

SCOPE OF WORK

Heating Boiler Replacement

New Jersey State Police Troop A Headquarters
Buena Vista Township, Atlantic County, N.J.

Project No. S0628-00

STATE OF NEW JERSEY

Honorable Philip D. Murphy, Governor
Honorable Sheila Y. Oliver, Lt. Governor

DEPARTMENT OF THE TREASURY

Elizabeth Maher Muoio, Treasurer



DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Christopher Chianese, Director

Date: June 21, 2019

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I. OBