimensions: twelve (12) by eight (8) inches, wide by deep.
 - 4. Ballistic Resistance: Same as transaction window unit.
- F. Bituminous Paint: Cold-applied asbestos-free asphalt mastic, complying with SSPC-Paint 33; 30 mils, 0.030 inch minimum thickness per coat.

2.05 FINISHES

- A. Brushed Stainless Steel, 630.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that window openings are ready for installation of windows.
- B. Verify that correct embedded anchors are in place and in proper location; repair or replace anchors as required to achieve satisfactory installation.
- C. Notify the Engineer if conditions are not suitable for installation of windows; do not proceed until conditions are satisfactory.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions and drawing details.
- B. Install windows in correct orientation (inside/outside or secure/non-secure).
- C. Anchor windows securely in manner so as to achieve performance specified.
- D. Separate metal members from concrete and masonry using bituminous paint.
- E. Set sill members and sill flashing in continuous bead of sealant.

3.03 CLEANING

- A. Clean exposed surfaces promptly after installation without damaging finishes.
- B. Remove and replace defective work.

3.04 CLOSEOUT ACTIVITIES

- A. Demonstrate operation and maintenance to designated DRBA personnel.

3.05 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.06 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 085653

SECTION 087100
DOOR HARDWARE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood doors.

1.02 RELATED REQUIREMENTS

- A. Section 081213 - Hollow Metal Frames.
- B. Section 081416 - Flush Wood Doors.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. BHMA A156.1 - American National Standard for Butts and Hinges; 2016.
- C. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.
- D. BHMA A156.6 - American National Standard for Architectural Door Trim; 2015.
- E. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000; 2017.
- F. BHMA A156.16 - American National Standard for Auxiliary Hardware; 2018.
- G. BHMA A156.18 - American National Standard for Materials and Finishes; 2016.
- H. BHMA A156.30 - American National Standard for High Security Cylinders; 2014.
- I. BHMA A156.115W - American National Standard for Hardware Preparation in Wood Doors with Wood or Steel Frames; 2006.
- J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- K. ITS (DIR) - Directory of Listed Products; current edition.
- L. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- M. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2019.

- N. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2017.
- O. UL (DIR) - Online Certifications Directory; Current Edition.
- P. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- Q. UL 437 - Standard for Key Locks; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; attendance is required by affected installers and the following:
 - 1. Engineer.
 - 2. Installer's Architectural Hardware Consultant (AHC).
 - 3. Hardware Installer.
 - 4. DRBA's Security Consultant.
- C. Keying Requirements Meeting:
 - 1. Attendance Required:
 - a. Contractor.
 - b. DRBA.
 - c. Engineer.
 - d. Installer's Architectural Hardware Consultant (AHC).
 - e. Hardware Installer.
 - f. DRBA's Security Consultant.
 - 2. Agenda:
 - a. Establish keying requirements.
 - b. Verify locksets and locking hardware are functionally correct for project requirements.

- c. Verify that keying and programming complies with project requirements.
 - d. Establish keying submittal schedule and update requirements.
 3. Incorporate “Keying Requirements Meeting” decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
 - a. Access control requirements.
 - b. Key control system requirements.
 - c. Flow of traffic and extent of security required.
 4. Record minutes and distribute copies within two days after meeting to participants, with two copies to the Engineer, DRBA, participants, and those affected by decisions made.
 5. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

- A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- B. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 2. Provide complete description for each door listed.
- C. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- D. Keying Schedule:
 1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
- E. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in DRBA's name and registered with manufacturer.
- F. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.
- G. Maintenance Materials and Tools: Furnish the following for DRBA's use in maintenance of project.

1. Lock Cylinders: One for each master keyed group.
2. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum ten years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least five years of documented experience.
- C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

- A. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
 1. Closers: Five years, minimum.
 2. Exit Devices: Three years, minimum.
 3. Locksets and Cylinders: Three years, minimum.
 4. Other Hardware: Two years, minimum.

PART 2 - PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Provide door hardware products that comply with the following requirements:
 1. Applicable provisions of federal, state, and local codes.

2. Accessibility: ADA Standards and ICC A117.1.
 3. Fire-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
 4. Hardware on Fire-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for application indicated.
 5. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.
 6. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.
- D. Electrically Operated and/or Controlled Hardware: Provide necessary power supplies, power transfer hinges, relays, and interfaces as required for proper operation; provide wiring between hardware and control components and to building power connection in compliance with NFPA 70.
1. Refer to Section 281000 for additional access control system requirements.
- E. Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's series. Refer to drawings for Lock Function.

2.02 HINGES

- A. Manufacturers:
1. McKinney; an Assa Abloy Group company: www.assaabloydooraccessories.us/.
 2. Bommer Industries, Inc: www.bommer.com/#sle.
 3. Hager Companies: www.hagerco.com/#sle.
 4. Approved equal.
- B. Hinges: Comply with BHMA A156.1, Grade 1.
1. Provide hinges on every swinging door.
 2. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
 3. Provide following quantity of butt hinges for each door:
 - a. Doors From sixty (60) inches High up to ninety (90) inches High: Three hinges.

- b. Doors ninety (90) inches High up to one hundred twenty (120) inches High:
Four hinges.

2.03 LOCK CYLINDERS

A. Manufacturers:

1. Yale, compatible with existing keying system.
2. Substitutions: Not permitted.

B. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.

1. Provide high security mechanical type cylinders, Grade 1, with six-pin core in compliance with BHMA A156.30 or UL 437 at locations indicated.
2. Provide cylinders from same manufacturer as locking device.
3. Provide cams and/or tailpieces as required for locking devices.
4. Within specific Door Sections, when provisions for lock cylinder are being referenced to this Section, provide specified lock cylinder and keyed to building keying system, unless otherwise indicated.

2.04 MORTISE LOCKS

A. Manufacturers:

1. Yale; an Assa Abloy Group company: www.assaabloydss.com/#sle..
2. Substitutions: Not permitted.

B. Mortise Locks: Comply with BHMA A156.13, Grade 1, Security, 1000 Series.

1. Latchbolt Throw: 3/4 inch, minimum.
2. Deadbolt Throw: 1 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
 - a. Flat-Lip Strikes: Provide for locks with three piece antifriiction latchbolts as recommended by manufacturer.
 - b. Finish: To match lock or latch.

2.05 CLOSERS

A. Manufacturers; Surface Mounted:

1. Corbin Russwin, Norton, Rixson, Sargent, or Yale; an Assa Abloy Group company: www.assaabloydss.com/#sle
2. DORMA USA, Inc; 8600 Series: www.dorma.com/#sle
3. LCN, an Allegion brand: www.allegion.com/us/#sle
4. Approved equal.

B. Closers: Comply with BHMA A156.4, Grade 1.

1. Type: Surface mounted to door.
2. At door 153 and door 157, mount closer on secure side of door.

2.06 PROTECTION PLATES

A. Manufacturers:

1. Rockwood; an Assa Abloy Group company: www.assaabloydooraccessories.us/en/
2. Ives, an Allegion brand: www.allegion.com/us/#sle
3. Trimco: www.trimcohardware.com/#sle
4. Approved Equal.

B. Protection Plates: Comply with BHMA A156.6.

C. Metal Properties: Stainless steel.

1. Metal, Heavy Duty: Thickness 0.062 inch, minimum.

D. Edges: Square, on four sides unless otherwise indicated.

E. Fasteners: Countersunk screw fasteners.

2.07 FLOOR STOPS

A. Manufacturers:

1. Rockwood; an Assa Abloy Group company: www.assaabloydooraccessories.us/en/
2. Ives, an Allegion brand: www.allegion.com/us/#sle

3. Trimco: www.trimcohardware.com/#sle
 4. Approved equal.
- B. Floor Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
1. Provide floor stops when wall surface is not available; be cautious not to create a tripping hazard.
 2. Type: Manual hold-open, with pencil floor stop.
 3. Material: Aluminum housing with rubber insert.

2.08 WALL STOPS

- A. Manufacturers:
1. Rockwood; an Assa Abloy Group company: www.assaabloydooraccessories.us/en/
 2. Ives, an Allegion brand: www.allegion.com/us/#sle
 3. Trimco: www.trimcohardware.com/#sle
 4. Approved equal.
- B. Wall Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
1. Provide wall stops to prevent damage to wall surface upon opening door.
 2. Type: Bumper, concave, wall stop.
 3. Material: Aluminum housing with rubber insert.

2.09 SILENCERS

- A. Manufacturers:
1. Ives, an Allegion brand: www.allegion.com/us/#sle
 2. Trimco: www.trimcohardware.com/#sle
 3. Approved equal.
- B. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
1. Single Door: Provide three on strike jamb of frame.

2. Pair of Doors: Provide two on head of frame, one for each door at latch side.
3. Material: Rubber, gray color.

2.10 FINISHES

- A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
 1. Primary Finish: 630; satin stainless steel, with stainless steel 300 series base material (former US equivalent US32D); BHMA A156.18.
 2. Secondary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.
 - a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.
 3. Exceptions:
 - a. Where base material metal is specified to be different, provide finish that is an equivalent appearance in accordance with BHMA A156.18.
 - b. Door Closer Covers and Arms: Color as selected by the Engineer from manufacturer's standard colors unless otherwise indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available to power operated devices and of correct characteristics.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.
- C. Use templates provided by hardware item manufacturer.

D. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.

1. Mounting heights in compliance with ADA Standards:

a. Locksets: 40-5/16 inch.

3.03 ADJUSTING

A. Adjust hardware for smooth operation.

B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.05 PROTECTION

A. Do not permit adjacent work to damage hardware or finish.

3.06 HARDWARE SCHEDULE

A. See drawing A-501 for door hardware schedule.

B. Provide cylinders and cores at all doors.

C. Provide construction cores, final cores and keys.

D. Cylinders, cores and keys shall be compatible with existing ASSA system.

3.07 METHOD OF MEASUREMENT

A. Work performed under this section will not be measured separately.

3.08 BASIS OF PAYMENT.

A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing

the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 087100

SECTION 088000
GLAZING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Glass.
- B. Plastic film for bullet resistant glazing system.
- C. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 079005 - Joint Sealers: Sealant and back-up material.

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.
- B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2010.
- C. ASTM C1036 - Standard Specification for Flat Glass; 2016.
- D. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.
- E. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2014.
- F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- G. ASTM C1499-09 - Monotonic Equiaxial Flexural Strength of Glass (Double Ring Test).
- H. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
- I. STM D1044 - Test method for Resistance of Transparent Plastics to Surface Abrasion.
- J. ASTM D3330 - Standard Test Methods for Peel-Adhesion at 180 Degree Angle.
- K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2019b.
- L. ASTM E 773 - Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units; 2001.
- M. ASTM E 774 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units; 1997.

- N. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.
- O. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.
- P. ASTM Z97.1 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- Q. GANA (GM) - GANA Glazing Manual; 2009.
- R. GANA (SM) - GANA Sealant Manual; 2008.
- S. GANA (LGRM) - Laminated Glazing Reference Manual; 2009.
- T. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (2004).
- U. Consumer Product Safety Commission (CPSC) 16CFR 1201 - Safety Standard for Architectural Glazing Materials.
- V. National Institute of Justice Standard NIJ-STD-0108.01.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. Product Data on Glass Types: Provide structural, physical, and environmental characteristics, size limitations, special handling, or installation requirements.
- B. Samples: Submit two samples 6 x 6 inch in size of glass units, showing coloration and design.
- C. Certificates: Certify that products meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

1.07 MOCK-UP

- A. Construct a mock-up panel of size, detail and configuration indicated on the drawings. Mock-up shall include all components of the exterior wall construction.

1.08 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F (10 degrees C).
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.09 WARRANTY

- A. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.
- B. Bullet Resistant Film: Manufacturer's standard warranty agreeing to replace films that fail within 10 years from date of substantial completion.

1.10 PERFORMANCE REQUIREMENTS

- A. General: Provide glass capable of withstanding thermal movement and wind and impact loads (where applicable) as specified in paragraph B following.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Basic Wind Speed: 120 mph.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from ambient and surface temperatures changes acting on glass framing members and glazing components.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
 - 1. For monolithic-glass lites, properties are based on units with lites 1/4 inch (6.0 mm) thick.
 - 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 3. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:

- a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. per h per degree F.
- b. Solar Heat Gain Coefficient: NFRC 200.
- c. Solar Optical Properties: NFRC 300.

PART 2 - PRODUCTS

2.01 BASIS OF DESIGN - BULLET RESISTANT INSULATING AND NON-INSULATING GLASS UNITS

A. Type G1 - Bullet Resistant, Non-Insulating Glass Units: Vision glazing.

1. Substitutions: Approved Equal.
2. Overall Unit Thickness: 5/8", bullet resistant laminated glass.
 - a. UL Laboratories, UL-752, Level II Ballistic Resistance.
 - b. Laminated glass:
 - 1) 1/4 inch annealed, clear.
 - 2) Kuraray, Trosifol SentryGlas interlayer: 0.89mm (35 mil).
 - 3) 1/4 inch annealed, clear.
 - 4) Three layers, C-Bond BRS.
 - c. Glazing panels shall be preassembled and laminated prior to shipment to the project site.
3. Tint: Clear.

2.02 GLASS MATERIALS

A. Float Glass Manufacturers:

1. Guardian Industries Corp: www.sunguardglass.com
2. Pilkington North America Inc: www.pilkington.com/na
3. PPG Industries, Inc: www.ppgideascape.com

B. Float Glass: All glazing is to be float glass unless otherwise indicated.

1. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
2. Tinted Types: Color and performance characteristics as indicated.

3. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.
- C. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
1. Laminated Safety Glass: Comply with 16 CFR 1201 test requirements for Category II.
 2. Plastic Interlayer:
 - a. As indicated in paragraph 2.01.

2.03 BULLET RESISTANT FILMS

- A. Bullet Resistant Film:
1. Bullet Resistant - Basis of Design: C-Bond BRS, Level 2.
- B. Performance Requirements:
1. Thermal and Optical Performance Properties: Provide glazing films that will not affect the thermal and optical performance characteristics as established by the glass components scheduled for storefront and window systems.
 2. Color: Clear.
 3. Flexural Glass Strength: When tested in accordance with ASTM C-1499-09, Monotonic Equiaxial Flexural Strength of Glass (Double Ring Test), the application of the mounting fluid alone shall strengthen the glass to percentages up to and over 250 percent, and improve the flexural properties of the glass to percentages up to and over 130 percent.
- C. Film Accessories:
1. General: Provide products complying with requirements of glazing film manufacturer for application indicated and with a proven record of compatibility with surfaces contacted in installation.
 2. Adhesive: Types recommended by glazing film manufacturer and nano-technology fluid manufacturer.
 3. Cleaners, Primers, and Sealers: Types recommended by glazing film manufacturer.
- D. Anchor System:
1. Provide transfer adhesive and mechanical anchor at edges of film to secure film, as recommended by the nano-technology fluid manufacturer and as described below:

- a. DOW 995 Structural Silicone adhesive (or equivalent alternative approved by film manufacturer) to be used for all anchoring of film to window frame/glazing system.
 - 1) Dow Corning 995 Silicone Structural Glazing Sealant is a one-component, neutral-curing, silicone sealant designed specifically for structural bonding applications of glass and metal in factory or field situations.
 - 2) Minimum bead of 1/2 inch overlapping the exposed edge of the security film, and 1/2 inch overlapping the window frame/glazing system shall be used on all installations. Silicone bead installation may vary based on glazing system.
 - 3) Structural adhesive color to be black, white or grey as selected by the Engineer.

2.04 GLAZING ACCESSORIES

- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) x width of glazing rabbet space minus 1/16 inch (1.5 mm) x height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch (75 mm) long x one half the height of the glazing stop x thickness to suit application, self-adhesive on one face.
- C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.
 1. Thickness: As required for application.
 2. Manufacturers:
 - a. Pecora Corporation: www.pecora.com

2.05 SOURCE QUALITY CONTROL AND TESTS

- A. Provide shop inspection and testing for all glass.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.

- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealants in accordance with ASTM C1193 and GANA Sealant Manual.
- E. Install sealant in accordance with manufacturer's instructions.

3.03 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)

- A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than six (6) inches (150 mm) from corners.
- C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- D. Place glazing tape on free perimeter of glazing in same manner described above.
- E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- F. Knife trim protruding tape.

3.04 INSTALLATION - BULLET RESISTANT FILM

- A. Examine glass and surrounding adjacent surfaces for conditions affecting installation.
 - 1. Report conditions that may adversely affect installation. Include description of any glass that is broken, chipped, cracked, abraded, or damaged in any way.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 3. Beginning of installation means acceptance of conditions.
- B. Preparation:
 - 1. Comply with manufacturer's written instructions for surface preparation.

2. Immediately before beginning installation of films, clean glass surfaces of substances that could impair glazing film's bond, including mold, mildew, oil, grease, dirt, and other foreign materials.
3. Protect window frames and surrounding conditions from damage during installation.

C. Installation:

1. Comply with glazing film manufacturer's written installation instructions, except where more stringent requirements apply.
2. Clean glass surface with a typical household glass cleaner to remove debris and dry with a paper towel. Apply alcohol on the glass surface to remove any moisture and remove with a squeegee or paper towel.
3. Install film using a non-technology mounting fluid.
4. Use dedicated spray bottle or pressurized tank to apply the nano-technology mounting fluid.
5. If the nano-technology fluid sits idle for more than 60 minutes, slightly agitate it by rocking the spray bottle or pressurized tank from side to side for ± 5 seconds.
6. Apply nano-technology mounting fluid as follows:
 - a. Hold spray bottle or pressurized tank nozzle approximately 8-10 inches from the glass surface.
 - b. Apply the nano-technology fluid to equally cover the entire glass surface area.
7. Custom cut film to the glass with neat, square corners and edges to within 1/8 inch of the window frame.
8. Do not remove release liner from film until just before each piece of film is cut and ready for installation.
9. Install film continuously. Install with no gaps.
10. Install film absent of bubbles, wrinkles, blisters, edge lifting and blemishes.
11. After installation, view film from a distance of 10 feet against a bright uniform sky or background. Film shall appear uniform in appearance with no visible streaks, banding, thin spots or pinholes. If installed film does not meet this criteria, remove and replace with new film.

D. Care and Cleaning:

1. Remove excess mounting fluid at finished seams, perimeter edges, and adjacent surfaces.

2. Use cleaning methods recommended by glazing film manufacturer.
3. Replace films that cannot be cleaned.
4. Clean installed film with approved cleaners only. Contact nano-technology manufacturer for approved cleaning fluids.

3.05 MANUFACTURER'S FIELD SERVICES

- A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
- B. Monitor and report installation procedures and unacceptable conditions.

3.06 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

3.07 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.08 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 088000

SECTION 092116
GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Metal stud wall, ceiling and soffit framing.
- B. Metal framing for top of wall bracing and ceiling framing.
- C. Acoustic insulation.
- D. Gypsum wallboard.
- E. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry: Wood blocking product and execution requirements.
- B. Section 079005 - Joint Sealers: Acoustic sealant.
- C. Section 102641 - Ballistic Resistant Panels.

1.03 REFERENCE STANDARDS

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- B. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement. (replaced SG-971)
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2019a.
- D. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
- E. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017.
- F. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2014).
- G. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2018.

- H. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2017.
- I. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2018.
- J. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2019b.
- K. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2018.
- L. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2018.
- M. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2019.
- N. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2018.
- O. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.
- P. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels; 2019.
- Q. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2016.
- R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2019b.
- S. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- T. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2019.
- U. ASTM E413 - Classification for Rating Sound Insulation; 2016.
- V. ASTM F1233 - Standard Test Method for Security Glazing Materials and Systems.
- W. GA-214 - Recommended Levels of Gypsum Board Finish; Gypsum Association; 2007.
- X. GA-216 - Application and Finishing of Gypsum Panel Products; 2016.

- Y. GA-226 - Application of Gypsum Board to Form Curved Surfaces; Gypsum Association; 2016.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate special details associated with vertical deflection joints and acoustic seals. Provide special details for suspended ceilings. Indicate layout, anchorage to structure, type and location of fasteners, framed openings, accessories, and items of related work.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
- C. Product Data: Provide data on bullet resistant panels, cement back board, and gypsum sheathing.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.05 QUALITY ASSURANCE

- A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.
- B. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum five years of documented experience.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assemblies as indicated on drawings.

1.07 DELIVERY, HANDLING, AND STORAGE

- A. Deliver materials to project with manufacturer's UL LISTED Labels intact and legible.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies per drawings.

2.02 METAL FRAMING MATERIALS

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
 - 1. Clark Dietrich Building Systems LLC: www.clarkdietrich.com/#sle
 - 2. Marino: www.marinoware.com/#sle

3. SCAFCO Corporation: www.scafco.com/#sle
- B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/360 at 5 psf.
1. Exception: The minimum metal thickness and section properties requirements of ASTM C 645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E 72 using assemblies specified by ASTM C 754.
 - a. Acceptable Products:
 - 1) Dietrich Metal Framing; UltraSteel (tm): www.dietrichindustries.com.
 - 2) Clark Western Building Systems; UltraSteel (tm): www.clarkwestern.com.
 2. Studs: "C" shaped with flat or formed webs with knurled faces.
 3. Runners: U shaped, sized to match studs.
 4. Ceiling Channels: C shaped.
 5. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
 6. Resilient Furring Channels: 1/2 inch depth, for attachment to substrate through one leg only.
 - a. Products:
 - 1) Same manufacturer as other framing materials.
 7. Resilient Sound Isolation Clips: Steel resilient clips with molded rubber isolators, attaches to framing; improves noise isolation performance of wall and floor-ceiling assemblies.
- C. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
- D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.

2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.
3. Provide kickers / framing for top of wall and soffits as necessary.

E. Non-structural Framing Accessories:

1. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
 - a. Materials: ASTM A36/A36M formed sheet steel support member with factory-welded ASTM A1003/A1003M steel plate base.
 - b. Products:
 - 1) ClarkDietrich; Pony Wall (PW): www.clarkdietrich.com/#sle.
2. Framing Connectors: ASTM A653/A653M G90 galvanized steel clips; secures cold rolled channel to wall studs for lateral bracing.
 - a. Products:
 - 1) ClarkDietrich; FastBridge Clip (FB33): www.clarkdietrich.com/#sle.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:

1. CertainTeed Corporation: www.certainteed.com/#sle.
2. Georgia-Pacific Gypsum: www.gp.com/#sle.
3. National Gypsum Company: www.nationalgypsum.com/#sle.
4. USG Corporation: www.usg.com/#sle.

B. Abuse Resistant Wallboard:

1. Application: High-traffic areas indicated.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Type: Fire-resistance-rated Type X, UL or WH listed.
4. Thickness: 5/8 inch.
5. Edges: Tapered.

C. Backing Board For Wet Areas:

1. Application: Surfaces behind tile in wet areas .
 2. Application: Horizontal surfaces behind tile in wet areas including countertops.
 3. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
 - a. Regular Type: Thickness 5/8 inch.
- D. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Ceilings, unless otherwise indicated.
 2. Thickness: 1/2 inch.
 3. Edges: Tapered.

2.04 ACCESSORIES

- A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced. Thickness to fit cavity. As specified in Section 07 21 00.
- B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- C. Finishing Accessories: ASTM C1047, rigid plastic, unless otherwise indicated.
1. Types: As detailed or required for finished appearance.
 2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.
- D. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
- E. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
 2. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
 3. Ready-mixed vinyl-based joint compound.
 4. Powder-type vinyl-based joint compound.

- 5. Chemical hardening type compound.
- F. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.
- G. Screws for Attachment to Steel Members From 0.033 to 0.112 Inch in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.
- H. Screws: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.
- I. Staples: ASTM C 840.
- J. Anchorage to Substrate: Tie wire, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- K. Expanded Metal Lath: G60 hot-dipped galvanized steel, 3.4 pounds per square yard.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
 - 1. Level ceiling system to a tolerance of 1/600.
 - 2. Laterally brace entire suspension system, to structure above.
 - 3. Install bracing as required at exterior locations to resist wind uplift.
- C. Studs: Space studs as indicated.
 - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
 - 2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling framing in accordance with details.
 - 3. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.

4. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- E. Connections: Minimum (4) #12 screws per connection of cold formed metal framing members.
- F. Standard Wall Furring: Install at concrete and masonry walls scheduled to receive gypsum board, not more than four (4) inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum twenty-four (24) inches on center.
1. Orientation: Horizontal; or Vertical.
 2. Spacing: At sixteen (16) inches on center; or As permitted by standard.
- G. Blocking: Install wood blocking for support of:
1. Framed openings.
 2. Wall-mounted cabinets.
 3. Plumbing fixtures.
 4. Toilet partitions.
 5. Toilet accessories.
 6. Wall-mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install as follows:
1. Place two beads continuously on substrate before installation of perimeter framing members.
 2. Place continuous bead at perimeter of each layer of gypsum board.
 3. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes; and other penetrations.

3.04 BOARD INSTALLATION

- A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
 - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.
- D. Curved Surfaces: Apply gypsum board to curved substrates in accordance with GA-226.
- E. Intruder Resistant Ceilings: Apply gypsum board over expanded metal lathe.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as directed.
 - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.06 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Paper Faced Gypsum Board: Use fiberglass joint tape, bedded with ready-mixed vinyl-based; or powder-type vinyl-based; or chemical hardening type joint compound and finished with ready-mixed vinyl-based; or powder-type vinyl-based; or chemical hardening type joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish or where FRP panel to be installed.

3. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- D. Finish gypsum board in scheduled areas in accordance with levels defined in GA-214; or ASTM C 840 and as scheduled below.
1. Above Finished Ceilings Concealed From View: Level 1.
 2. Utility Areas and Areas Behind Cabinetry: Level 2.
 3. Walls and Ceilings to Receive Flat Paint Finish: Level 4.
- E. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
1. Feather coats of joint compound so that camber is maximum 1/32 inch.
 2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
 3. Taping, filling and sanding is not required at base layer of double layer applications.

3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.08 FINISH LEVEL SCHEDULE (SEE 1.03 REFERENCES FOR DEFINITION)

- A. Level 1: Above finished ceilings concealed from view.
- B. Level 2: Utility areas and areas behind cabinetry or where FRP will be applied.
- C. Level 4: Walls and ceilings scheduled to receive flat paint finish.

3.9 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.10 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 092116

SECTION 093000

TILING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Coated glass mat backer board as tile substrate.
- D. Stone thresholds.

1.02 RELATED REQUIREMENTS

- A. Section 092116 - Gypsum Board Assemblies: Tile backer board.

1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2019.
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2017.
- C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar; 2017.
- D. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement; 1999 (Reaffirmed 2016).
- E. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship; 2019.
- F. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2009 (Revised).
- G. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).

- H. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999 (Reaffirmed 2010).
- I. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2010).
- J. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (Reaffirmed 2010).
- K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017.
- L. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2018.
- M. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).
- N. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2016).
- O. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2017.
- P. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2010 (Reaffirmed 2016).
- Q. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation; 2014.
- R. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2014.
- S. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2012.
- T. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2012.
- U. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2018.
- V. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2019.

1.04 SUBMITTALS

- A. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- B. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- C. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- D. Maintenance Materials: Furnish the following for DRBA's use in maintenance of project.
 - 1. Extra Tile: 10 square feet of each size, color, and surface finish combination.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of ANSI A108/A118/A136 and TCNA (HB) on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum ten years of documented experience.
- C. Installer Qualifications: Company specializing in installation the types of products specified in this section, with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.

PART 2 PRODUCTS

2.01 TILE

- A. Glazed Wall Tile, Type CT-1: ANSI A137.1, standard grade.
 - 1. Size: 4 by 12 inch
 - 2. Edges: Cushioned.
 - 3. Surface Finish: Matte glaze.
 - 4. Color(s): To be selected by the Engineer from manufacturer's standard range.
 - 5. Pattern: Brick.

6. Trim Units: Matching bullnose shapes in sizes coordinated with field tile.
 7. Products:
 - a. Dal-Tile Corporation; Color Wheel Collection - Linear: www.daltile.com/#sle
 - b. Approved equal.
- B. Porcelain Floor Tile, Type CT-2: ANSI A137.1, standard grade.
1. Size: 12 by 12 inch, nominal.
 2. Surface Finish: Matte glazed.
 3. Color(s): To be selected by the Engineer from manufacturer's standard range.
 4. Pattern: Brick.
 5. Trim Units, Type CT-3: Matching bullnose, cove base, and cove shapes in sizes coordinated with field tile.
 6. Products:
 - a. Dal-Tile Corporation; Unity: www.daltile.com/#sle
 - b. Approved equal.

2.02 TRIM AND ACCESSORIES

- A. Thresholds: Four (4) inches wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.
1. Thickness: 1/2 inch.
 2. Material: Solid surface acrylic resin, mineral filler, and pigments; non-porous, color and pattern consistent throughout thickness.
 3. Applications:
 - a. At doorways where tile terminates.

2.03 SETTING MATERIALS

- A. Improved Latex-Portland Cement Mortar Bond Coat: ANSI A118.15.
1. Products:
 - a. Custom Building Products; MegaLite Ultimate Crack Prevention Large Format Tile Mortar: www.custombuildingproducts.com/#sle

- b. LATICRETE International, Inc; LATICRETE 254 Platinum:
www.laticrete.com/#sle
- c. Approved equal.

2.04 GROUTS

- A. Provide setting and grout materials from same manufacturer.
- B. Standard Grout: ANSI A118.6 standard cement grout.
 - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 - 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
 - 3. Products:
 - a. LATICRETE International, Inc; LATICRETE 1500 Sanded Grout:
www.laticrete.com/#sle
 - b. Approved equal.

2.05 ACCESSORY MATERIALS

- A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
 - 1. Crack Resistance: No failure at 1/8 inch gap, minimum.
 - 2. Fluid or Trowel Applied Type:
 - a. Material: Synthetic rubber or Acrylic.
 - b. Thickness: 20 mils, maximum.
- B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
 - 1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
 - 2. Fluid or Trowel Applied Type:
 - a. Material: Synthetic rubber or Acrylic.
 - b. Thickness: 25 mils, minimum, dry film thickness.

- C. Backer Board: Coated glass mat type complying with ASTM C1178/C1178M; inorganic fiberglass mat on both surfaces and integral acrylic coating vapor retarder.
- D. Mesh Tape: 2 inch wide self-adhesive fiberglass mesh tape.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
 - 1. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

3.03 INSTALLATION - GENERAL

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.19 , manufacturer's instructions, and TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install thresholds where indicated.
- G. Sound tile after setting. Replace hollow sounding units.
- H. Keep control and expansion joints free of mortar, grout, and adhesive.
- I. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- J. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- K. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.

3.05 INSTALLATION - WALL TILE

- A. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.
- B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.06 CLEANING AND SEALING

- A. Clean tile and grout surfaces.
- B. Apply grout sealant.

3.07 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

3.8 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.9 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 093000

SECTION 095100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2019a.
- B. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2017.
- C. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.
- D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2017.
- E. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2019.

1.03 SUBMITTALS

- A. Product Data: Provide data on suspension system components and acoustical units.
- B. Maintenance Materials: Furnish the following for DRBA's use in maintenance of project.
 - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.04 QUALITY ASSURANCE

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- C. Acoustical Ceiling System Installer: Company specializing in installation of the products specified in this section with minimum five years documented experience.

1.05 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

- A. Acoustical Panels: Painted mineral fiber, with the following characteristics:
 - 1. Classification: ASTM E1264 Type III.
 - 2. Size: 24 by 48 inch.
 - 3. Thickness: 3/4 inch.
 - 4. Panel Edge: Square.
 - 5. Suspension System: Exposed grid.
 - 6. Products:
 - a. Armstrong World Industries, Inc; Fine Fissured:
www.armstrongceilings.com/#sle
 - b. USG Corporation; Fissured Basic Acoustical Panels: www.usg.com/.
 - c. Approved Equal.

2.02 SUSPENSION SYSTEM(S)

- A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.
- B. Exposed Suspension System: Hot-dipped galvanized steel grid and cap.
 - 1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
 - 2. Profile: Tee; 15/16 inch face width.
 - 3. Finish: Baked enamel.
 - 4. Color: White.
 - 5. Products:

- a. Armstrong World Industries, Inc; PRELUDE XL 15/16" Exposed Tee:
www.armstrongceilings.com/#sle
- b. Approved Equal.

2.03 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Hanger Wire: 12-gage 0.08 inch galvanized steel wire.
- C. Hold-Down Clips: Manufacturer's standard clips to suit application.
- D. Perimeter Moldings: Same metal and finish as grid.
 - 1. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
 - 2. Acoustical Sealant For Perimeter Moldings: Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.
- E. Acoustical Insulation: ASTM C665, friction fit type, unfaced batts.
 - 1. Thickness: 6 inch.
 - 2. Size: To fit acoustical suspension system.
- F. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

- A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- B. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.

1. Use longest practical lengths.
- C. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- D. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- E. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- F. Support fixture loads using supplementary hangers located within six (6) inches of each corner, or support components independently.
- G. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
 1. Make field cut edges of same profile as factory edges.
- F. Where round obstructions occur, provide preformed closures to match perimeter molding.
- G. Lay acoustical insulation for a distance of forty-eight (48) inches either side of acoustical partitions.

3.05 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.06 SCHEDULE

- A. Kitchen Areas: 24 by 24 inch metal pan acoustical units, plastic faced, interlocking suspension grid, insulation batts placed over units.

- B. Dining Areas: 24 by 48 inch square edge mineral acoustical units, interlocking exposed T suspension grid.

3.6 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.7 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 095100

SECTION 096500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient base.
- B. Installation accessories.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

- A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2016.

1.04 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- B. Selection Samples: Submit manufacturer's complete set of color samples for the Engineer's initial selection.
- C. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- D. Maintenance Materials: Furnish the following for DRBA's use in maintenance of project.
 - 2. Extra Wall Base: 5 linear feet of each type and color.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum ten years documented experience.
- B. Installer Qualifications: Company specializing in installing specified flooring with minimum five years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

PART 2 PRODUCTS

2.01 RESILIENT BASE

- A. Resilient Base - Type RB-1: ASTM F1861, Type TP, rubber, thermoplastic; top set Style B, Cove.
 - 1. Manufacturers:
 - a. Johnsonite, a Tarkett Company: www.johnsonite.com/#sle
 - b. Roppe Corp: www.roppe.com/#sle
 - c. Approved Equal.
 - 2. Height: 4 inch.
 - 3. Thickness: 0.125 inch.
 - 4. Finish: Satin.
 - 5. Color: To be selected by the Engineer from manufacturer's full range.
 - 6. Accessories: Premolded external corners and internal corners.

2.02 ACCESSORIES

- A. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.
- B. Filler for Coved Base: Plastic.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

3.02 PREPARATION

- A. Clean substrate.
- B. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.

C. Adhesive-Applied Installation:

1. Spread only enough adhesive to permit installation of materials before initial set.
2. Fit joints and butt seams tightly.

3.04 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of eighteen (18) inches between joints.
- B. Install base on solid backing. Bond tightly to wall and floor surfaces.
- C. Scribe and fit to door frames and other interruptions.

3.05 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

3.6 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.7 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 096500

SECTION 096813
TILE CARPETING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Carpet tile, loose laid with edges and control grid adhered.
- B. Removal of existing carpet tile.

1.02 RELATED REQUIREMENTS – NOT USED

1.03 REFERENCE STANDARDS

- A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2016.
- B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2019a, with Editorial Revision (2020).
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).
- D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.
- E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- F. CRI 104 - Standard for Installation of Commercial Carpet; 2015.

1.04 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- B. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- E. Maintenance Materials: Furnish the following for DRBA's use in maintenance of project.

1. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum ten years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

1.06 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Tile Carpeting:
 1. Interface, Inc: www.interface.com/#sle
 2. Milliken & Company: www.milliken.com/#sle
 3. Mohawk Group: www.mohawkgroup.com/#sle
 4. Tarkett: www.commercial.tarkett.com
 5. Approved Equal

2.02 MATERIALS

- A. Tile Carpeting, Type CPT-1: Tufted, manufactured in one color dye lot.
 1. Basis of Design Product: Journal Inscription manufactured by Milliken & Company.
 2. Tile Size: 18" by 36" inch, nominal.
 3. Color: To be determined.

2.03 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Edge Strips: Embossed aluminum, color as selected by Engineer.
- C. Adhesives:

1. Compatible with materials being adhered; maximum VOC content of 50 g/L; CRI (GLP) certified; in lieu of labeled product, independent test report showing compliance is acceptable.

D. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to subfloor surfaces.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
 1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

- A. Remove existing carpet tile.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove subfloor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with subfloor filler.
- D. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- E. Vacuum clean substrate.

3.03 INSTALLATION

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.

- F. Locate change of color or pattern between rooms under door centerline.
- G. Adhere carpet tile to substrate along centerline of rooms, at perimeter of rooms, where tiles are cut, and at 15 foot intervals throughout rooms. Lay remainder of tile dry over substrate.
- H. Trim carpet tile neatly at walls and around interruptions.
- I. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

3.4 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.5 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 096813

SECTION 099123
INTERIOR PAINTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Floors, unless specifically indicated.
 - 6. Glass.
 - 7. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2016.
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.
- D. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).
- E. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.03 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
- C. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- D. Maintenance Materials: Furnish the following for DRBA's use in maintenance of project.
 - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 3. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum ten years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years' experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
- D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
 - 1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by the Engineer from the manufacturer's full line.
- D. Colors: To be selected from manufacturer's full range of available colors.
 - 1. Selection to be made by the Engineer after award of contract.

2.02 PAINT SYSTEMS - INTERIOR

- A. PT-1 and PT-2 Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board and plaster.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, or 141.
 - a. Products:
 - 1) Sherwin-Williams ProMar 200 HP Series, Eg-Shel. (MPI #139)
 - 2) Approved Equal.
- B. PT-3 Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
 - 1. Medium duty applications include doors and door frames.
 - 2. Two top coats and one coat primer.
 - 3. Top Coat(s): Interior Alkyd, Water Based; MPI #167, 168, or 169.
 - a. Products:
 - 1) Sherwin-Williams ProMar 200 Waterbased Acrylic-Alkyd, Semi-Gloss.
 - 2) Approved Equal.
- C. PT-4 Medium Duty Overhead: Including gypsum board and plaster.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): Institutional Low Odor/VOC Interior Latex; MPI #143, 144, 145, 146, 147, or 148.
 - a. Products:
 - 1) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Flat.
 - 2) Approved Equal.

2.03 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 - 1. Bonding Primer, Latex;

- a. Products:
 - 1) Sherwin-Williams Extreme Bond Primer.
 - 2) Approved Equal
- 2. Water-Borne Synthetic Resin Based Primer
 - a. Products:
 - 1) MAPEI Corporation Eco Prim Grip.
 - 2) Approved Equal

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- C. If substrate preparation is the responsibility of another installer, notify the Engineer of unsatisfactory preparation before proceeding.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Plaster and Stucco: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Masonry:
 - 1. Prepare surface as recommended by top coat manufacturer.
- F. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- G. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- H. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- I. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

3.06 COLOR SCHEDULE

- A. PT-1 Field Wall Color
 - 1. Color to be determined.
- B. PT-2 Accent Wall Color
 - 1. Color to be determined.
- C. PT-3 All Hollow Metal Frame
 - 1. Color to match existing frames and trim.
- D. PT-4 Gypsum Board Ceiling
 - 1. Color to be determined.

3.7 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.8 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 099123

SECTION 101400
SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Room and door signs.

1.02 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- C. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
 - 1. When room numbers to appear on signs differ from those on drawings, include the drawing room number on schedule.
 - 2. When content of signs is indicated to be determined later, request such information from DRBA through the Engineer at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
 - 3. Submit for approval by the DRBA through the Engineer prior to fabrication.
- C. Manufacturer's Qualification Statement.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

1.06 FIELD CONDITIONS

- A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
- B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Flat Signs:
 - 1. Best Sign Systems, Inc: www.bestsigns.com/#sle
 - 2. FASTSIGNS: www.fastsigns.com/#sle
 - 3. Inpro: www.inprocorp.com/#sle
 - 4. Mohawk Sign Systems, Inc: www.mohawksign.com/#sle
 - 5. Seton Identification Products: www.seton.com/aec/#sle
 - 6. Approved Equal.

2.02 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.
 - 1. Sign Type: Flat signs with engraved panel media as specified.
 - 2. Provide “tactile” signage, with letters raised minimum 1/32 inch and Grade II braille.
 - 3. Character Height: 1 inch.

4. Sign Height: two (2) inches, unless otherwise indicated.
5. Office Doors: Identify with room name and corresponding braille.
6. Service Rooms: Identify with room name and corresponding braille.
7. Rest Rooms: Identify the text "RESTROOM", corresponding braille, as well as female pictogram, male pictogram, handicapped accessible pictogram

2.03 SIGN TYPES

- A. Flat Signs: Signage media without frame.
 1. Edges: Square.
 2. Corners: Radiused.
 3. Wall Mounting of One-Sided Signs: Tape adhesive.
- B. Color and Font: Unless otherwise indicated:
 1. Character Font: Helvetica, Arial, or other sans serif font.
 2. Character Case: Upper case only.
 3. Background Color: To be determined.
 4. Character Color: Contrasting color.

2.04 TACTILE SIGNAGE MEDIA

- A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
 1. Total Thickness: 1/8 inch.

2.05 ACCESSORIES

- A. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

- B. Install neatly, with horizontal edges level.
- C. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.
- D. Protect from damage until Substantial Completion; repair or replace damaged items.

3.3 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.4 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 101400

SECTION 102641
BALLISTICS RESISTANT PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Laminated fiberglass ballistics-resistant panels.

1.02 RELATED REQUIREMENTS

- A. Section 092116 - Gypsum Board Assemblies: Metal framing to receive ballistics-resistant panels.

1.03 ABBREVIATIONS AND ACRONYMS

1.04 REFERENCE STANDARDS

- A. NIJ 0108.01 - Standard for Ballistic Resistant Protective Materials; 1985.
- B. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

1.06 SUBMITTALS

- A. Product Data: Manufacturer's current data sheets on each product to be used.
- B. Shop Drawings: Details of installation of ballistics-resistant panels, including plan views, elevations, sections, and details of the proposed installation with attachment methods.
- C. Certificates: Submit printed data to indicate compliance with following requirements.
 - 1. UL Listing verification and UL 752 Current Test Results as provided by Underwriters Laboratories.
- D. Manufacturer's Instructions: Indicate preparation and installation.
- E. Warranty Documentation: Manufacturer warranty; ensure that forms have been completed in DRBA's name and registered with manufacturer.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name, manufacturer's identification, and required UL and NIJ certification labels until ready for installation.
- B. Handle material with care to prevent damage. Stack panels flat, store inside under cover off the ground in a dry location, and protect from other construction activities.

1.09 FIELD CONDITIONS

- A. Install products under environmental conditions (temperature, humidity, and ventilation) recommended by manufacturer.

1.10 WARRANTY

- A. Manufacturer Warranty: Provide ten-year manufacturer warranty for materials and workmanship against defects commencing on the Date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Laminated Glass Fiber Ballistics-Resistant Panels:
 - 1. Armortex: www.armortex.com/#sle.
 - 2. Insulgard Security Products: www.insulgard.com/#sle.
 - 3. Total Security Solutions: www.tssbulletproof.com/#sle.
 - 4. Waco Composites; ArmorCore: www.armorcore.com.
 - 5. Approved equal.

2.02 LAMINATED FIBER BALLISTICS-RESISTANT PANELS

- A. General:
 - 1. Laminated fiber ballistics-resistant panels to be non-ricochet type. When struck by a bullet or projectile, the panels to delaminate in such a way that absorbs the energy, stops the projectile, and prevents ricochet or spalling.
 - 2. Ballistics Resistance of Joints: Equal to that of the panel.
- B. Performance Requirements:
 - 1. Ballistics Resistance Rating: Listed and labeled as tested in accordance with UL 752 Level 2 (high-power handgun) threat rating.

C. Laminated Fiber Panels:

1. Material: Multiple layers of fiberglass woven roving bonded together with resin and compressed into flat rigid sheets.
2. Panel Size: Maximum size to limit number of seams.
3. Panel Thickness: Minimum thickness required for selected UL 752 threat level.
4. Panel Weight: Minimum weight required for selected UL 752 threat level.
5. Attachment Method: Mechanical fasteners.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify that substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify the Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation of this work.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install panels in accordance with manufacturer's instructions and shop drawings and in proper relationship with adjacent construction.
 1. Maintain ballistics-resistive rating at panel junctures with concrete floor and roof slabs, bullet-resistive door and window frames, and required penetrations.
- B. Reinforce panel joints with a minimum 4 inch wide back-up layer of ballistics-resistant material, centered on panel joints.
- C. Secure panels using screws, bolts, or industrial adhesive.

3.04 PROTECTION

- A. Protect installed panels from subsequent construction operations.
- B. Touch-up, repair or replace damaged panels before Date of Substantial Completion.

3.5 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.6 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 102641

SECTION 102800

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Commercial toilet accessories.
- B. Under-lavatory pipe supply covers.

1.02 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry: Concealed supports for accessories, including in wall framing and plates and above ceiling framing.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015a (Reapproved 2019).
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- D. ASTM C1036 - Standard Specification for Flat Glass; 2016.
- E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.
- F. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2018.
- G. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.04 SUBMITTALS

- A. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- B. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Commercial Toilet, Shower, and Bath Accessories:

1. AJW Architectural Products: www.ajw.com/#sle
2. American Specialties, Inc: www.americanspecialties.com/#sle
3. Bradley Corporation: www.bradleycorp.com/#sle
4. Bobrick: www.bobrick.com
5. Approved Equal.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Stainless Steel Sheet: ASTM A666, Type 304.
- C. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.
- D. Mirror Glass: Tempered safety glass, ASTM C1048; and ASTM C1036 Type I, Class 1, Quality Q2, with silvering as required.

2.03 FINISHES

- A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 COMMERCIAL TOILET ACCESSORIES

- A. Waste Receptacle: Recessed, stainless steel, seamless lower door for access to container, with tumbler lock, reinforced panel full height of door, push-in self-closing top door, continuously welded bottom pan and seamless exposed flanges.
 1. Liner: Removable seamless stainless steel receptacle.
 2. Minimum capacity: 12 gallons.
- B. Mirrors: Stainless steel framed, 1/4 inch thick annealed float glass; ASTM C1036.
 1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.
 2. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; satin finish.
 3. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.
- C. Grab Bars: Stainless steel, smooth surface.

1. Standard Duty Grab Bars:

- a. Push/Pull Point Load: 250 pound-force, minimum.
- b. Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
- c. Length and Configuration: As indicated on drawings.

D. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.

2.05 COMMERCIAL SHOWER AND BATH ACCESSORIES

A. Robe Hook: Heavy-duty stainless steel, single-prong, rectangular-shaped bracket and backplate for concealed attachment, satin finish.

2.06 UNDER-LAVATORY PIPE AND SUPPLY COVERS

A. Under-Lavatory Pipe and Supply Covers:

1. Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks to comply with ADA Standards.
2. Exterior Surfaces: Smooth non-absorbent, non-abrasive surfaces.
3. Construction: 1/8 inch flexible PVC.
4. Color: White.
5. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces.
6. Products:
 - a. Plumberex Specialty Products, Inc; Plumberex Handy-Shield Maxx: www.plumberex.com/#sle
 - b. Approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings and as required by the ADA.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.04 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

3.4 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.5 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 102800

SECTION 104400
FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

1.02 REFERENCE STANDARDS

- A. FM (AG) - FM Approval Guide; current edition.
- B. NFPA 10 - Standard for Portable Fire Extinguishers; 2017, with Errata (2018).
- C. UL (DIR) - Online Certifications Directory; Current Edition.

1.03 SUBMITTALS

- A. Product Data: Provide extinguisher operational features.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Extinguishers:

- 1. Ansul, a Tyco Business; Sentry: www.ansul.com/#sle
- 2. Kidde, a unit of United Technologies Corp: www.kidde.com/#sle
- 3. Activar Construction Products Group - JL Industries: Cosmic;
www.activarepg.com/#sle
- 4. Approved Equal

B. Fire Extinguisher Cabinets and Accessories:

- 1. Activar Construction Products Group - JL Industries; Ambassador Series:
www.activarepg.com/#sle
- 2. Kidde, a unit of United Technologies Corp: www.kidde.com/#sle
- 3. Approved Equal

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 - 1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as indicated.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
 - 1. Class: A:B:C type.
 - 2. Size: 10 pound.
 - 3. Temperature range: Minus 40 degrees F to 120 degrees F.

2.03 FIRE EXTINGUISHER CABINETS

- A. Cabinet Construction: Non-fire rated.
 - 1. Formed stainless steel sheet; 0.036 inch thick base metal.
- B. Cabinet Configuration: Semi-recessed type.
 - 1. Size to accommodate accessories.
- C. Door: 0.036 inch metal thickness, reinforced for flatness and rigidity with nylon catch. Hinge doors for 180 degree opening with two butt hinge.
- D. Door Glazing: Acrylic plastic, clear, 1/8 inch thick, flat shape and set in resilient channel glazing gasket.
- E. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- F. Finish of Cabinet Exterior Trim and Door: Baked enamel, color as selected.
- G. Finish of Cabinet Interior: White colored enamel.

2.04 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, chrome-plated.
- B. Lettering: "FIRE EXTINGUISHER" decal, or vinyl self-adhering, pre-spaced black lettering in accordance with authorities having jurisdiction (AHJ).

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level in wall openings, forty-eight (48) inches from finished floor to from top of fire extinguisher.
- C. Secure rigidly in place.
- D. Place extinguishers in cabinets.

3.03 MAINTENANCE

3.04 SCHEDULES

- A. Hall 157: 10 pound, multipurpose, dry chemical type; 4A:80B:C.

3.05 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.06 BASIS OF PAYMENT.

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 104400

SECTION 123217
CONSOLE FURNITURE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for work required on Console Furniture.
- B. Coordinate the work of this Section with the requirements of the Project.

1.2 SUBMITTALS

- A. Product data
- B. Shop Drawings
- C. Installation Instructions
- D. Operating and Maintenance Manual

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide console furniture by Watson Consoles.
 - 1. Furniture Representative: Ted Servetnick, Centerpoint LLC, 15 Club Ridge Lane, Willingboro, NJ 08046, phone (856) 912-6555

2.2 REQUIRED PRODUCT CERTIFICATIONS

- A. ANSI/BIFMA X5.5-2008, Desk Products
- B. ANSI/BIFMA Furniture Emissions Standard M7.1 and e-3-2014e
- C. UL 962
- D. CSA C22.2#68
- E. FCC e-CFR Title 47: Telecommunication, Part 15 – Radio Frequency Devices, Subpart B: Unintentional Radiators
- F. ICES-003: Information Technology Equipment
- G. SCS Global Services Indoor Air Advantage Gold SCS-EC10.3-2014 v3.0

2.3 PRODUCT REQUIREMENTS AND CONSTRUCTION

- A. Public Safety/911 Emergency Communication Centers have unique challenges and demands; conventional office furniture does not provide an acceptable level of function, technology integration, user ergonomics features, nor durability. When specifying furniture for an Emergency Communications Center, it is important to recognize that furniture should meet minimum requirements to support key performance requirements:
1. Consoles are utilized 24 hours per day/ 7 days per week by different employees with different physical sizes and needs; this is more than five times the average use and wear of conventional office furniture annually.
 2. Consoles must house and power extensive technology support including multiple monitors - in- line, stacked and/or combined with large-format screens models.
 3. Console furniture must provide additional storage for ancillary rack mount electronics.
 4. Consoles must provide no less than 10 years of 24/7 use which is required for the expected 80,000 hours of use over the course of a console’s lifetime.
- B. Conventional office furniture systems will not be considered for emergency communications center applications. The following categories have been identified for critical compliance and should be met by Dispatch Console furniture manufacturers and providers.

Stability – Function	Main Body Electrical Requirements	Monitor Viewing Support
Support Adjustments	Partitions and Screens	Technology Equipment Enclosures
Personal Base Storage	Personal Stacking Storage	Stacking Pallets
Cable Management Rail	Materials	General Electrical Requirements
Wire and Cable Management	Environmental Control System	Supplemental Task Lighting
Experience & References	Space Planning & Console Specifics	Comprehensive Warranty, Service & Maintenance Agreement
Lead Time & Installation Rigor	Documented Product Certifications	

- C. Consoles should be designed and manufactured to meet the following industry standard, and third party tested, guidelines for safety, strength, durability, and a healthy workplace:
1. UL 962 Listed as a complete furniture assembly. Any deviation from the specification MUST be submitted in writing.
 2. CSA (Canadian Standards Association) C22.2#68. Any deviation from the specification MUST be submitted in writing.

3. SCS Global Services Indoor Air Advantage Gold SCS-EC10.3-2014 v3.0 certified for protecting indoor air quality by minimizing volatile organic compound chemical off gassing through design engineering and materials selection. Any deviation from the specification MUST be submitted in writing.
 4. CARB (California Air Resources Board) compliant for reduction of formaldehyde emissions, identified as an airborne toxin. Any deviation from the specification MUST be submitted in writing.
 5. FCC eCFR Title 47, Part 15 Radio Frequency Devices, Subpart B: Unintentional Radiators. Any deviation from the specification MUST be submitted in writing.
 6. ICES (Interface Causing Equipment Standard) -003: Informational Technology Equipment. Any deviation from the specification MUST be submitted in writing.
 7. Textiles compliance with CA TB 117 (California Technical Bulletin) Flammability Standard Requirements for Upholstered Furniture products. Any deviation from the specification MUST be submitted in writing.
- D. The following functional specification requirements must be met by the console provided.

1. Stability – Function

- a. The console furniture is designed specifically for 24/7 operations in an emergency communications center environment.
- b. The console furniture is modular in design so as to be easily reconfigured and upgraded.
- c. Technology storage and personal storage units stand free from the main console body so they can be field removed or replaced without deconstruction on the console unit.
- d. Sit-to-stand legs are bolted into the console undercarriage and to the underside of the input support surface creating maximum proportional stability; free-standing leg and feet systems will not be acceptable.
- e. There are no obstructions side-to-side obstructions within the console footprint that will inhibit movement by the user, a critical component in order to provide on-going training of users and technology. Knee space must span a minimum of 70% of the console's overall width.
- f. Horizontal work surfaces are supported by a formed steel sub-frame for maximum durability.

- g. Horizontal work surfaces must be strong and rigid and able to meet all required standards for furniture construction as outlined by ANSI/BIFMA X5.5-2008, Desk Products.

2. Input support surface

- a. The input support surface must lower to at least 24.5" from the floor.
- b. The input support surface must raise to 50" above the floor to accommodate the 99th percentile standing male per ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations 8.3.2.4.3.
- c. The height-adjustability must be engineered so as to provide infinite adjustment throughout the entire adjustment range, a critical function to meet ergonomic standards and reduce repetitive strain injuries and carpal tunnel syndrome.
- d. The input support surface must be a level platform that is wide enough to accommodate multiple input including keyboards, mice, and writing surface; the input platform surface area should be a minimum of 1300 sq. inches.
- e. The input support surface must have enough surface area to accommodate input devices within a primary and a secondary work zone and to meet ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations 5.2.4.1 standards.
- f. The input support surface must allow the user to maintain elbow angles between 70 and 135 degrees to meet ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations 5.2.1.1 standards.
- g. The electronic adjustment must be independent of the monitor support; other adjustment methods will be deemed unacceptable.
- h. The electronic adjustment must be controlled through a digital read-out to ensure precise user-preferred replication.
- i. The electronic adjustment controls must be mounted in a location that meets ADA standards for accessibility.
- j. Top mounted adjustment controls will be deemed not acceptable.
- k. Adjustment controls shall have an option for a Wellness function to track standing usage and encourage users to use the adjustment controls to change posture throughout their shift.
- l. The input support surface must adjust simultaneously with the monitor support in order to retain relative positioning between both surfaces when changing from sitting to standing. This promotes ergonomic alignment and a timely and controlled shift from sitting to standing work postures.
- m. The input support surface must allow adjustment of the line-of-sight viewing distance between the eyes and front surface of the viewable display area within the range of 19.7" and 39.4" to meet ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations 5.2.4.2. The entire surface and all environmental controls shall move with the input surface to maintain preferred and ergonomic settings.

- n. The input support surface must have a static load capacity of 1200 lbs. and an equipment load capacity of 500 lbs. to accommodate multiple models and quantities of various input devices.
- o. Lifting columns for the input surface should be integrated into the storage cavities for increased stability; leg set bases should not be exposed.
- p. The input support surface legs must have integrated anti-collision software to promote user safety, detect obstacles and prevent damage to console or equipment.
- q. A minimum safety clearance of 1.25" shall be required between all moving surfaces. ANSI-HFES 100-2007 Human Factors Engineering of Computer Workstations 8.3.1.2.
- r. There shall be no entrapment zones, as defined by UL 962.
- s. The input surface must have a welded steel sub-frame for increased structural integrity.
- t. The position of the input support surface relative to the lifting legs and ancillary enclosures needs to be positioned so as to provide unobstructed knee clearance for users in the seated operating position and in accordance with ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations 8.3.2.1.
- u. The input support surface should be controlled through the use of 24 VDC motors. All powered components must be UL 962 listed and should be CSA (Canadian Standards Association) certified.
- v. Must utilize a dual brake for stability and prevention of binding. Braking system must lock surface into place when the brake is released.
- w. There should be surface-mounted, user-configurable, user-accessible voice and data connections (RJ12, RJ45 USB, 3.5mm Audio) available and accessible from the front of the console.
- x. All moveable components of the console's input support surface and lifting mechanisms shall be designed and tested to at least 40,000 cycle full range adjustments.

3. Monitor Viewing Support

- a. The console design must include adjustment of monitors so that the gaze angle to the center of the screen ranges between 15° and 20° below horizontal eye level per ANSI-HFES 100-2007 Human Factors Engineering of Computer Workstations 5.2.4.3.
- b. The console design must accommodate use of up to (5) 21" widescreen LCD flat panel monitors on a single tier, and up to (10) 21" widescreen LCD flat panel monitors in a stacked configuration and provide independent angle adjustment for each.
- c. The monitor mounting array should allow for concurrent focal depth movement of at least four monitors at once.
- d. Monitor viewing support controls must be mounted in a location that meets ADA standards for accessibility; top mounted adjustment controls will be deemed unacceptable.

- e. Monitor viewing support must be controlled through the use of 24 VDC motors. All powered components must be UL 962 listed and should be CSA certified.
- f. Monitor viewing support must be independently adjustable.
- g. All moveable components of the console's monitor viewing support system shall be designed and tested to at least 40,000 cycle full range adjustments.

4. Support Adjustments

- a. All mechanical and powered support adjustment mechanisms shall operate at a speed approximately 1" per second.
- b. Input surface support adjustment mechanisms must be controlled through a digital read-out to ensure precise replication for individual users who share a single console workstation. All mechanical and powered support adjustment controls must be mounted in a location that meets ADA standards for accessibility; top mounted adjustment controls will be deemed unacceptable.
- c. All mechanical and powered support adjustment mechanisms including "lifting systems" must operate quietly with a maximum sound level of 50 db.

5. Partition Screens

- a. Partition and screen frame components must be constructed of 14-gauge cold rolled steel for maximum strength and durability.
- b. All steel frame components must be bolted together in a minimum of four places to ensure maximum strength and durability.
- c. All steel components must be powder coated for lasting durability; enamel paint is not sufficiently durable and will not be acceptable.
- d. All external-facing screen components must be available in abrasion resistant fabric covering.
- e. Internal screen components, including tackable core surfaces, must be fabricated with materials that contain a minimum of 85% recycled content.
- f. The partitions and screens must be integrated into the main body of the furniture; freestanding panels will be deemed unacceptable.
- g. The screen/partition system must sit within the console body's footprint so as to not reduce available open floorspace.
- h. All screen and partition fasteners must be completely concealed.
- i. All screen and partition components must be field replaceable.
- j. All side and back facing screen and partitions must be available in 42", 48", 54" and 60" heights; 36" return screens should also be available.
- k. All screen and partitions must be available with a shatter-proof 12" acrylic upper section to help maintain sight lines.

6. Equipment Enclosures - Console Technology Storage

- a. Console technology storage enclosures must be accessible from both the front and the rear.
- b. Console technology storage enclosures must not attach directly to the primary work surface.
- c. Console technology storage enclosures must be available in 24" and 30" heights.
- d. Console technology storage enclosures must be available in 30", 42" and 50" widths.
- e. Console technology storage enclosures must be available in a 24" depth.
- f. Enclosures must be engineered to support stacking storage components atop the units to allow for additional technology storage or personal storage without taking up added floor space.
- g. Console technology storage enclosure rear access doors must offer cooling by a minimum of 2 each 50 CFM axial cooling fans.
- h. Console technology storage enclosure front access doors must utilize a vented plenum system to draw cool air into the enclosure.
- i. All console technology storage enclosure must have an active cooling system to ensure that cabinets are kept at the optimum temperature for peak technology performance.
- j. Console technology storage enclosures must have horizontal cable management systems.

7. Cable Management Rail

- a. There should be a horizontal cable management rail for running cabling from one side of the console to the other.
- b. The wood cable management rails should be constructed of 42 lb. density particle board panel with THERMALLY FUSED MELAMINE (THERMALLY FUSED LAMINATE) on both sides.
- c. All steel components within the wood cable management rail must be powder coated for durability; enamel paint is not sufficiently durable and will be considered unacceptable.
- d. Internal cable management channel must be able to house a minimum of 40 each Cat-6 cables and one each 1" flexible conduit.
- e. Internal cable management channels must contain fastening points to prevent unintentional movement and disconnection of cabling during active service.
- f. The wood cable management rail must have a locking option to prevent unauthorized personnel access to internal cabling.
- g. The wood cable management rail must be available in both single access and dual access configurations to allow maximum flexibility and future reconfiguration.

8. Enclosures - Personal Base Storage

- a. Personal base storage enclosures must be available in 24" and 30" heights.

- b. Personal base storage enclosures must be available in 30", 42" and 50" widths.
- c. Personal base storage enclosures must have optional filing storage sized at 20" wide.
- d. Personal base storage enclosures must be available in a 24" depth.
- e. Personal base storage enclosures must be available in single and dual sided configurations.
- f. Personal base storage enclosures must be available in combinations including open-drawer- door, open bookcase, and closed-door configurations.
- g. Enclosures must be engineered to support stacking storage components atop the units to allow for additional personal storage without taking up added floor space.

9. Enclosures - Personal Stacking Storage

- a. Personal stacking storage enclosures must be available in 18", 24" and 30" to correspond with the heights of the partition screens.
- b. Personal stacking storage enclosures must be available in 20", 30", 42" and 50" widths.
- c. Personal stacking storage enclosures must be available in a 24" depth.
- d. Personal stacking storage enclosures must be available in single and dual sided configurations.
- e. Personal stacking storage enclosures must be available in combinations including open- drawer-door, open bookcase, and closed-door configurations.

10. Enclosures - Stacking Pallets

- a. Stacking pallet enclosures must be available in an 8" height.
- b. Stacking pallet enclosures must be available in 20", 30", 42" and 50" widths.
- c. Stacking pallet enclosures must be available in a 24" depth.
- d. Stacking pallet enclosures must be cable ready to allow the placement of electrical components.
- e. Stacking pallet enclosures must include at least one grommet pass through and at least one monitor support mounting location.

11. Materials

- a. Storage Enclosures
 - i. Wood parts should be constructed of 42 lb. density particle board with THERMALLY FUSED MELAMINE (THERMALLY FUSED LAMINATE) on both sides.
 - ii. Steel parts should be manufactured from 14-gauge cold rolled steel for maximum strength and durability.
- b. Surfaces

- i. All monitor and input surfaces should be 42 lb. density, 3/4" thick wood core material, pressure bonded with a high-pressure horizontal grade laminate top and sealing horizontal grade backing sheet of laminate on the underside to prevent deflection.
- c. Edge Material
 - i. All storage enclosures, including fixed or mobile pedestals, must have edges finished with 1.5 mm thick thermoplastic polypropylene extrusion with self-healing properties for maximum durability.
 - ii. All input support surfaces must use a 3mm thick thermoplastic polypropylene extrusion edging with self-healing properties for maximum durability.
 - iii. All input surface edging must have a minimum 3mm radius on front edge so as to comply with ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations 8.3.1.4.
- d. Laminates
 - i. High pressure laminate must meet ANSI/ASME A 17.1; 1986 requirements for Class "B" laminate and ASTM D523-89, providing a non-glare matte finish.
 - i. All monitor and input surfaces must be .0625" thickness horizontal grade laminate on the top surface and on the backing sheet, to prevent deflection.
 - ii. Thermally fused laminate must meet NEMA LI-1-1998; low pressure laminate is not acceptable.
- e. Textiles/Fabric
 - i. All textiles must be abrasion resistant to meet ASTM D-3597 MVPTS-198 standard.
 - ii. All textiles must meet flammability requirements in accordance with ASTM E-84 (Tunnel Test) Class A, or 1, and the State of California Technical Bulletin 117 Sec. E (SC-191-53) standards.
 - iii. All textiles must be made from 100% recyclable materials.
- f. Powdercoat
 - i. Powdercoat must meet ASTM D3359-09 adhesion standard for durability.
 - ii. Powdercoat must meet PCI #8 Solvent Cure Test for durability.

12. Electrical Requirements

- a. Each console will have (2) Power Distribution Units (PDU) that may be specified by the Engineer as 15A, 20A plug or 20A Locking. Each PDU Unit must provide (13) NEMA 5-15R outlets and a NEMA 5-15P input. PDU unit must include a 15-foot cord. PDU must be UL listed and CSA rated.

- b. The total power draw for an individual console may not exceed 13.3 amps; this includes the console lifting system and all environmental controls.
- c. The console should comply with UL standard 962 ensuring the highest standard of electrical and physical safety.
- d. The console should be rated to comply with FCC Title 47 Part 15 subpart B/ICES-003 for Radiated and Conducted emissions.

13. Wire and Cable Management

- a. The console must include two cable access drops with energy chains for vertical cable management from the input support surface to the equipment enclosures so as to comply with UL 962 standards.
- b. The console must include energy chains for horizontal cable management between the moving surface and adjacent fixed surface to preserve optimal and secure operation of cords and cables during the console's active use.
- c. A quick connect user-accessible interface with accommodations for up to 10 configurable ports must be available and must include ports, jacks and cables for: USB-A, RJ45, RJ11/12, and 3.5mm stereo audio connection kits; the quick connect interface must also provide cable management for the equipment it serves.
- d. The console infrastructure must support cable management from the user's position to the CPUs inside the console.
- e. The console must have a horizontal cable raceway for unencumbered and easily serviceable runs.
- f. The console must have a horizontal cable raceway that is easily accessible and allows drop-in cable runs to accommodate easy technology updates and service access.
- g. Cables routed within the walls of a furniture panel system will not be acceptable.

14. Environmental Control System

- a. Control Panel
 - i. The control panel for all environmental settings (task lighting, heating controls, and air distribution) must be integrated with the console body.
 - ii. The control panel must be easy to clean and sanitize.
 - iii. The height for the input support surface must be shown on a digital read-out to ensure total replication of console positioning for all employees; the digital readout for the input support surface shall display inches from the floor.
- b. ADA Compliance
 - i. There must be an optional electronic adjustment control located within reach of a wheelchair to meet ADA requirements.

- c. Air Distribution
 - i. Fans shall be incorporated into the furniture design, providing maximum individualized control within the user's primary work zone.
 - ii. The console must have user-adjustable fans for circulating filtered air with a minimum of two distinct speeds.
- d. Lighting Levels
 - i. The console must integrate 12VDC LED lighting solutions.
 - ii. The console must have integrated ambient lighting.
 - iii. The console must have flexible gooseneck style task lighting to allow proper placement of light over work area.
 - iv. All integrated lighting on the console shall be mechanically fastened to the console to prevent removal; lights should be removable for maintenance.
- e. Personal Heating
 - i. System shall provide one ceramic forced heating source that is rated 400 watts and located under the input support surface. Rated for 400 watts total.
 - ii. Floor mounted heating solutions will not be acceptable.
- f. Power Requirements
 - i. The console should operate with 120 VAC, 60Hz.
 - ii. The console must have a 15 ft. power cord with 3-prong plug.
 - iii. The console should draw a minimum of 0.3 amperes and a maximum of 13.3 amperes.
- g. On/Off Task Lighting-Freestanding Supplemental Task lighting
 - i. The console should accommodate a 3-point articulating arm that swivels 120-degrees and provides a 180-degree tilt for additional light control.
 - ii. The console should accommodate additional task lighting that can be mounted to the input support surface using a grommet mount, or directly to the monitor support rail.
 - iii. All task lighting on the console must provide approximately 50,000 hours of lamp life.
 - iv. The task lighting color temperature should not exceed 3,800K.
 - v. The task lighting should have a 3-lever dimmer to adjust illumination as needed to reduce eye strain.
 - vi. Ancillary task lighting must be available in three colors - silver, white, and black.

15. Experience & References

- a. The manufacturer of the console furniture being proposed must have a proven record of product longevity and customer service in a 24-hour operating environment for public safety dispatch centers of similar size to this request.

- b. The manufacturer of the console furniture being proposed must have a minimum of fifteen (15) years' experience in designing, manufacturing, and servicing ergonomic console furniture will be considered.
- c. The manufacturer of the console furniture being proposed must provide references for similar sized projects that were installed within the last 10 years; include the agency name, location, number of positions, and contact.
- d. The bidder must be the manufacturer of all major components such as work surfaces, console panels, structural support system, and environmental controls.

16. Space Planning & Console Specifics

- a. Perspective drawings are required with the response submission and must include height, width, and depth dimensions in order to determine compliance with the specifications.
- b. All accessories being proposed should be shown in the drawings.
- c. Electronics to be provided by the DRBA such as monitors, telephones, keyboards, mice, etc. shall be shown, to scale, in the 3-dimensional/perspective drawings.

17. Warranty and Service and Maintenance Agreement

- a. The bidder and manufacturer must provide at least ten (10) year warranty coverage for all console components (including electronics and buy-out parts), including delivery. For no less than the first five (5) years of the warranty coverage, absolutely no labor costs associated with replacement or repair of any portion of the product or installation will be permitted to be passed on to the DRBA.
- b. The bidder and manufacturer must provide lifetime warranty on all structural components. After five (5) years, labor and installation expenses associated with the product replacement under the warranty will be assessed on a case-by-case basis. Products not covered for life include electrical components, monitor arms, and the input platform mechanisms.
- c. The Contractor and manufacturer must provide an optional service and maintenance agreement that can be quoted upon request, to mitigate hidden expenses associated with product replacement after the initial warranty period. The optional service and maintenance agreement must cover additional required installation and regularly scheduled service that may occur after the initial warranty period expires.

PART 3 - EXECUTION

3.1 LEAD TIME & INSTALLATION

- A. The manufacturer must provide lead times and identify date of order and proposed final installation at each location.

- B. The manufacturer must include a shipping estimate for direct, inside delivery to the facility.
- C. Only the manufacturer's factory installers or their trained and authorized designees experienced with the working environment of a public safety dispatch center shall assemble and install the console furniture; documentation must be provided for the installation foreman.
- D. The manufacturer must provide a plan for a post-installation walkthrough intended to confirm full compliance to the floor plan, console design, and materials specified.
- E. The manufacturer must provide a detailed plan for training all users and support staff in the proper use of all adjustment controls, ergonomic functions, and technical access.
- F. The manufacturer must provide user manuals.

3.2 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.3 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 13 - GENERAL ARCHITECTURAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 123217

END OF DIVISION 13: GENERAL ARCHITECTURAL

DIVISION 20: GENERAL MECHANICAL/PLUMBING
SECTION/DESCRIPTION
200000 General Mechanical Requirements
210000 Fire Protection
220000 General Plumbing Requirements
230000 Heating & Air Conditioning

SECTION 200000

GENERAL MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for work under General Mechanical Requirements.
- B. Coordinate the work of this Section with the requirements of the Project.

1.2 DEFINITIONS

- A. Following are definitions of terms and expressions used in the Mechanical Sections in addition to definitions found in the Contract Conditions:
 - 1. "Piping" includes pipe, fittings, valves, hangers, and other accessories that comprise a system.
 - 2. "Ductwork" includes ducts, fittings, housings, dampers, hangers, and other accessories, which comprise a system.
 - 3. "Refurbish" shall include but not be limited to: inspecting/repairing unit cabinet, such as repairing, seals/latches, curbs, etc., cleaning coils, replacing belts, lubricating bearings, changing filters, inspecting and cleaning gas fired heat exchanger, cleaning/repairing condensate drain and secondary drain pan, check and adjust refrigeration charge on each unit, leak test and repair any refrigeration leaks, etc. to bring the piece of equipment being refurbished into the manufacturer's original operating specifications/tolerances and provide warranty of operability for 60 days after the systems have been turned over to the DRBA.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements
 - 1. Work shall conform to the requirements of the codes, laws and ordinances of Cape May, NJ, the National Fire Protection Association, American Society of Mechanical Engineers, and other authorities having jurisdiction.
 - 2. Comply with applicable codes, laws, standard practices.
 - 3. Comply with the standards of good practice as outlined in the ASHRAE Guide, the Sheet Metal and Air Conditioning Contractor's Association's "Duct Manual", and the Apprentice Training Manual of the Steam Fitters Union.
 - 4. The requirements of the authorities having jurisdiction shall take precedence over the Plans and Specifications and changes required by the authorities shall be made after review by the Engineer.

1.4 SUBMITTALS

- A. Shop Drawings are required for the following:
 - 1. Plumbing
 - a. Plumbing Fixtures
 - 2. Fire Protection
 - a. Sprinkler Piping
 - b. Equipment
 - c. Hydraulic Calculations
 - 3. Heating and Air Conditioning
 - a. Air Devices
 - b. Insulation
 - c. Exhaust Fans
 - d. Heating and Air Conditioning Equipment
 - e. Mechanical/Electrical Coordination
 - f. Temperature Controls
 - g. Testing, Adjustment and Balancing Reports and Qualifications
- A. Review of Shop Drawings does not relieve the Contractor of responsibility for complying with the contract documents.

1.5 PROTECTION

- A. Protect material and equipment from damage.
- B. Post notices prohibiting the use of water closets.
- C. Provide plastic protection inserts, specifically manufactured for the bathtubs and shower stalls.
- D. Cap or plug openings in equipment, piping and ductwork with proper caps and plugs.
- E. Building materials should be stored in a weather-tight, clean area prior to unpacking for installation.
- F. Accumulation of water during construction should be avoided and any porous construction materials such as insulation should be protected from moisture.

1.6 VARIANCES

- A. Where conflicts exist within the contract documents, request clarification prior to the submission of a bid. If clarification is not requested, provide the work representing the higher cost and quality.

1.7 WARRANTY

- A. During the warranty period, make the proper adjustments of systems, equipment and devices installed and perform work necessary to ensure the efficient and proper operation of the systems, equipment, and devices.
- B. Certain items of equipment shall be warranted for a longer time than the general warranty period. Provide for service or replacement required in connection with the warranty of these items.
- C. The warranty period shall not begin until the project has reached substantial completion. Any warranty limits from the manufacturer related to delivery of equipment or unit startup shall be between the Contractor and the manufacturer only and shall not impact the warranty between the DRBA and the Contractor.

PART 2 - PRODUCTS

2.1 PRODUCTS TO BE USED

- A. Items are specified by designations such as trade name, manufacturer's name, catalog number and indicate the capacity and quality of the products or materials to be used on this project.
- B. Only products indicated on Contract Documents by name and model number have been coordinated with other trades. Coordinate items of other manufacturer with other trades.

2.2 MATERIALS AND WORKMANSHIP

- A. Items shown and not specifically called for, or items specified and not specifically indicated or detailed on the Plans, or items neither specified nor shown, but which are reasonably incidental to and commonly required to make a complete job, shall be provided.

2.3 FOUNDATIONS AND EQUIPMENT SUPPORTS

- A. Provide foundations, supports, curbs and bases for equipment, as indicated or necessary for satisfactory installation and operation of equipment. Furnish and set anchor bolts.
- B. Concrete pads shall be four (4) inches thick minimum, thicker if necessary to accommodate a particular piece of equipment. Edges shall be beveled with outer edge extending three (3) inches beyond equipment. Provide concrete pads for floor-mounted equipment. Exterior pads shall be reinforced and shall have edges turned down to below the frost line. Exterior pads shall extend eight inches beyond edges of equipment and shall be sloped for drainage.
- C. Exterior equipment pads shall be three (3) inches thick minimum E-Lite plastic pads manufactured by Diversitech with 3" high riser legs and shall extend six (6) inches beyond edges of equipment and shall be sloped for drainage.
- D. Floor mounted stands, supports, rods or legs, where required, shall be constructed of structural steel shapes (angles, channels) of Kindorf or Unistrut or steel pipe and fittings securely braced and fastened to flanges bolted to the floor. Minimum rod size shall be 3/8-inch diameter. Paint steel with rust inhibiting paint.

2.4 ROOF SUPPORTS AND CURBS

- A. Provide equipment supports and curbs for the equipment and piping installed on or through the roof. Roof curbs shall be approved for use by the National Roofing Contractors National Association and shall be a minimum of fourteen (14) inches high. Curbs shall be sloping roof type suitable for pitch of the roof and shall set the equipment level. Curbs shall be double wall insulated type.
- B. Provide wood blocking to raise the level of the bottom of the curb to be level with the top of the roof insulation.
- C. Pipe curb assemblies, except for plumbing vent pipes shall be constructed of 18-gauge galvanized steel with base plate, raised cant, wood nailer strip and galvanized steel counter flashing. Top shall be provided with acrylic clad ABS plastic cover and graduated neoprene boots secured to cover and pipes by stainless steel band clamps. Pipe curbs shall be Pate Company PCA-5 or equivalent of Thy Curb.
- D. Equipment supports shall be constructed of 18-gauge galvanized steel with base plate, raised cant, insulation, wood nailer strip and galvanized steel counter flashing. Equipment supports shall be Pate Company ES-5b or equivalent of Thy Curb.
- E. Roof mounted stands, supports, rods or legs, where required, shall be constructed of structural steel shapes (angles, channels) of Kindorf or Unistrut or steel pipe and fittings securely braced and fastened to flanges bolted to the associated equipment support. Minimum rod size shall be 3/8-inch diameter. Paint members which have been cut or have been damaged with touch up rust inhibiting paint.

2.5 HANGERS AND PIPE SUPPORTS

- A. Provide pipe hangers and supports to maintain required slope and alignment for equipment and piping. Pipe hangers shall be as manufactured by Carpenter & Patterson, Fee & Mason, Modern Hanger or Grinnell.
- B. Pipes may not be supported from other pipes. Trapeze hangers may be used for parallel runs of pipe with same slope.
- C. Provide sway bracing at sufficient intervals to prevent lateral motion of horizontal or vertical piping and ductwork as required by the jurisdiction to meet the appropriate regional requirements.
- D. For pipe and tubing, both horizontal and vertical, and regardless of the spacing of other supports, provide supports at or near changes in direction. Hangers shall be spaced at not over 6 feet apart for 1/2 inch pipe, not over 8 feet apart for 3/4 and 1-inch pipe and not over 10 feet for larger sizes.
- E. For steel bar joist construction, hanger rods shall be supported from the top chord of the joists or from panel points of the lower chord of the joists. Where piping runs parallel to joists or where hangers are required at other than joist locations, provide steel angles welded to joists to support hangers so that weight is supported from the top chord of the joists.
- F. Hangers for pipe shall be similar to Carpenter & Paterson "Clevis" figure 100. Hangers for insulated lines with vapor barrier and carrying fluids with temperatures below 70 degrees shall be large enough to permit continuous insulation. Hangers on vapor barrier insulated piping shall be provided with rigid protector saddles with rigid core of insulation to thickness of adjacent insulation. Saddles shall be 16-gauge galvanized steel and shall cover one half of the circumference of the pipe covering. Saddle shall be secured to insulation with adhesive.

- G. Pipes upon or within close distance of walls shall be carried by wall brackets, Carpenter & Paterson, Fig. 221, 139, or 227 as approved.
- H. Support vertical lines at floor level with extension pipe clamps. Support lowest level of riser with pipe hanger as specified above on horizontal pipe as close to riser as possible.
- I. Special supports required shall be provided to suit the conditions.
- J. Expansion bolts or wood plugs will not be permitted in slag block walls. Equipment hung on such walls shall be supported by through bolts or approved anchor bolts set into masonry as the wall is laid up.

2.6 OPENINGS, CHASES, LINTELS AND SLEEVES

- A. Determine the location and size of chases, lintels and openings necessary for the proper installation of the work and provide them during the erection of the work in which such chases and openings occur.
- B. Provide sleeves through walls and floors for pipes. Sleeves through walls shall be of sufficient size to permit the insulation, where specified, to continue through the sleeve. Sleeves through walls shall be flush with the walls.
- C. In case cutting of building construction is necessary, including cutting of structural members, such cutting shall be done and repaired to match original condition of the work.
- D. Where non-combustible pipes pass through sleeves or around ductwork through openings in fire rated wall, floor-ceiling and ceiling-roof assemblies, seal openings with a Underwriters Laboratories classified firestop method. Firestop method shall be a one part, intumescent (expands with heat), latex elastomer capable of expanding a minimum of three times. Firestop materials shall be UL listed when tested in accordance with ASTM E814 for a two-hour fire (F) and temperature (T) rating.
- E. If combustible piping materials are used, a UL listed firestop method shall be provided where the combustible materials penetrate fire rated wall, floor-ceiling and ceiling-roof assemblies. Firestop method shall be classified by UL as a through-penetration firestop device when tested in accordance with ASTM E814 for a two-hour fire (F) and temperature (T) rating. Plastic piping materials, including, but not limited to PVC, CPVC and ABS, are combustible. Firestop method shall be similar to Nelson Firestop Products.
- F. Escutcheon plates shall be used to conceal sleeve opening on exposed uninsulated piping. Floor plates shall be split chrome plated cast brass similar to Ritter No. 36A.

2.7 VIBRATION ISOLATION

- A. Provide vibration isolators manufactured by a firm specializing in this type of work for equipment and piping that is capable of transmitting noise and vibration to the building structures.
- B. Isolators shall be designed to suit vibration frequency to be absorbed. Provide isolator units of area distribution to obtain proper resiliency under machinery load and impact. Where unequal distribution of weight occurs, design isolators for uniform deflection under imposed load.

- C. Examine the Plans for sizes, horsepowers, rotational speeds, equipment location, length of span between columns and beams and construction type to determine the isolator selection type and deflection required for each piece of mechanical equipment. Conform to the requirements of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Handbook, "HVAC Applications", Chapter 48, "Sound and Vibration Control"
- D. Isolators of the same type shall be the product of the same manufacturer, Mason, Vibration Eliminator or Korfund.
- E. Mountings shall be of the types indicated below:
 - 1. Type A: Double deflection neoprene mountings shall have a minimum static deflection of 0.50". Metal surfaces shall be neoprene covered to avoid corrosion and have friction pads both top and bottom, so they need not be bolted to the floor. Bolt holes shall be provided for those areas where bolting is required. On equipment such as small vent sets and close coupled pumps, steel rails shall be used above the mountings to compensate for the overhang. Mountings shall be type ND or rails type DNR as manufactured by Mason Industries, Inc. Color code to indicate durometer.
 - 2. Type B: Spring type isolation shall be free standing and laterally stable without any housing and complete with ¼" neoprene acoustical friction pads between the baseplate and the support. Mountings shall have leveling bolts that must be rigidly bolted to the equipment. Spring diameters shall be no less than 0.8 of compressed height of the spring at rated load. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Submittals shall include spring diameters, deflections, compressed spring height and solid spring height. Mountings shall be type SLF manufactured by Mason Industries, Inc.
 - 3. Type C: Equipment with operating weight different from the installed weight and equipment exposed to the wind such as cooling towers shall be mounted on spring mountings as described in Type B, but a housing shall be used that included vertical limit stops to prevent spring extension when weight is removed. The housing shall serve as blocking during erection and cooling tower mounts shall be located between the supporting steel and roof or the grillage and dunnage as shown on the Plans. The installed and operating heights shall be the same. A minimum clearance of ½" shall be maintained around restraining bolts and between the housing and the spring so as not to interfere with the spring action. Limit stops shall be out of contact during normal operations. Mounting used out of the doors shall be hot dipped galvanized. Mountings shall be SLR as manufactured by Mason Industries, Inc.
 - 4. Type D: Neoprene cross-ribbed or waffle pattern, 5/16 inches thick. Provide ¼ inch hot dipped galvanized steel bearing plates. Permanently identify durometer. Mason Industries, Inc. Type W.

F. Provide vibration isolation as required above and as indicated in the following schedule:

EQUIPMENT	LOCATION	ISOLATION TYPE	DEFL. (IN)
Roof Mounted Condensing/Heat Pump Units		C	1.0"

2.8 ACCESS PANELS

- A. In general, valves, dampers, traps and equipment shall be accessible through the removable panels in the ceiling. Where ceilings are not removable and in walls where access is required for service, access panels shall be provided. Access panels shall be appropriate for the finish in which they are installed, with a fire rating to match the wall or ceiling in which they are installed.
- B. Group valves, dampers, and equipment together to keep the required number of access panels to a minimum.

2.9 ELECTRICAL WORK

- A. Motors and heating elements for equipment specified under the mechanical Sections of the Specifications shall be provided with the equipment.
- B. Starters, disconnect switches, and work pertaining to equipment power connections are specified under Division 26 unless specified with the equipment of this Section of the Specifications. Electrical devices provided under this Division shall meet requirements for similar equipment specified under Division 26.
- C. Interlock wiring, and the provision of pilot devices such as push buttons, thermostats, flow switches and similar items and their related wiring associated with the Automatic Control System, shall be provided in accordance with the applicable requirements of Division 26. For ease of servicing, permanently identify both ends of conductors with W. H. Brady Co. self-sticking Perma-Code wire markers. Mark control diagrams accordingly.
- D. Coordinate control device voltages.
- E. Unless specifically noted otherwise, motors ½ HP and over shall be wound for 208 volts, 1 phase, 60 hertz current, and those under ½ HP for 120 volts, single phase, 60 hertz current. Motors shall be equipped with grease packed ball bearings. Motors shall be rated for continuous duty at 100 percent of rated capacity with an ambient temperature of 40 degrees C.
- F. Design motors in accordance with NEMA standards and affix to each a nameplate accurately listing pertinent data. Motors shall have sufficient capacity to start and operate the machine they drive without exceeding the motor nameplate rating at the speed specified or at speeds or loads, which may be obtained, by the drive furnished. The motor HP or KW ratings are those estimated to be required by the driven equipment when operating at specified duties and efficiencies and are used to determine electrical feeder sizes. If the actual horsepower or KW required for the equipment to be furnished is greater than the indicated horsepower or KW, it shall be provided. Changes required

in starter, feeder, branch circuit or other electrical items shall be made. Provide a Shop Drawing showing the mechanical/electrical coordination between trades. The Shop Drawing shall list all mechanical equipment with power demand, associated branch circuit feeder designation, conduit and wire size, breaker size and fused safety switch.

- G. Unless otherwise indicated, polyphase motors shall be Class B, general purpose, squirrel cage, single speed, open induction type, stamped with NEMA Class B letter designation.
- H. Single phase motors except as noted shall be open, capacitor start type. Motors 1/6 horsepower and under shall be permanent split capacitor type with built-in reset thermal overload protection, unless specifically noted otherwise. Motors 1/12 horsepower and smaller that start with no load may be shaded pole with built-in reset thermal overload protection.
- I. Mechanical equipment with a factory wired control panel shall be wired in accordance with the National Electrical Code. Additionally, components within the panel shall bear the UL label.
- J. Equipment shall be UL listed as a system or be tested by an independent electrical testing agency acceptable to the Engineer to comply with requirements of the Authority having jurisdiction.
- K. Do not install equipment, ductwork or piping in the dedicated spaces above switchgear, panels and transformers as identified in the National Electrical Code.

2.10 FLASHING

- A. Sanitary vent pipes passing through the roof shall be provided with conical neoprene boots for any pitch roof with base extending minimum of eight (8) inches from vertical portion of boot. Provide clamp for securing boot to pipe.
- B. Flashing assemblies specified above shall be set in place as part of the work under this Division of this Specification but will be finally installed as specified in another Division of this Specification.
- C. Base flashing of roof drains, ducts, fans and other equipment, if required, is specified in Division 7 of this Specification. Cap flashings shall be provided to make a watertight seal.

2.11 IDENTIFICATION

- A. Equipment shall be identified with engraved plastic laminate or anodized aluminum nameplates with pressure sensitive backing. Plates shall also be provided with drilled holes and fastened to equipment with moly-rivets. Letters shall be at least 3/8 inch high and larger in proportion to the size of the piece of equipment. Identification shall be the same as noted on schedules on the Plans. Labels shall be provided for the following equipment.
 - 1. Air Handling Units
 - 2. Outdoor Heat Pump Units
 - 3. Exhaust Fans

- B. Labels shall identify the piping system. Labels shall be located where pipes enter and leaves a space and at 30-foot centers on normal runs. Duct systems shall be similarly identified by noting the system and direction of flow.
- C. On valves, except immediately adjacent to equipment, provide 1 inch diameter brass tag with embossed and painted black numbers to identify the valve. Tag numbers shall be coordinated between trades. Tags shall be attached to valve wheels with a brass link. Tags shall be manufactured by Brady, Seton Nameplate, or Wilmington Plastics.
- D. Prepare a list showing the number and location of valves and a schematic piping diagram showing the location of numbered valves. The list and diagram shall be cross indexed so that the location and purpose of valves is identified. List and diagram shall be stored in a clear plastic envelope mounted on a wall were directed by the Engineer.

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS

- A. Visit the site and become familiar with existing conditions. Modifications to work required to allow for existing conditions shall be provided. Submit proposed modifications to the Engineer for approval prior to installation.
- B. Relocate existing hangers and supports where necessary to install new work. Maximum spacing requirements shall apply for relocated supports.
- C. Coordinate interruptions in service of existing systems with the DRBA. Provide temporary connections to maintain operation of existing systems.

3.2 MANNER OF INSTALLATION

- A. Piping and ductwork shall be installed to preserve access to valves, dampers, and equipment. Valves, dampers, and equipment which require frequent service, adjustment, or control and which cannot be located in a readily accessible and safe place, shall be provided with extension devices and remote operators, as necessary and as accepted for use by the Engineer.
- B. Piping and ductwork shall be run to follow the lines of the building and to allow the maximum headroom consistent with proper pitch. Piping subject to thermal expansion shall be arranged to permit movement without damage to the piping, ductwork, and equipment.
- C. The Plans are generally indicative of the work to be installed, but they do not show all offsets, fittings and similar details required, which shall be provided to meet the job conditions. In areas where work is installed in close proximity to work of other trades or within trades covered by this Section of the Specifications, prepare larger scale drawings consisting of plans and sections to show how work is to be installed in relation to work of other trades.
- D. Equipment and systems shall be installed in accordance with the requirements and recommendations of the associated manufacturer.

3.3 EXCAVATION AND BACKFILL

- A. Provide excavation and backfill necessary to install underground piping and other work included in this Section of the Specifications. Establish lines and grades required for the proper location of the work.
- B. After the piping has been placed, the trenches shall be backfilled to the lines of present grades or finished grade as required. No backfill shall be placed, however, until water has been removed from the trenches and joints have been set and also after the tests have been made on piping as required.

3.4 RECORD DRAWINGS

- A. Keep at the site two (2) sets of black and white prints for the express purpose of showing changes from the Plans made during construction. Mark up the prints with red pencil during construction and deliver the prints, before final inspection, to the Engineer as a final set of "Record Drawings". Refer to the General Provisions of the DRBA Standard Specifications for additional requirements.

3.5 TESTING

- A. Before concealing piping and before insulating piping, test piping per the requirements listed below or as required by the authority having jurisdiction, whichever is more stringent, and prove tight.
- B. Replace and retest to Engineer's satisfaction pipe or fittings broken or damaged under test.
- C. Before testing piping systems, remove or otherwise protect from damage, control devices, air vents, plumbing fixtures and other parts which are not designed to stand pressures used in testing piping.
- D. New sanitary and storm drain piping shall be tested by a standing water test so that the highest point of the system has no less than a 10-foot head of water. Fixtures shall be removed from system and piping capped or plugged. No drop in water level shall be allowed. Test systems for a period of four (4) hours.
- E. New domestic water system and new hydronic systems shall be tested hydrostatically, pumping the system to 150 psi test pressure, and holding the system at the test pressure for two hours without additional pumping. The fire protection system shall be similarly tested at 175 psi test pressure. While under pressure, visually inspect joints, welds, or other connections to determine leakage. If leaks are detected, repair leak and retest.

3.6 CLEANING OF SYSTEMS

- A. After satisfactory completion of pressure tests and before permanently connecting fixtures, equipment, strainers and other accessory items, clean systems. Remove burrs, cuttings, and waste. Blow and flush piping until interiors are free of foreign matter. Take precautions to minimize scale build up. Contractor will be responsible for having a clean and scale free system at the time of substantial completion.
- B. Clean strainers and dirt pockets as often as required to guarantee no system stoppage by end of warranty period.
- C. The heating water piping system including boiler shall be cleaned by filling the system with water with pumps in operation and boiler water set at 180 degrees F or higher with valves open and adding a sufficient quantity of tri-sodium phosphate to provide a

solution of three (3) pounds of tri-sodium phosphate per 100 gallons of water. Strainer baskets shall be maintained during this period to prevent clogging. At the end of the 48-hour cleaning period, the system shall be drained and flushed and then refilled for operation. The system shall again be brought up to operating temperature for 48 hours and the system shall be vented with the pumps running. At this time, temporary strainer baskets shall be removed, cleaned, and reinstalled. Strainers shall be of sufficient fine mesh to protect the close tolerance of the pump, approximately 16 mesh. After one operating season, the temporary strainer baskets shall be removed, and new baskets installed in the strainers.

- D. Dust shall be removed from ductwork before substantial completion. Filter media shall be new at substantial completion.
- E. If systems become stopped with refuse, remove the obstruction, and replace and repair work disturbed.
- F. Clean plumbing fixtures using non-scratching cleaners. Polish chromium plated work. Stilson type wrenches shall not be used on chrome plated work.
- G. Dust in the construction area shall be suppressed with wetting agents or sweeping compounds. Dust shall be cleaned regularly.
- H. Remove rust and clean surfaces to be insulated or painted.
- I. Leave systems in clean condition and running order.

3.7 STERILIZATION

- A. The domestic water piping systems shall be sterilized with a chlorine water solution so that the piping system contains water with a chlorine concentration of 100 ppm at the end of a three-hour retention period. Systems shall be flushed before sterilization. After the chlorine water solution has remained in the piping system for the specified period and at the specified concentration, the system shall be drained, flushed with clear water until the chlorine concentration is less than 1.0 ppm. Obtain representative samples of the systems water for analysis by a recognized bacteriological laboratory. If samples are not acceptable, the process shall be repeated until the samples are acceptable.
- B. The domestic water piping system may be sterilized by other methods approved by local plumbing codes or the Health Department.
- C. As a condition of acceptance of the system, furnish a certificate under seal to certify that the system has been sterilized to meet the requirements of the Health Department and that the system is satisfactory for human consumption.
- D. Chemicals and materials used for sterilization of the systems shall meet the requirements of the authority having jurisdiction.

3.8 PAINTING

- A. Remove rust, scale, grease, and dirt from equipment and material and leave ready for finish painting. Equipment specified with factory baked enamel finish shall be touched up as required to provide a surface visually free of scratches, nicks and blemishes.
- B. Paint uninsulated ferrous piping, hangers and miscellaneous iron work in concealed spaces with one coat of Rust-O-Leum dampproof red primer.

- C. Where metal duct is visible through a register or grille, paint the interior of the duct with flat black paint.

3.9 OPERATING AND MAINTENANCE MANUAL

- A. Submit operating and maintenance instructions. The manual shall include the following:
 1. A brief description of systems and their various components.
 2. Full, definite and explicit instructions for starting, stopping, controlling and changing over systems from one season to another.
 3. List of manufacturer's representatives with address and telephone numbers.
 4. Manufacturer's printed operating and maintenance instructions, parts lists, illustrations and diagrams for pieces of equipment.
 5. A complete schedule of periodic servicing and lubrication requirements for equipment.
 6. One copy of each Shop Drawing and Contractor's drawings.
 7. One copy of other items of equipment where not required as a Shop Drawing submittal.
 8. One copy of each wiring diagram.
 9. Motor manufacturer's certificate for motors exposed to the weather.
 10. The field test data specified in Section 230000 under Balancing and Adjusting.
 11. Sterilization certificate for domestic water systems.

3.10 FIELD INSTRUCTION

- A. Upon completion of work, furnish services of a competent representative to instruct DRBA's representative in the proper operation and maintenance of elements of the mechanical systems. Submit instructor's name and credentials to the Engineer for approval.
- B. Spend not less than 4 hours in such formal instruction to prepare DRBA to operate and maintain the systems.
- C. At least 2 hours of the specified 4 hours of instruction shall occur after thirty days operation by DRBA's representative and may be divided into periods of 2 hours at different seasons of the year.

3.11 PERFORMANCE TEST

- A. Should the performance or capacity of the systems, equipment or devices furnished be questioned by written notice from the Engineer after installation, provide necessary test equipment and complete a satisfactory test of the items in question. The test shall be run when and as directed by the Engineer and in the presence of his representative. Should the items furnished not pass such a test, they shall be removed and replaced by systems, equipment, or devices satisfactory to the Engineer.

3.12 METHOD OF MEASUREMENT

A. Work performed under this section will not be measured separately.

3.13 BASIS OF PAYMENT

A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 200000

SECTION 210000
FIRE PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. The requirements of Section 200000 apply to work performed under this Section.
- B. Section includes fire protection sprinkler systems.

1.2 QUALITY ASSURANCE

- A. Regulatory requirements of the fire protection system shall be in compliance with the rules and regulations of the Fire Department and the State Fire Marshal (or his legislated authoritative representative) and in accordance with the following:
 - 1. Building Code
 - 2. NFPA 101 - Life Safety Code
 - 3. NFPA Standards
 - a. NFPA 13
 - b. NFPA 20
- B. Fire alarm system and associated wiring are being performed by others. Contractor to coordinate with the Engineer any changes to the fire alarm system that may be necessary due to changes in the sprinkler system layout from that shown on the Contract Documents.

1.3 SUBMITTALS

- A. A sprinkler system working drawing as required by NFPA and local jurisdiction shall be submitted to the Engineer for review after governmental and regulatory agency approvals have been obtained. The submittal shall include manufacturer's data sheets and hydraulic calculations. Approval agencies shall include the local fire department and the State Fire Marshal's office. No installation of the system shall be made until approval is obtained. System shown on the Plans is schematic and is intended for use as a guide.

PART 2 - PRODUCTS

2.1 VALVES

- A. Valves on fire protection system shall be Factory Mutual stamped or UL listed.
- B. Valves at base of risers and sprinkler system service shall be Stockham G634 or similar of Acme, Fairbanks, Walworth or Jenkins, 175-pound iron body, solid wedge disc with rising stem O.S. & Y. Provide a valve tamper switch for each valve. Tamper switch shall be Edwards type OSYS-U, Simplex or Pyron.

2.2 SPRINKLER SYSTEM EQUIPMENT

- A. Ceiling sprinkler heads shall be chrome plated pendant heads for installation on a suspended ceiling system. Ceiling heads shall have full 360-degree spray pattern provided with fusible links or with thermal glass bulb for ordinary temperature rating. Sprinkler and other major devices shall be as manufactured by Reliable or Viking, Automatic Sprinkler.
- B. Sidewall sprinkler heads shall be chrome plated, horizontal type with a special deflector to distribute the water in a uniform pattern. Sidewall heads shall have a fusible link or with thermal glass bulb or with thermal glass bulb with an ordinary temperature rating.
- C. Exposed piping upright sprinkler heads shall be natural bronze finish for exposed piping installation. Heads shall have full 360-degree spray pattern provided with fusible links for ordinary temperature rating.
- D. Alarm check valve shall be provided at service entrance and shall have alarm connection to the fire alarm system. Wiring from the alarm connection to the fire alarm system is to be coordinated with Authority staff.
- E. Flow switches shall be Simplex, Pyrotronics, Johnson or Honeywell pneumatically damped switch with 15 second delay, actuated by a flow rate of 10 gpm or greater. Alarm shall actuate an electric switch. Wiring from the switch to the fire alarm system is specified in the Sections under Division 26.
- F. Dry pendent heads shall be recessed type and shall have a full 360-degree spray pattern provided with fusible links for ordinary temperature rating. Sprinkler and other major devices shall be as manufactured by Reliable, Grinnell, Viking, Automatic Sprinkler or Hodgman.

PART 3 - EXECUTION

3.1 PIPING

- A. Piping within the building shall be per NFPA 13 except that plastic pipe shall not be used.

3.2 SPRINKLER SYSTEM

- A. Sprinkler system shall be a complete automatic wet pipe system complete with piping, sprinkler heads, valves, accessories, hangers, etc. System shall be generally classified for the code application hazard.
- B. Layout of sprinkler heads and piping shall be coordinated with the Architectural, Structural, Mechanical and Electrical Drawings and field conditions. Provide offsets, sleeves, etc., required for the installation.
- C. System shall be hydraulically designed. Computer readout sheets shall be submitted as required for approval and permit purposes.
- D. Have a flow test performed in accordance with the procedures established in NFPA 20. Results of this flow test shall be included with the computer calculations.

3.3 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.4 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 210000

SECTION 220000
GENERAL PLUMBING REQUIREMENTS

PART 1 - GENERAL

1.1 NOTE

- A. The requirements of Section 200000 apply to work performed under this Section.

1.2 SCOPE

- A. The work under this Section of the Specification shall include the furnishing of labor, materials and equipment for the installation of complete plumbing systems, including interior sanitary soil, waste and vent piping; storm, interior domestic hot and cold-water piping, plumbing fixtures and appliances to provide continuous and satisfactory service.

1.3 CONNECTIONS TO EQUIPMENT

- A. Provide labor and materials to connect equipment furnished under this Section of the Specification.
- B. Provide labor and materials to connect equipment furnished under other Sections of the Specification and requiring plumbing connections as if the equipment was furnished under this Section of the Specification. Provide traps, water stop valves, etc., for equipment requiring such connections to provide functioning systems.

PART 2 - PRODUCTS

2.1 CLEANOUTS

- A. Cleanouts shall be provided at ends of runs, at changes of direction and near the base of each vertical soil, waste, or drainpipe. Cleanouts shall be placed on horizontal lines every 50 feet unless the conditions require them at closer intervals. Cleanouts at the base of vertical pipes shall be placed in a fitting just above the floor. Cleanouts shall consist of Y branches or 1/4 bends the full size of the line for piping four (4) inches and smaller, and four (4) inches for larger pipes. Cleanouts in horizontal lines shall be extended to floor level or grade as necessary. Cleanouts shall be series as listed below:

1. Below concrete floors with no finish or ceramic tile finish.

- a. Zurn - ZN-1400-3
- b. R. Smith
- c. Watts
- d. Josam
- e. Mifab

2. Below carpeted floors (flush with concrete with identification screw through carpet).

- a. Zurn - ZN-1400-15

- b. R. Smith
 - c. Watts
 - d. Josam
 - e. Mifab
3. Below resilient tile floors.
- a. Zurn - ZN-1400-7
 - b. R. Smith
 - c. Watts
 - d. Josam
 - e. Mifab
4. Exposed horizontal piping.
- a. Zurn - Z-1440A
 - b. R. Smith
 - c. Watts
 - d. Josam
 - e. Mifab
5. Concealed in finished wall-prime coat.
- a. Zurn - Z-1440-1
 - b. R. Smith
 - c. Watts
 - d. Josam
 - e. Mifab
6. Base of exposed vertical pipes.
- a. Zurn - Z-1445
 - b. R. Smith
 - c. Watts
 - d. Josam
 - e. Mifab
7. Base of concealed vertical pipes.
- a. Zurn - Z-1445-1
 - b. R. Smith
 - c. Watts
 - d. Josam
 - e. Mifab

B. Cleanouts shall consist of cast iron ferrules and shall seat against a lead seal. Access covers shall be polished nickel bronze in finished areas, brass below carpeting. Access covers will be secured by non-ferrous tamperproof screws.

2.2 PLUMBING FIXTURES

- A. Provide plumbing fixtures as shown on the Plans or as described herein. Exposed metal parts of fixtures, including faucets, waste fittings, waste plugs, strainers, flush valves, traps, supply and waste pipes and escutcheons shall be brass, chromium plated.
- B. Mounting Heights of Fixtures
 - 1. To provide for the physically disabled, plumbing fixtures shall be provided for their use at a mounting height suitable for the disabled as set forth by the Federal

Government. Fixtures for special uses need not meet this requirement. Fixture mounting heights are generally indicated on the Plans.

2. Hot water and drain piping accessible to a wheelchair patient shall be suitably protected against high temperature by molded vinyl piping covers with access to shut-off valves, trap cleanout, etc. Insulation shall have out of sight fastening system, tie bands are not approved. Covers shall be Truebro Lav Guard 2 E-Z.
- C. Hot and cold-water connections to fixtures shall be provided with a stop valve. Stop valves, risers, etc. shall be commercial/institutional grade as manufactured by Brass Craft, Chicago, Engineered Systems or McGuire.
- D. Provide metal supports necessary to adequately and substantially hang and set fixtures. Supports shall be Zurn, Josam or J. R. Smith and suitable for the wall thickness and piping arrangements shown.
- E. Plumbing fixtures shall be caulked at wall and floor with silicone caulking material of same color as the fixture.
- F. For sinks and fixtures specified under other sections and not provided with faucets, tailpieces, traps, and stop valves; provide necessary fittings and completely connect the sinks and fixtures.
- G. Fixtures shall be as follows:
 1. WC-1 Water Closet - elongated syphon jet action bowl with close coupled gravity flow tank, white vitreous china bowl with 17" rim and floor outlet for 12" rough-in to operate on 1.6-gallon flush fitted with bolt caps, screwdriver stop valve, supply pipe and flexible riser.
 - a. Model
 - i. American Standard – Cadet Pro – 215AA.004
 - ii. Eljer
 - iii. Kohler
 - iv. Crane
 - b. Seat - white solid plastic open front seat without cover.
 - i. Church - 295C
 - ii. Olsonite
 - iii. Beneke

2.3 SHOCK ABSORBERS

- A. Provide shock absorbers in the water piping in horizontal runs where shown on Plans and elsewhere as required to prevent noise or injury to the piping system resulting from water hammer.
- B. Shock absorbers shall be J. R. Smith Hydrotrol or Zurn Z-1700 Shocktrol. Unit shall consist of stainless-steel casing and air charged bellows. Shock absorbers shall be sized as recommended in the Plumbing Drainage Institute Standard WH-201.

2.4 VALVES

- A. Provide valves as indicated on Plans, as specified below and as required. Valves, where possible, shall be of one manufacturer, Stockham, Nibco or Jenkins, Jomar whose figure numbers are used below.

- B. Valves two (2) inches and smaller, which will be operated frequently, or will be used for throttling services, shall be ball or globe valves. Stop valves shall be ball valves.
- C. Valves in the domestic hot water, cold water and hot water recirculating system shall be:

Description	FOR STEEL PIPE		
	Nibco	<u>Jenkins</u>	<u>Stockham</u>
Gate-4" and larger IBBT, OS & Y, flanged	F-617-0	651A	G-623
Gate-3" and smaller BBT, rising threaded stem	T-111	47	B-100
Globe-4" and larger IBBT OS&Y, flanged	F-718-B	613	G-512
Globe-3" and smaller BBT, threaded	T-211-Y		B-13-T
Check Valves 4" and larger IBBT, swing, flanged	F-918-B	624	G-931
Check Valves 3" and smaller BBT, swing, threaded	T-413-Y	92A	B-319
	For Copper Tube		
Description	<u>Nibco</u>	<u>Jenkins</u>	<u>Stockham</u>
Gate-2-1/2" and smaller, bronze rising stem, solder end.	S-111	1242	B-108

Globe-2-1/2" and smaller, bronze solder end	S-211-Y		B-14-T
Check Valves 2-1/2"and smaller, bronze, swing solder end	S-413-Y	1222	B-309

- D. Ball valves may be used for shutoff and balancing purposes except on gas piping where they shall not be used except as indicated below. Ball valves shall be NIBCO figure S-580-M, Jomar T-100 or Apollo. Provide memory stop on balancing valves. Ball valves may be used for shut off purposes in gas piping 1 inch and smaller. Ball valves in gas piping shall be NIBCO GB10/GB1A

PART 3 - EXECUTION

3.1 SANITARY PIPING

- A. Sanitary piping shall be extended from fixtures, appliances, etc., to the existing sanitary sewer. Verify location, size, and elevation of the existing line before performing work and notify the Engineer if discrepancies are noted.
- B. Sanitary piping below the lowest finished floor to their connections to existing utilities shall be service weight cast iron pipe, ASTM A 74-15, modified and made up with neoprene double seal gaskets of the same manufacturer as the pipe. Pipe and fittings shall bear the mark of the Cast Iron Soil Pipe Institute.
- C. Sanitary piping within the building, above ground shall be service weight cast iron "no hub" pipe with neoprene and stainless-steel connectors.
- D. Drain piping from air conditioning unit condensate pans above the ground shall be type "L" hard drawn copper water tube, ASTM B88 with solder type wrought copper fittings, ANSI A40.3.
- E. Where lines pass under or through footings, encase them in concrete to uniform thickness as approved by the engineer.
- F. In connection with underground piping, connections and turns, unless otherwise specified, shall be made with Y fittings and 1/8 bends.

3.2 WATER PIPING

- A. Water piping inside the building shall be type "L" hard drawn copper water tube, ASTM B88 with solder type wrought copper fittings, ANSI A40.3. Brass solder joint valves shall be used with copper tubing. Solder shall be 95-5 tin antimony type. Protect piping from materials which may cause corrosion of copper.
- B. Exposed piping at fixtures shall be IPS red brass, chromium plated.
- C. Mains, branches, and connections of the hot and cold-water distribution piping systems shall be provided with valves placed at the points shown on Plans or directed by the Engineer for proper isolation and control of the system. Equipment or appliances shall be separately valved so that service can be shut off and the piece of equipment or

appliance removed without disturbing the piping system. Valves shall be located so as to be accessible to the operator. Separate valves for equipment and appliances are in addition to faucets supplied herein or in other Sections.

- D. Provide for expansion of piping subject to temperature changes. This shall be accomplished by swings, bends, or loops.

3.3 INSULATION

- A. After the systems have been installed and tested, insulation as specified below shall be applied. Materials shall be UL, Inc., approved and shall be applied as recommended by the manufacturer's written instructions. Materials used shall be the products of Owens Corning, PPG, Manville, Knauff Corporation, Certainteed, Armstrong, Eagle Picher, Insul Coustic or Benjamin Foster and shall be equal to those products that meet the Specifications below.
- B. Insulate new cold-water piping except chrome plated piping exposed at plumbing fixtures and insulate condensate drain lines. Insulation shall be heavy density long strand fiberglass, sectional insulation with all service vapor barrier jacket and double side adhesive self-sealing lap, Johns Manville Micro-Lok system or equal of Owens Corning. Insulation shall comply with ASTM E84 with a flame spread rating of 25 or less and smoke developed rating of 50 or less. Insulation thickness shall be in accordance with the Energy Code but shall not be less than ½ inch. Fittings, valve bodies, etc., shall be covered with Zeston type precut vinyl insulation jackets with pre-shaped fiberglass insert.
- C. On exposed insulated piping in finished areas within seven feet of the floors, provide .010-inch-thick galvanized steel insulation jackets. This does not include piping exposed in unfinished areas such as boiler rooms, storage rooms, etc.
- D. At pipe hangers, for piping carrying fluids with temperatures below 70 degrees, provide a rigid core of insulation to support the pipe. Rigid insulation shall be the same thickness as the adjacent semi-rigid insulation and have the same flame spread and smoke developed ratings. Vapor barrier shall be continuous and integral between the rigid and semi-rigid sections of insulation. Rigid insulation shall be composed of hydrous calcium silicate. Rigid insulation shall be Johns Manville Thermo-12 Gold or equal of Owens Corning.

3.4 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.5 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 220000

SECTION 230000
HEATING & AIR CONDITIONING

PART 1 - GENERAL

1.1 NOTE

A. The requirements of Section 200000 apply to work performed under this Section.

1.2 SCOPE

A. The Work under this Section of the Specification shall include the furnishing of labor, equipment and materials for the installation of heating, air conditioning and ventilating systems as specified, shown on the Plans or implied to provide continuous and satisfactory service.

PART 2 - PRODUCTS

2.1 AIR CONDITIONER DUCTLESS SPLIT SYSTEM – HIGH WALL

A. Provide direct expansion, split system air conditioning system consisting of exterior unit and interior fan coil unit. Unit shall be ARI rated but shall operate at the conditions and capacities as noted on the Plans.

B. Outdoor condensing unit

1. Outdoor condensing unit shall be air cooled with horizontal air discharge provided with a hermetic compressor.
2. Compressor shall be rotary type provided with internal vibration isolation and motor winding over temperature and overcurrent safety devices.
3. Heater transfer coil shall be copper tube with aluminum plate fins. Heat rejection fan shall be deep pitched corrosion resistant propeller fan protected by a fan guard. Fan shall be direct driven by permanently lubricated motor with inherent overload protection and class B insulation.
4. Provide outdoor unit with defrost controls, high- and low-pressure safety controls, time delay relay to prevent short cycling and automatic restart on resumption of electric service after a power failure. Controls shall be solid state.
5. Casing shall be suitable for exterior use and shall be provided with baked enamel finish over properly treated galvanized steel or other approved corrosion resistant finish.

C. Indoor Unit

1. Provide wall mounted, fan coil unit with vertical discharge compatible for use with condensing unit specified above.
2. Fan coil unit shall be complete with insulated casing with drain pan, built-in condensate pump, copper tube aluminum fin direct expansion refrigeration coil with suitable expansion valve, distributor and solenoid valve, fan section and filter section and auxiliary electric heat. Evaporator fan shall be direct drive suitable for the installed field conditions and capacity. Provide backwater valve in condensate drain line.

D. Ductless split air-condensing unit shall be Mitsubishi, Carrier, or Sanyo.

2.2 EXHAUST FANS - CENTRIFUGAL ROOF MOUNTED UPBLAST – DIRECT DRIVE

- A. Provide roof exhaust fans in accordance with the schedule on the Plans and the specifications below.
- B. Housing to be constructed of heavy gauge aluminum including exterior housing, curb cap, windband, and motor compartment housing. Galvanized material is not acceptable. Housing shall have rigid internal support structure. Windband to be one piece spun aluminum construction and maintain original material thickness throughout the housing and include an integral rolled bead for strength. Curb cap base to be fully welded to windband to ensure leak proof construction. Tack welding, bolting, and caulking are not acceptable. Curb cap to have integral deep spun inlet venture and pre-punched mounting holes to ensure correct attachment to curb. Drive frame assemblies shall be constructed of heavy gauge steel mounted on double studded true vibration isolators sized to match the weight of each fan to ensure no metal-to-metal contact. Breather tube shall be 10 square inches in size for fresh air motor cooling and designed to allow wiring to run through it. Provide a drain trough to allow for one-point drainage of water, grease, and other residues.
- C. Fan wheel to be constructed of aluminum and to be non-overloading, backward inclined type that has been statically and dynamically balanced. The wheel cone and fan inlet shall be matched to provide maximum operating efficiency.
- D. Motor enclosure to be open drip-proof type. Motor to be a DC electronic communication type motor (ECM) specifically designed for fan applications. AC induction type motors are not acceptable. Motor to be permanently lubricated heavy duty ball bearing type to match with the fan load and pre-wired to the scheduled voltage and phase. Internal motor circuitry to convert AC power supplied to the fan to DC power to operate the motor. Motor shall be speed controllable down to 20% of full speed. Speed shall be controlled by either a potentiometer dial mounted at the motor or by a 0-10 VCD signal. Motor shall be a minimum of 85% efficient at all speeds.
- E. Disconnect means for single phase motors shall consist of motor starting switch inside of fan housing. Single phase motors smaller than 1/12 horsepower should provide inherent thermal overload protection and be provide with cord-and-plug for disconnect means. Three-phase motors shall be provided with three-pole disconnect switches, resilient mounted in the fan housing.
- F. Roof curb shall be as specified in Section 200000.
- G. Provide galvanized steel bird screen to protect fan discharge.
- H. Provide gravity damper to prevent outside air from entering back into the building when fan is off. Damper shall consist of galvanized frames with pre-punched mounting holes balanced for minimal resistance to flow.
- I. Exhaust fans shall be Greenheck, Cook, or Penn.

2.3 BASEBOARD HEATERS (HYDRONIC)

- A. Provide baseboard heaters as indicated on the Plans.
- B. Heating elements shall have integral fin collars which space the fins to provide fin-to-tube surface firmly bonded by mechanical expansion of the tube. Elements shall be

- constructed of seamless copper tubing mechanically expanded into aluminum fins.
- C. Enclosures shall be constructed of 16-gauge steel and shall mount into a continuous roll-formed captive channel mounting strip fastening onto rigidized 14-gauge steel enclosure brackets. Front panels shall be individually removable to facility cleaning, servicing, or replacement. Accessories shall fasten to the enclosure assembly in a manner which prevents contact with the back wall during installation.
 - D. End panels, inside and outside corners and enclosure extensions shall be die-formed and shall lock to enclosure assembly without visible fasteners. Access panels shall be installed where valves, balancing cocks, or traps are indicated on the plans.
 - E. Cabinet air outlets shall be a bar type extruded aluminum grille.
 - F. Enclosures, mounting strips and accessories shall be cleaned, phosphatized, and painted with one coat of prime, and a backed enamel finish. Finish color to be selected by Engineer.
 - G. Hydronic baseboard heaters shall be manufactured by Trane, or similar of Sterling, or Runtal.

2.4 BASEBOARD HEATERS (ELECTRIC)

- A. Baseboard heaters shall be complete with 20-gauge steel enclosure, finned grid or sheath type heating element with nichrome embedded wire, remote thermostat, and automatic thermal cutout. Capacities shall be as listed on the Plans.
- B. Heaters shall be Berko, Q-Mark, or Markel.

2.5 AIR DEVICES

- A. Provide air devices to complete the heating, air conditioning and ventilating systems. Air devices in ceiling shall have flat white lacquered finish unless noted otherwise. Coordinate the appropriate border and mount for the specific application.
- B. Air devices shall be as manufactured by Titus, Tuttle & Bailey, Price, Anemostat, Krueger, or Metalaire.
- C. Air devices used for relief shall have backdraft dampers installed behind the air device or in the ductwork connected to the device. Damper shall be gravity operated with extruded aluminum frame and blades, metal axles turning in synthetic bearings and have extruded vinyl, polyurethane sponge or neoprene blade seals. Backdraft damper shall be Greenheck model EM, or similar of American Warming and Ventilating, or Ruskin.
- D. Square ceiling diffusers shall be of the sizes and mounting types shown on the plans and outlet schedule. The diffuser shall have three (3) cones, which give a uniform face size and appearance when different neck sizes are used in the same area. All cones shall be one piece precision die-stamped; the back cone shall also include an integrally drawn inlet. The two (2) inner cones shall be constructed as a single, removable inner cone assembly for easy installation and cleaning. The inner cone assembly shall have a hole with removable plug in the center to allow quick adjustment of an inlet damper without removing the inner cone assembly. Diffusers shall be constructed of 24-gauge steel. The finish shall be #26 white. The finish shall be an anodic acrylic paint, baked at 315°F for 30 minutes. Round damper shall be constructed of heavy gauge steel. Damper must be operable from the face of the diffuser.

1. Titus TMS
- E. Supply air diffusers in the ceiling shall be steel perforated face with adjustable pattern control core baffles above face of diffuser to provide air distribution pattern noted on the Plans. Face shall be removable from the plenum section. Provide with square or round neck duct connection as noted, fitted with opposed blade damper.
 1. Titus PMC
- F. Ceiling return/exhaust registers shall be horizontal fixed bar set at 35 degrees or fixed curved bar with opposed blade damper. Register shall be aluminum construction with white finish. Omit damper where indicated as grilles.
 1. Titus 350FL

2.6 DUCTWORK

- A. Provide ductwork and plenums of the sizes shown on the Plans and the materials, gauges and construction as listed below.
- B. Ductwork shall not be fabricated or installed until clearances and dimensions have been verified in the field. Discrepancies between the duct sizes and configurations shown on the Contract Documents and those required to meet field conditions shall be brought to the attention of the Engineer for his direction. Ductwork fabricated or installed prior to field verification that the ductwork will fit is done at the Contractor's risk and expense.
- C. For details of duct construction not specified below refer to the latest editions of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Manuals. Duct systems shall be defined as follows with the applicable manual.
 1. All systems "HVAC Duct Construction Standards" metal and flexible.
- D. Ductwork shall be galvanized steel except as specified hereinafter of sizes indicated with sheets shaped and constructed as noted in the SMACNA Manual.
- E. Flexible ductwork shall consist of a coated spring steel wire helix, polymeric liner, fiberglass insulation and fiberglass reinforced metallized film vapor barrier. Flexible ductwork shall be listed by Underwriters Laboratories under UL 181 standards as Class I flexible Air Duct Material and shall comply with NFPA Standards 90A and 90B. Flexible duct shall be rated for two inches positive and negative pressure and 2500 fpm maximum velocity. Flexible ducts shall be Thermoflex M-KE, Wiremold or General.
- F. Where ducts are noted to be acoustically lined, they shall be lined with one half inch thickness of coated and edge sealed lining system. Liner and insulation shall meet requirements of UL 181 and NFPA 90A/B. Liner shall meet bacteriological standards of ASTM C 1071. Seams and cut edges shall be sealed from airstream using metal brackets. Use of adhesive-backed tape is unacceptable. Insulation shall be 3 lb/cubic foot density with a minimum R-Value of 2.0. Duct sizes shown on Plans are the interior sizes of insulated duct. As a minimum, supply and return ducts from heating, ventilating and air conditioning units for a distance of fifteen feet from the units shall be acoustically lined. Duct lining shall be Owens Corning QuietR Duct Liner or equal of Johns Manville, Certain Teed or Knauf.
- G. Ductwork shall be galvanized steel except as specified hereinafter of sizes indicated with sheets shaped and constructed as noted in the SMACNA Manual and of the pressure classification required to meet the pressures listed in the equipment schedules.
- H. Duct connections to air handling units and elsewhere as required to compensate for expansion and contraction and noise reduction shall be made with UL approved glass

fabric such as Ventglas as manufactured by Vent Fabrics, Inc.

- I. On low pressure systems duct details shall be as follows:
 - 1. Square elbows Figure 4-2
 - 2. Hangers Figure 5-1
 - 3. Tee connections Figure 3-6
 - 4. Register on trunk Figure 7-6
 - 5. Volume dampers Figures 7-4 and 7-5
- J. Provide manual volume dampers as shown on the Plans and additionally as required to properly balance the air distribution systems as directed by the independent Test and Balance Agency.

2.7 VALVES

- A. Provide valves at branch connections to mainline pipelines and at each piece of equipment, arranged so service may be shut off and the equipment removed without disturbing the piping or draining the whole system. Valves at equipment shall be size of line serving the equipment. Install valves in accessible locations.
- B. Where valves are over seven (7) feet from floor and will require frequent operation, provide chain wheel, guide and hood or gear operator and chain to permit operation of valve from the floor.
- C. Service valves shall be in accordance with following schedule:

	<u>Nibco</u>	<u>Crane</u>	<u>Jenkins</u>	<u>Stockham</u>
Gate – 2" and smaller	T-111	428	47	B-100
Gate – 2½" and larger	F-617-0	465-1/2	651A	G-623
Globe - 2" and smaller	T-211-Y	1	746	B-13T
Globe – 2½" and larger	F-718-B	351	613	G-512
Check – 2" and smaller	T-413-Y	34-1/2	92A	B-319

Check - 2½" and larger F-918-B 373 624 G-931

D. Valves on piping 2-1/2 inch and larger shall be flanged. Valves on copper piping shall have solder ends.

Valves on piping 2-1/2 inch and larger shall be flanged. Valves on copper piping shall have solder ends.

- E. In lieu of bronze gate valves, bronze ball valves may be used. Valves shall be "Full Port"; NIBCO Figure No. T-585 (1/2 inch to 1 inch) or NIBCO T-595 (1-1/4 inches to 2 inches). Jenkins 900T, Consolidated or Apollo 70-100.
- F. Circuit Setter Plus Calibrated Balance valves by Bell and Gossett models RF, MC, CB, shall be used for balancing and shut off valves. Adjustable stop and tapping on the downstream side for pressure gauge connections shall be provided with balancing services.
- G. Ball valves may also be used for balancing service, where line velocity does not exceed 10 feet per second. Ball valves must include memory stop; NIBCO Figure No. T-580-M, as shown on the Plans.

PART 3 - EXECUTION

3.1 PIPING

- A. Heating system hot water supply and return piping shall be provided as indicated below unless otherwise noted.
 - 1. Piping -black steel, schedule 40
 - 2. Fittings
 - a. 2-1/2 inches and larger, black steel welded
 - b. 2 inches and smaller, black cast iron banded
 - 3. Unions
 - a. 2-1/2 inches and larger, 150-pound slip on forged steel welding flanges with bolts, nuts and gasket
 - b. 2 inches and smaller, black malleable iron, ground joint
 - 4. Joints
 - a. 2-1/2 inches and larger, welded
 - b. 2 inches and smaller, threaded
- B. Piping two (2) inches and smaller may, at the Contractor's option, be type "L" hard drawn copper tubing ASTM B.88 made up with wrought copper sweat fittings ANSI A40.3 using 95-5 tin antimony solder.

3.2 PIPING ACCESSORIES

- A. Provide piping accessories including thermometers, pressure gauges, specialty items, etc., as specified below and/or indicated on the Plans.
- B. Strainers shall be Walworth 3699-1/2, Sarco SB; bronze, smaller than 2-1/2 inches. Bailey 125-pound No. 100, Zurn 125-pound No. 540 FBS, or Crane No. 989-1/2, cast iron 2-1/2 inches and larger. Provide with small mesh basket during testing and cleaning period. Replace basket prior to air and water balance.
- C. Unions shall be installed where required or detailed to permit removal of equipment, control valves, etc., from the piping systems without dismantling the system. Unions shall be malleable iron brass to iron seat, ground joint, same materials as pipe, Crane, Walworth or Jenkins. Provide di-electric fittings where pipe sections and fittings of dissimilar materials are joined.
- D. Flexible connections of reinforced rubber or teflon construction shall be provided in suction lines and discharge line to pumps and chillers. Connections shall be arranged to correct minor misalignment, to facilitate disconnecting the piping and to reduce vibration transmission. Flexible connections shall be Resistoflex Corporation, complete with limit bolts and grommets, Mercer or Mason.
- E. Combination temperature and pressure tappings shall be 1/4-inch fitting to receive either a temperature or pressure probe, 1/8-inch OD. Fitting shall be solid brass with two neoprene valve cores. Provide two pressure gauge adapters with 1/8-inch probe and two five-inch stem pocket testing thermometers with 0-to-220-degree range. Fitting shall be Pete's plug. At Contractor's option, where thermometer well, pressure gauge tapping and/or flow indicator is required adjacent to a balancing valve, a combination device such as Autoflow FV series or flowset HB/U+ may be substituted.
- F. Thermometers shall be 5-inch dial bi-metal with stainless steel case set into separable wells in the piping system. Range for hot water shall be 20-240. Thermometers to be Weksler Economy bottom side or rear mounted to be easily visible from the floor.
- G. Water pressure gauges shall be Weksler type P, phenol case 4-1/2-inch range P.S.I.G. dial, with bourdon tube, recalibrating type, black case. Gauges shall be installed on 1/2-inch pipe with gate valve in connection. Equivalent products of Weiss, Manning-Maxwell and Moore "Ashcroft", Trerice or Marsh will be acceptable.
- H. Flow indicators of venturi type or orifice plate type shall be installed where noted on the Plans. Provide two (2) reading devices and the necessary conversion charts. Indicators shall be as manufactured by Taco, Bell & Gossett, or Sarco.
- I. Provide automatic air vents at the high points of the piping systems in the mechanical room. Vents shall be piped to the nearest floor drain. Vents to be Fisher, Illinois, or Taco. At the other locations where piping turns down in the direction of flow and at terminal devices, install key operated needle valve air vents.
- J. Flow switches shall be McDonnell-Miller FS4, suitable for the diameter of the pipe.
- K. Valves and fittings at base mounted pumps may at the Contractor's option, be combined into a suction diffuser on inlet and combination balancing shut-off check valve on discharge, fittings shall be Taco or Bell & Gossett.
- L. At the Contractor's option, at equipment such as unit ventilators, unit heaters, heating coils, etc., Autoflow series SV valves or Flowset HB/YS/U+ may be used in lieu of combination shut-off valve, strainer, and temperature-pressure test port on the supply pipe. On the return pipe Autoflow series FV valves or flowset HB/vt may be used in lieu of combination flow control, shut-off and temperature-pressure test port. Valves shall be installed in unit cabinets.

3.3 INSULATION

A. After the systems have been installed and tested, insulation as specified below shall be applied. Materials shall be Underwriters Laboratory, Inc., approved and shall be applied as recommended by the manufacturer's written instructions. Materials used shall be the products of Owens Corning, Manville, Knauff Corporation, Armstrong, Certainteed, Miracle Adhesive, Monoco or Benjamin Foster and shall be similar to those products that meet the specifications below.

B. Ductwork

1. Concealed supply air duct, return air duct, outside air duct, and exhaust duct within apartment units shall be covered with minimum 2-inch thickness of 3/4 PCF density, a minimum R-Value of 6.0 for attic/concealed spaces and R 8.0 for exterior use flexible fiberglass duct covering with reinforced foil and kraft paper vapor barrier FRK jacket. Insulation shall be applied to duct over 100 percent coverage of duct adhesive such as Benjamin Foster 85-20. Edges shall be butted together with a vapor barrier lap of 2 inch minimum. Seal joint and punctures with Benjamin Foster 30-35. Where ducts are over twenty-four (24) inches in width, weld pins and caps shall be used to secure insulation to underside of duct. Secure laps with adhesive and flared staples on 4-inch center.
2. Ductwork that is internally lined with energy code compliant liner is required to be insulated externally as indicated herein.

C. Piping

1. Hot water heating piping shall be covered with long strand glass fiber insulation with all service vapor barrier jacket with self-sealing pressure sensitive lap, Manville AP-T, of a thickness to be compliant with the applicable energy code requirements. For piping up to 1-1/4 inches in size, the minimum thickness shall be 1-1/2 inches. For piping 1-1/2 inches in size and larger, the minimum thickness shall be two (2) inches. Fittings shall be covered with 300 precut PVC fitting covers with fiberglass insulation insert. Cover shall be sealed to adjacent insulation with vapor retarder mastic and then covered with pressure
2. Refrigeration suction piping and condensate drain piping above the ground shall be covered with 3/4-inch thickness of 6 PCF polyethylene foamed closed cell elastomeric pipe covering conforming to Mil Spec 15280, Armstrong Armaflex. Fittings shall be neatly mitered or continuous with piping. Covering on exterior of building shall be finished with two (2) coats of Armaflex or other latex base finish to blend with adjacent finishes.
3. On exposed insulated piping in finished areas within seven feet of the floor, provide 0.010-inch-thick galvanized steel insulation jackets. This does not include piping exposed in unfinished areas such as boiler rooms, storage rooms, etc.
4. At pipe hangers for piping carrying fluids with temperatures below 70 degrees, provide rigid core of insulation to support the pipe. Rigid insulation shall be the same thickness as the adjacent insulation and shall have the same flame spread and smoke developed ratings.

3.4 TESTING AND BALANCING AIR & WATER SYSTEMS

- A. The air distribution system shall be balanced and adjusted to distribute the air quantities as noted on the Plans. Demonstrate to the Engineer's satisfaction knowledgeability in this work and familiarity with the test instruments to be used. If the Engineer does not approve of the Contractor's qualifications, the Contractor shall engage the services of an independent test organization specializing in this work and is a member of the Associated Air Balance Council or other nationally recognized air balancing organization.
- B. Test equipment must be approved by the Engineer and properly calibrated prior to starting work. Repairs, alterations, adjustments, and readjustments necessary to meet the design conditions shall be made.
- C. The balancing agency shall review the Plans before installation and advise the Contractor of additional dampers required in the ductwork, flow devices and balancing valves in the water piping, etc., to effectively and properly balance the systems. These devices shall be installed at no additional cost to the DRBA.
- D. At the completion of the balancing and adjusting and prior to the operating test, submit to the Engineer three (3) certified typewritten reports to be retained by the Engineer. Reports shall include:
 - 1. Velocities and air quantities at supply returns and exhaust outlets installed under this contract.
 - 2. Pressure and/or temperature difference across various pieces of equipment.
 - 3. Air temperature delivered from heating and cooling equipment.
 - 4. Water quantities at flow indicators.
 - 5. Schedule of equipment.
 - 6. Speed of belt driven equipment.
 - 7. Nameplate data on motors installed under this contract.
 - 8. Actual operating voltage and ampacity readings on motors.
 - 9. Separate six-hour operating tests shall be made during the cooling season and during the heating season in which an hourly record shall be made of the following:
 - a. Settings of control equipment.
 - b. Outside weather conditions.
 - c. Thermostat readings.
 - d. Dry and wet bulb temperatures in spaces.
 - e. Outside temperatures shall be below 40 degrees Fahrenheit during the heating test and above 85 degrees Fahrenheit during the cooling test.
- E. The outside air quantity for the variable volume air handling units shall be balanced in the following manner:
 - 1. With the air handling unit operating at maximum air quantity the outside air damper shall be adjusted to the minimum outside air percentage as noted on the Plans. The return air damper shall be adjusted to allow the corresponding return air quantity.
 - 2. With the air handling unit operating at maximum turn down, the outside air damper shall be adjusted to allow the same quantity of outside air (in cubic feet per minute) as allowed in Step 1 above. The return air damper shall be

adjusted to allow the corresponding return air quantity.

3. The outside and return air dampers shall modulate between the two points described above.

3.5 AUTOMATIC TEMPERATURE CONTROLS

- A. Provide labor, materials, equipment, services, etc., to install a system of automatic temperature controls to perform the functions noted on the Plans. Coordinate with unit supplied controls.
- B. System shall be DDC and shall be installed under the supervision of the manufacturer's authorized representative.
- C. Power source for the system shall be taken from 120-volt sources. Provide motors, starters, overload protection, control power transformers and related wiring devices, etc., in accordance with the applicable requirements of the Sections under Division 26 as appropriate for the voltage used. Interlock wiring to fans, pumps, motors, dampers, valves, etc., shall be provided as part of this work.
- D. Automatic dampers shall be furnished by the temperature control manufacturer but shall be installed by the trade normally installing such item, under the supervision of the control manufacturer.
- E. The temperature control system, as hereinafter specified and designated on the Plans and plans, shall be guaranteed free of original defects in material and workmanship for a period of two years. After completion of the installation, thermostats, control valves, control motors, dampers, etc., shall be regulated and adjusted to perform the proper function.
- F. Prepare a schematic drawing of the temperature control system and submit them to the Engineer for his or her review prior to starting work.
- G. Upon completion of the work, revise the diagrammatic layouts to record conditions and mount the revised layouts in clear plastic envelopes where directed.
- H. Control devices shall be identified by embossed nameplates to identify control devices as shown on control diagram.
- I. Dampers shall be Arrow Foil double seal dampers with a maximum 0.5 percent leakage or Honeywell D642 or D643 Type.

3.6 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.7 BASIS OF PAYMENT

- A. Payment for all materials provided and work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 20 - GENERAL MECHANICAL/PLUMBING will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 230000

END OF DIVISION 20: GENERAL MECHANICAL/PLUMBING

DIVISION 26: GENERAL ELECTRICAL
SECTION/DESCRIPTION
260000 General Electrical Requirements
260500 Electrical Materials and Methods
265000 Lighting

SECTION 260000
GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Plan and general provisions of the Contract, including General and Supplementary Conditions as specified in the Advertisement for Bids.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for work under all Sections of Division 26.
- B. Coordinate the work of this Section with the requirements of the Project.

1.3 DEFINITIONS

- A. Following are definitions of terms and expressions used in the Electrical Sections in addition to definitions found in the Contract Conditions of the CSI MasterFormat:
 - 1. "Wiring" includes wire, fittings, conduit, boxes, and other accessories that comprise a system.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements
 - 1. Work shall conform to the requirements of the codes, laws and ordinances, National Fire Protection Association, National Electrical Code (NEC), National Electrical Manufacturer's Association (NEMA) and other authorities having jurisdiction.
 - 2. The requirements of the authorities having jurisdiction shall take precedence over the Plans and Specifications and changes required by the authorities shall be made after review by the Engineer.

1.5 SUBMITTALS

- A. Product data and Shop Drawings are required for the following:
 - 1. Panelboards
 - 2. Safety Disconnect Switches
 - 3. Wiring Devices
 - 4. Circuit Breakers
 - 5. Lighting fixtures
- B. Review of Shop Drawings does not relieve the Contractor of responsibility for complying with the Contract Documents.
- C. Material substitutions must be specifically called out in writing on the submittal.

1.6 PROTECTION

- A. Protect material and equipment from damage.
- B. Cap or plug openings in equipment and conduits with proper caps and plugs.

1.7 VARIANCES

- A. Where conflicts exist within the contract documents, request clarification prior to the submission of a bid. If clarification is not requested, provide the work representing the higher cost and quality.

1.8 WARRANTY

- A. During the warranty period, make the proper adjustments of systems, equipment and devices installed and perform work necessary to ensure the efficient and proper functioning of the systems, equipment, and devices.
- B. Certain items of equipment shall be warranted for a longer time than the general warranty period. Provide for service or replacement required in connection with the warranty of these items.

PART 2 - PRODUCTS

2.1 PRODUCTS TO BE USED

- A. Items specified by designations such as trade name, manufacturer's name, and catalog number indicate the capacity and quality of the products or materials to be used on this project.
- B. Only products indicated on Contract Documents by name, series and/or model number have been coordinated with other trades. Coordinate items of other manufacturers with other trades, and make any necessary modifications required by use of the alternate product.

2.2 MATERIALS AND WORKMANSHIP

- A. Items shown and not specifically called for, or items specified and not specifically indicated or detailed on the Plans, or items neither specified nor shown, but which are reasonably incidental to and commonly required to make a complete job, shall be provided.

2.3 EQUIPMENT SUPPORTS

- A. Provide supports as necessary for satisfactory installation and operation of equipment. Furnish and set anchor bolts.

2.4 HANGERS AND CONDUIT SUPPORTS

- A. Provide conduit hangers and supports to maintain required alignment for equipment and conduits.

- B. Conduits may not be supported from other conduits. Trapeze hangers may be used for parallel runs of conduit.
- C. Provide supports for equipment and materials under these Specifications. Supports shall be structural steel shapes (angles, channels) of Kindorf or Unistrut. Minimum rod size shall be 3/8 inch.
- D. For wood joist construction, hanger rods shall be supported from wood joists with hangers bolted through or attached with lag crews to the joists.
- E. For steel bar joist construction, hanger rods shall be supported from the top chord of the joists or from panel points of the lower chord of the joists. Where conduit runs parallel to joists or where hangers are required at other than joist locations, provide steel angles welded to joists to support hangers so that weight is supported from the top chord of the joists.
- F. For poured in place concrete construction, support hanger rods by drilled steel drop-in anchors, wedge anchor or expansion anchor. Zamac type nail in, spike or powder actuated type anchors shall not be used without written approval and permission from building's structural engineer.
- G. For existing concrete plank construction or where the concrete topping is less than two (2) inches thick, hangers shall be bolted into planks using toggle bolts. Where these toggle bolts are used, hanger rods shall carry no more than 200 pounds per hanger. The hanger spacing shall be reduced as required to meet this requirement.
- H. Expansion bolts or wood plugs will not be permitted in slag block walls. Equipment hung on such walls shall be supported by through bolts or approved anchor bolts set into masonry as the wall is laid up.

2.5 OPENINGS

- A. Determine the location and size of openings necessary for the proper installation of the work and provide them during the erection of the work in which such openings occur.
- B. In case cutting of building construction is necessary, such cutting shall be done and repaired to match original condition of the work. Do not cut structural members.
- C. Where non-combustible conduits pass through sleeves or openings in fire rated wall, floor-ceiling and ceiling-roof assemblies, seal openings with a UL classified firestop method. Firestop method shall be a one part, intumescent (expands with heat), latex elastomer capable of expanding a minimum of three times. Firestop materials shall be UL listed when tested in accordance with ASTM E814 for a two-hour fire (F) and temperature (T) rating.

2.6 ACCESS PANELS

- A. In general, boxes, devices and equipment shall be accessible through the removable panels in the ceiling. Where ceilings are not removable and in walls where access is required for service, access panels shall be provided. Access panels shall be appropriate for the finish in which they are installed, with a fire rating to match the wall or ceiling in which they are installed. Refer to other specification section covering access panels.
- B. Coordinate with the Sections within Division 20 and Division 26 to group boxes, devices, and equipment together to keep the required number of access panels to a minimum.

2.7 IDENTIFICATION

- A. Equipment shall be identified with self-adhesive printed and laminated labels. Letters shall be at least 3/8 inch high and larger in proportion to the size of the piece of equipment. Outdoor labels shall be UV and water resistant. Lettering shall include equipment name, voltage, source panel and circuit number where it is being fed from. Labels shall be provided for the following equipment.
 - 1. Disconnects
 - 2. Devices
 - 3. Panelboards
- B. Junction boxes and pull boxes, except those located at the fixture or equipment to which system is connected, shall be identified with permanent marker in large legible lettering to indicate system and circuiting on which installed. In exposed areas mark the inside of the cover.
- C. Panels shall be provided with a typed directory listing load served and associated circuit numbers.

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS

- A. Visit the site and become familiar with existing conditions. Modifications to work required to allow for existing conditions shall be provided. Submit proposed modifications to the Engineer for approval prior to installation.
- B. Where electrical systems pass through the renovated areas to serve other portions of the premises, they shall be suitably relocated, and the systems restored to normal operation. Any outages in systems shall be coordinated with the DRBA. Where duration of proposed outages cannot be tolerated by the DRBA, provide temporary connection as required to maintain service.
- C. Coordinate any power interruptions with the DRBA. Provide temporary connections to maintain operation of existing systems.
- D. Relocate existing hangers and supports where necessary to install new work. Maximum spacing requirements shall apply for relocated supports.
- E. Where new devices are added to existing walls and ceilings, new wiring shall be concealed by chasing existing walls as required. Devices shall be installed flush.
- F. Where new finishes or treatments are added to existing walls and ceilings by the Engineer, provide necessary outlet box extensions, plaster rings, etc., so that devices are installed in the same manner as existing, i.e., flush, concealed, surface, etc.

3.2 DEMOLITION

- A. Equipment removed that is salvageable and desired by the DRBA to be retained, shall be stored on the site where directed by the DRBA. Otherwise, other materials and equipment which are removed shall become the property of the Contractor and shall be removed by him from the premises.
- B. In each area to be renovated, remove the entire existing electrical installation except those portions indicated to be reused. When existing electrical work is removed, remove conduit, ducts, supports, etc. to a point below the finished floors or behind

finished walls and cap. Such points shall be far enough behind finished surfaces to allow for the installation of the normal thickness of finished material. Unused wiring and cable shall be removed back to source.

3.3 MANNER OF INSTALLATION

- A. The Plans showing the layout of the electrical systems indicate the approximate location of outlets and equipment. The runs of feeders and branch circuits as shown on the Plans are schematic only and are not intended to show the routing and location of conduits. The final determination of routing and location shall be governed by structural conditions, obstructions and connection locations on equipment. Detailed drawings showing major deviations shall be submitted to the Engineer for acceptance before such changes are made.
- B. The Engineer reserves the right to a reasonable amount of shifting of outlet locations at no additional cost to the DRBA until the time of roughing-in the work.

3.4 RECORD DRAWINGS

- A. Keep at the site one (1) set of black and white prints for the express purpose of showing changes from the Plans made during construction. Mark up the prints with red pencil during construction and deliver the prints, before final inspection, to the Engineer as a final set of "Record Drawings". Refer to Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction for additional requirements.

3.5 TESTING

- A. Provide labor, instruments and equipment required for the tests. Make necessary changes to the systems as required to produce the specified results. Retest to the Engineer's satisfaction.
- B. Tests shall be conducted before equipment is connected that would be subject to damage from the test.
- C. Notify the Engineer of the date and time of the test at least three days prior to that date.
- D. The tests shall demonstrate to the satisfaction of the Engineer the following:
 - 1. That circuits are continuous and free from short circuits.
 - 2. That circuits are properly connected.
 - 3. That equipment is fully functional.

3.6 PAINTING

- A. Remove rust, scale, grease, and dirt from equipment and material and leave ready for finish painting. Equipment specified with factory baked enamel finish shall be touched up as required to provide a surface visually free of scratches, nicks and blemishes.

3.7 OPERATING AND MAINTENANCE MANUAL

- A. Submit operating and maintenance instructions. Unless covered in another specification section, provide a minimum of four copies in three-ring binders and one CD. The manual shall include the following:
1. A brief description of systems and their various components.
 2. Full, definite and explicit instructions for starting, stopping, and controlling systems.
 3. List of manufacturer's representatives with address and telephone numbers.
 4. Manufacturer's printed operating and maintenance instructions, parts lists, illustrations and diagrams for pieces of equipment.
 5. A complete schedule of periodic servicing and lubrication requirements for equipment.
 6. One (1) copy of each Shop Drawing, Engineer's Shop Drawing review comments, and Contractor's drawings.
 7. One (1) copy of other items of equipment where not required as a Shop Drawing submittal.
 8. One (1) copy of each wiring diagram.
 9. Manufacturer's data report from UL certifying code compliance for equipment specified.
 10. Certificate of approval from the code authority.

3.8 GROUNDING

- A. Grounds and connections shall be provided in accordance with the latest provisions of the National Electrical Code, and as indicated on the Plans and specified.
- B. Unless otherwise noted, ground conductors shall be of copper, sized as required by the National Electrical Code. Ground lugs and clamps shall be cast non-ferrous metal, bolt-on type.
- C. The required equipment grounding conductors and straps shall be sized in compliance with National Electrical Code. Equipment grounding conductors shall be provided with green insulation equivalent to the insulation on the associated phase conductors. The related feeder and the branch circuit grounding conductors shall be connected to the grounding bus with approved pressure connectors.
- D. Provide a separate green insulated equipment grounding conductor for each feeder and branch circuit. The required grounding conductor shall be installed in the common raceway with the related phase and/or neutral conductors. Flexible metallic conduit equipment connections utilized in conjunction with the above shall be provided with suitable green insulated grounding conductors connected to approved grounding terminals at ends of the flexible conduit.

3.9 MOUNTING HEIGHTS

- A. Mounting heights indicated on the Plans provide a general location of the outlets for bidding purposes only. Where mounting height information is not given, or contradicting information is given, request the information from the Engineer. Field coordinate final location of outlets.

3.10 METHOD OF MEASUREMENT

A. Work performed under this section will not be measured separately.

3.11 BASIS OF PAYMENT.

A. Payment for all work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 26: GENERAL ELECTRICAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 26: GENERAL ELECTRICAL will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

END OF SECTION 260000

SECTION 260500
ELECTRICAL METHODS AND MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

- A. Plan and general provisions of the Contract, including General and Supplementary Conditions and DRBA Standard Specifications.

1.2 SUMMARY

- A. The Work under this Section of the Specification includes the furnishing of labor, materials and equipment for the installation of a complete electrical system as shown and as specified herein.
- B. Coordinate the work of this Section with the requirements of the Project.

PART 2 - PRODUCTS

2.1 PANELBOARDS

- A. Provide panelboards constructed in accordance with NEMA Standard PB1 and which bear the UL service entrance label.
- B. Provide panelboard enclosures as follows:
 - 1. General interior – NEMA 1 enclosure.
 - 2. Mounting – as indicated in panel schedules.
- C. Indicate circuit number on or adjacent to circuit breakers and provide a typed circuit directory on the inside of panelboard doors which clearly describes the loads served by breakers. Also provide the following information on the directory:
 - 1. Panel designation.
 - 2. Voltage, Phase and Amps.
 - 3. AIC rating.
 - 4. Feeder and conduit size.
 - 5. Feeder source and overcurrent protection size.
- D. Provide panelboards with copper bus.
- E. Provide panelboard assemblies with sufficient ampere interrupting capacity for available fault current. Provide fully rated panelboard assemblies. Series rating is not permitted.
- F. Provide bolt-on thermal-magnetic circuit breakers.
- G. Provide common trip type two or three-pole breakers. Single pole units with a handle tie are not acceptable. Provide multi-pole breakers for all multiwire branch circuits.
- H. Provide circuit breaker type power and distribution panelboards with thermal-magnetic circuit breakers. Breakers feeding HVAC loads shall be HACR rated. When circuit breakers are used in combination with motor starters with overload relay for the protection of motors, provide motor circuit protector (MCP) type breakers with adjustable instantaneous trip which is adjustable and accessible from the front of the circuit breaker.

- I. Circuit numbers indicated on branch wiring on the plans are to indicate grouping of loads on circuits and do not necessarily indicate actual circuit numbers in panelboard. Arrange circuits such that loads are balanced as closely as practical over the phases and that a branch circuit neutral conductor does not serve as a shared neutral for two or more single phase circuits connected to the same phase in the panelboard.
- J. Panelboards shall be Square D, Siemens, or Cutler Hammer.

2.2 SAFETY SWITCHES

- A. General:
 - i. Heavy-duty type.
 - ii. Cover interlock to prevent operation with cover open.
 - iii. Visible blade.
 - iv. Externally operated with current carrying parts silver or tin plated.
 - v. Provisions for two or more external padlocks.
 - vi. Capable of accepting copper or aluminum cables.
- B. Enclosure:
 - i. NEMA 1 for general interior work.
 - ii. NEMA 3R for exterior work and damp locations.
- C. Safety switches shall be by Square D, Siemens, or Cutler-Hammer.

2.3 WIRING DEVICES

- A. Wiring Devices shall be by Hubbell, Pass & Seymour, or Leviton.
- B. Light Switches:
 - 1. Toggle type.
 - 2. Back and side wired.
 - 3. Commercial Specification Grade.
 - 4. 20 amperes.
 - 5. 120-277 volts.
- C. Receptacles:
 - 1. Commercial grade, duplex, 20-ampere.
 - 2. Ground fault circuit interrupter.
 - 3. Color of receptacles shall be selected by DRBA.
- D. Wiring Device Cover Plates:
 - 1. Indoor use:
 - i. Stainless steel.
 - 2. Exterior use or in damp or wet locations:
 - i. Weatherproof covers shall be diecast aluminum.
 - ii. U.L. Listed & suitable for wet locations while in use (plug inserted at all times).

2.4 DIMMER SWITCHES

- A. Dimmer switches shall be by Lutron, Hubbell, Pass & Seymour, or Leviton.
- B. Linear slide type; the slider shall be the captured type.
- C. Dimmers shall meet U.L. 20 and U.L. 1472; limited short circuit test requirements for snap switches.

- D. Dimmers shall meet ANSI/IEEE Std.C62.41-1980; tested to withstand certain voltages and current surges without damage.
- E. Dimmers shall utilize an LC filtering network to minimize interference.
- F. Dimmers shall be U.L. listed for their intended use: LED, low-voltage and electronic low voltage.
- G. Dimmers shall be provided with power failure memory; when power is interrupted and returned, the lights shall come back to the same light level.
- H. At locations where multiple devices are necessary, multi-gang faceplates shall be provided.
- I. The Contractor shall be responsible for the coordination of the proper back box size and the faceplate type.
- J. Dimmer switches shall be listed for use with specific lighting fixtures being controlled.

2.5 OCCUPANCY SENSOR SWITCHES

- A. All switches shall utilize dual technology (passive infrared and ultrasonic).
- B. Wall-mount
 - 1. Wall switch sensors shall be rated for 120/277V operation, 1200VA fluorescent load minimum.
 - 2. Sensors shall be equipped with the following: manual override switch and control for on/off operation; adjustable timer settings; minimum on time to maximize lamp life and performance; optional ambient light sensing override.
 - 3. Basis-of-design product is Sensor Switch WSX PDT. Provide this product or approved equal by Leviton, Hubbell, or Watt Stopper.
- C. Ceiling-mount
 - 1. Ceiling sensors shall be rated for 120/277V operation, up to 2000 square feet coverage area, surface-mountable to suspended ceiling.
 - 2. Provide low voltage power packs as required. Each power pack shall be capable of accepting at least six sensors.
 - 3. Sensors shall be equipped with the following: adjustable timer settings; self-adjusting technology to minimize nuisance switching; low voltage auxiliary relay/contacts; optional ambient light sensing override.
 - 4. Basis-of-design product is Sensor Switch CM PDT 10. Provide this product or approved equal by Leviton, Hubbell, or Watt Stopper.

2.6 OCCUPANCY/VACANCY SENSOR SWITCHES

- A. Unless otherwise noted, all sensors for interior applications (excluding corridors, stairways, restrooms, primary building entrance areas, and lobbies) shall be wired as vacancy sensors (manual on, automatic off).
 - 1. Ceiling-mount sensors shall achieve manual-on via manual wall-mount toggle switch wired in series with (and downstream of) occupancy sensor power pack.
 - 2. Ceiling-mount sensors shall achieve manual-on via low-voltage wall station.
- B. All sensors shall utilize dual technology (infrared and ultrasonic).
- C. Wall-mount
 - 1. Wall switch sensors shall be rated for 120/277V operation, 1200VA fluorescent load minimum.

2. Sensors shall be factory set to manual-on operation.
 3. Sensors shall be equipped with the following: manual override switch and control for on/off operation; adjustable timer settings; minimum on time to maximize lamp life and performance; optional ambient light sensing override.
 4. Basis-of-design product is Sensor Switch WSX PDT SA. Provide this product or approved equal by Leviton, Hubbell or Watt Stopper.
- D. Ceiling-mount
1. Ceiling sensors shall be rated for 120/277V operation, up to 2000 square feet coverage area, surface-mountable to suspended ceiling.
 2. Provide low voltage power packs as required. Each power pack shall be capable of accepting at least six sensors.
 3. Sensors shall be equipped with the following: adjustable timer settings; self-adjusting technology to minimize nuisance switching; low voltage auxiliary relay/contacts; optional ambient light sensing override.
 4. Basis-of-design product is Sensor Switch CM PDT 10. Provide this product or approved equal by Leviton, Hubbell, or Watt Stopper.
- E. Low Voltage Wall Station
1. Low voltage wall stations shall be configured for manual on operation to comply with energy code requirements. Stations shall include soft-click buttons and LED indicator lights and shall be designed for use with low voltage ceiling sensors and related power packs.
 2. Provide 0-10V dimming control where indicated on Plans.
 3. Basis-of-design product is Sensor Switch sPODM series. Provide this product or approved equal by Leviton, Hubbell, or Watt Stopper.

2.7 BOXES AND FITTINGS

- A. Provide metal boxes manufactured by one of the following:
1. Steel City
 2. Raco
 3. Thomas & Betts
 4. Crouse-Hinds
 5. Walker
- B. Provide O-Z/Gedney type "FS" or "FD" cast aluminum device boxes, equipped with matching covers for boxes less than 50 cubic inches accommodating wiring devices installed:
1. Flush in exterior locations
 2. Exposed on walls of unfinished interior spaces
- C. Provide pull boxes, junction boxes and wire troughs indicated in the construction documents or required by field conditions or the National Electrical Code to facilitate wiring installation. Obtain approval prior to installing boxes in finished areas.
- D. Provide a four (4) inches square, 1-1/2 inches deep or larger box with appropriate raised covers or plaster rings for flush mounted switches and receptacles.
- E. In fire-rated assemblies, install boxes in a manner listed for such purpose.
- F. Mount flush boxes in or exposed on walls plumb. Install flush boxes such that the distance between the lip of the box and the wall is less than 1/8 inch. Mount receptacles vertically, unless noted otherwise.

G. Provide gasketed covers for boxes in exterior, damp, or wet locations.

2.8 CONDUCTORS

- A. Provide soft drawn, 98 percent conductivity, copper conductors with 600-volt insulation, and manufactured in accordance with the requirements of the National Electrical Code, the Board of Fire Underwriters, A.S.A., N.E.M.A. and I.C.E.A.
- B. Provide conductors with 90 °C “THHN-THWN” insulation.
- C. Sizes are AWG or kcmil. Minimum size for power and lighting circuits is #12. Minimum size for 120-volt control circuits is #14. Minimum insulation rating of conductors is 600 volts.
- D. Unless specifically noted otherwise on Plans, feeders and conduits are sized for copper.
- E. Aluminum wire is not permitted.
- F. Provide stranded wire for No. 8 and larger. Make conductors continuous from outlet with no splices made except within outlet or junction boxes.
- G. A color-coding system shall be as follows throughout the building's network of feeders and circuits and used as a basis of balancing the load. The color code shall be continuous from fixture to fixture or other outlets.

Color System	Phase A	Phase B	Phase C	Neutral
208/120V	Black	Red	Blue	White

G. Provide UL approved “Y-ER-Ease”, Buchanan, or Ideal pulling compound. Soap, grease or substances other than specified will not be permitted.

2.9 METAL CLAD CABLE

- A. Provide type “MC” cable with galvanized steel armor, “THHN/THWN” 90° C, 600 volts, insulated copper conductors and insulated green grounding conductor.
- B. Comply with Federal Specification A-A-59544 and bears the UL label.

2.10 RACEWAYS AND WIRING METHODS

- A. Rigid metal conduit (RMC)
 - 1. Provide threaded heavy-wall conduit and couplings which conform to Federal Specification WW-C-581, as amended, ANSI Standard C80.1 and bear the UL label.
 - 2. Provide type “A” insulating bushings manufactured by O-Z/Gedney.
- B. Electrical Metallic Tubing (EMT)
 - 1. Provide galvanized EMT which conforms to Federal Specification WW-C-563, as amended, ANSI Standard C80.3 and bears the UL label.
- C. EMT Couplings and box connectors:
 - 1. steel
 - 2. compression ring type
 - 3. with insulated throat

- 4. manufactured by: Thomas & Betts, Raco, and Steel City
- D. Flexible metal conduit
- E. Provide flexible metal conduit which conforms to Federal Specification, WW-C-566, as amended. The minimum size is 1". Provide Appleton liquid tight gasket assembly and "Sealtite" flexible conduit for flexible connections subject to weather, at liquid-tight equipment, and as noted.

PART 3 - EXECUTION

3.1 EQUIPMENT CONNECTIONS

- A. Conduit, outlets, wiring and other necessary fittings or accessories for power connections for heating equipment, fans and special furnishings shall be provided under this Section. Motor and equipment of different ratings shall be furnished and circuit components shall be adjusted accordingly.
- B. Make final connections to electrical equipment specified under this Section and other Sections of these Specifications.

3.2 MOTORS, EQUIPMENT, CONTROLS AND CONTROL WIRING

- A. Motors, air handling units, compressors, etc., and built-in control devices will be provided under other Sections unless noted otherwise.
- B. Provide control connections for devices and equipment.
- C. Provide power connections for equipment furnished under other Sections.
- D. The installation, connections and operation of controls not noted will be done under other Sections, including provisions for conduits, wiring, outlet boxes, control components and connections.
- E. Control wiring shall be in accordance with the Plans and/or manufacturer's certified and approved wiring diagrams.
- F. Control wires shall be marked with "E-Z" tape markers at terminal points. Terminal blocks shall be marked to correspond to wire terminated.
- G. Provide conduit and wires, install and connect control equipment (starters, push buttons, etc.) and connect motors, air handling units, air conditioning equipment, and built-in control devices, in accordance with wiring diagrams furnished under other Sections.

3.3 CONDUCTOR APPLICATIONS

- A. Utilize conduit and wire for circuits in exposed areas, feeders, and where other wiring methods are not specifically allowed by the National Electrical Code, the authority having jurisdiction, or elsewhere in these specifications.
- B. Utilize conduit and wire throughout.
- C. Wire and cable shall be delivered to the job site in full coils or reels, each bearing a tag containing the UL approval stamp, name of manufacturer, trade name, code, type of wire, and month and year manufactured.

3.4 RACEWAY, CABLE AND WIRING METHOD APPLICATIONS

A. Rigid metal conduit (RMC)

1. Utilize rigid metal conduit under the following conditions (excluding conduit installed on the dry side of waterproofing membranes):
 - i. Exposed in damp or wet locations or outdoor locations.
 - ii. Where subject to damage by vehicular traffic.

B. Electrical Metallic Tubing (EMT)

1. Provide EMT except where other conduit types are required by the NEC, the authority having jurisdiction, or elsewhere in these contract documents.

C. Flexible metal conduit

1. Utilize flexible metal conduit under the following conditions:
 - i. In short lengths for connection to motor terminal boxes, dry transformers, engine generators, and other equipment subject to vibration. Where such equipment is exposed to weather or in damp or wet locations, "Sealtite" or "Liquidtite" flexible conduit shall be employed.
 - ii. In lengths as allowed by the National Electrical Code between outlet boxes and recessed lighting fixtures.
 - iii. Flexible metal conduit may be used in sizes up to 1-1/4 inches in suspended ceilings, in hollow spaces of precast concrete plank floor systems, and dry wall interior partitions except where prohibited by the NEC.
 - iv. Provide 2-screw clamp type or "Tite-Bite" box connectors with insulated throats as manufactured by Thomas & Betts, Raco, Steel City.

D. MC cables:

1. Utilize MC cables for branch circuits concealed in ceilings, walls, partitions, and crawl spaces.

3.5 WIRING METHODS

- A. Conduit and cable methods shall conform to the National Electrical Code requirements and these Specifications and shall produce a complete, safe, well-built electrical system.
- B. Conduit sizes shall be in accordance with the National Electrical Code with 1-inch minimum.
- C. Conduits passing from heated to unheated spaces, exterior spaces, refrigerated spaces and cold section plenums of air conditioning units shall be suitably sealed by means of sealing fittings to prevent accumulation of condensation.
- D. On conduits crossing expansion joints, provide expansion fittings manufactured by O-Z/Gedney.
- E. Conduit nipples connecting outlets in adjoining rooms shall be packed with Johns-Manville "Duxseal" after wires are in place to prevent transmission of noise between rooms unless nipples are twelve (12) inches or more in length.
- F. Where electrical equipment or material is installed in or through fire-rated building elements, provide appropriate UL-listed firestop material to maintain the rated integrity of the affected surface.
- G. Provide fiberglass fire-rated outlet boxes or listed putty pads where required to maintain fire rating of wall.

3.6 FIRE ALARM INSTALLATION

- A. Provide non specified equipment required to make system fully functional.
- B. Install fire alarm and detection system wiring in designated conduit raceway system.
- C. Utilize plenum-rated cable for wiring runs to devices.
- D. When notification appliance circuits and any other circuits necessary for the operation of the notification appliance circuits are not installed in a 2-hour rated shaft, enclosure, or stairwell, provide a 2-hour rated cable assembly. Provide the 2-hour rated protection from the point at which the circuits exit the control unit to the point where they enter the notification zone they serve.
- E. No wiring other than that directly associated with the fire alarm or auxiliary functions shall be permitted in the fire alarm conduits. Wiring splices shall be avoided. Transposing or changing color coding of wires shall not be permitted. Conductors in conduit containing more than one wire shall be color coded and labeled on each end with "E-Z Markers" or equivalent. Fire alarm junction boxes shall be painted red. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall be numbered and coded. Controls, switches, etc. shall be clearly labeled on equipment panels.
- F. Location for ceiling mounted equipment shall be coordinated with lights, air outlets and other ceiling fixtures and shall be acceptable to the Engineer and to the authorities having jurisdiction.

3.7 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.8 BASIS OF PAYMENT

- A. Payment for all materials provided work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 26: GENERAL ELECTRICAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 26: GENERAL ELECTRICAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 260500

SECTION 265000
LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Plan and general provisions of the Contract, including General and Supplementary Conditions and DRBA Standard Specifications.

1.2 SUMMARY

- A. Section includes lighting fixtures, LED's, drivers, and backup batteries.
- B. Coordinate the work of this Section with the requirements of the Project.

1.3 SCOPE

- A. Provide a lighting fixture for each lighting fixture symbol shown on the Plans, of the type and quality described herein and on the Plans. Fixtures shall be installed complete with lamps of the wattage indicated, sockets, housing, driver, backup batteries, shades, diffusers and supports, and wired for operation.

1.4 SUBMITTALS

- A. Submit product data for each lighting fixture type, including, but not limited to, catalog cuts, drawings, descriptive matter and lighting performance characteristics as required to completely define the materials and construction details employed, finishes applied, dimensions, hinging, latching and re-lamping provisions, and electrical characteristics. Cut sheets shall indicate all options/accessories being provided.
- B. When alternate fixtures than the basis of design are proposed (and allowed by DRBA), submit a photometric plan indicating point-by-point footcandle levels. Photometric plan shall include a schedule indicating all data relevant to the calculation (i.e., file used, LLF, average, avg-to-max, max-to-min, etc.).

1.5 WARRANTY

- A. 5-year warranty for all components.

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES

- A. Provide fixtures according to the fixture designation indicated on the plans. Fixture designations are explained and specified in the Lighting Fixture Schedule.
- B. Designate lighting fixtures for use as emergency lighting, provide integral backup batteries and separate connection to unswitched circuit to allow for battery charging.
- C. Construction Features
 - 1. General Requirements:

- i. Provide galvanized support hangers, channels and bolts.
- ii. Provide rustproof hardware such as screws, nuts, washers and anchor bolts.
- iii. Fixtures shall be wired for polarized system with one wire in each fixture to be distinctly marked for its entire length. Wire shall bear the UL label.
- iv. Verify fixture finishes with Engineer prior to ordering.

2.2 LED FIXTURES

A. General

1. Individual LEDs shall be connected such that a catastrophic loss or the failure of one (1) LED will not result in the loss of the entire luminaire.
2. Lumen output shall not decrease by more than 20% over the minimum operational life of 50,000 hours.
3. Provide thermal management of sufficient capacity to ensure proper operation of luminaire over its expected useful life. Thermal management shall be passive type only.
4. Operating temperature range shall be -40°C to 40°C minimum for entire fixture including LED's, drivers, and batteries.

B. Driver

1. 120-277V, UL-listed, CSA-certified. Driver shall be at least 80% efficient at full load.
2. Driver shall be suitable for continuous dimming without perceivable flicker over a range of 100% to 5% of rated lumen output with a smooth shutoff function.
3. Provide driver disconnect per NEC requirement.
4. Provide surge protection internal to driver to protect driver in accordance with ANSI/IEEE C64.41 2002.
5. Driver shall be tested and certified to NEMA 410 standard.

C. Batteries

1. RoHS, cURus 1310, cURus 924, CEC Title 20, Dry and Damp Locations.
2. Batteries shall have capacity to provide minimum of 90 minutes operation at rated lumens during normal power outage.
3. Battery Over Discharge Protection, Output Short Circuit Protection, and LED Red/Green Stainless Steel Test Switch.
4. Input: 100-277VAC, 50/60Hz, 0.1A maximum, 6W maximum, 2.5KV Ring Wave Input Surge Protection.
5. Output: Constant current, LED Class 2
6. RFI/EMI: FCC Part 15 Class A
7. Battery Type: LiFePO 4 (Lithium Iron Phosphate, LFP)
8. Life: 50,000 Hours

2.3 EXIT SIGNS

- A. Provide AC-powered exit signs, UL 924-listed.
- B. Exit signs shall have universal faces, universal chevrons, and universal mounting.

PART 3 - EXECUTION

3.1 LOCATION

- A. Coordinate the location of lighting fixtures with the Engineer before final installation. Allow for a reasonable amount of shifting of fixture locations.
- B. Consult the Engineer's reflected ceiling plans and the installer of the ceilings to ensure that fixtures are properly aligned, ventilated and located.
- C. Coordinate actual fixture depths with piping, duct work, bulkheads, etc. prior to rough-in.
- D. Install exit signs above a doorway with two active leaves that swing in opposite directions centered above egress leaf, not centered above the doorway.

3.2 INSTALLATION

- A. Provide "Earthquake" hold down clips on recessed fixtures.
- B. Provide necessary accessories, as required, to support the fixtures independently of the ceiling suspension system. Securely fasten box and fixture supports to structural system main supports. Where fixtures are surface mounted, cut neat holes in the hung ceilings as required for the fixture supports.
- C. Provide at least two (2) grid drop wires, 12 gauge minimum, supported from building structural system on recessed fixtures. Provide additional support wires where required by AHJ.
- D. Lighting fixtures installed in rated walls or ceilings shall be listed for the purpose or suitably labeled with approved material.
- E. Provide spring loaded sockets and acrylic tube guards on fluorescent lighting fixtures with exposed tubes. Provide tube guards on all lighting fixtures in food service areas, elevator pit, and elevator machine room.
- F. Install and ensure all lighting fixtures are oriented in the same direction.
- G. Wire emergency and exit lighting fixtures with unswitched circuit leg, unless otherwise noted.
- H. Test all fixtures for proper operation and correct any deficiencies or defective work resulting from deviations from the requirements of the Contract Documents at no additional cost or delays.

3.3 METHOD OF MEASUREMENT

- A. Work performed under this section will not be measured separately.

3.4 BASIS OF PAYMENT

- A. Payment for all materials provided work performed under this Section shall be considered incidental to Lump Sum Pay Item: DIVISION 26: GENERAL ELECTRICAL. Payment for work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the Contract Documents. Payment for Pay Item: DIVISION 26: GENERAL ELECTRICAL will be made based on percent completion of the work as determined by the Engineer.

END OF SECTION 265000

END OF DIVISION 26: GENERAL ELECTRICAL

[End of Special Provisions - Part IV]

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C19-06R2

CAPE MAY TERMINAL
POLICE DISPATCH CENTER REHABILITATION

* * * * *

ATTACHMENT A

Plans

Project Plans are located in the CapEx Project File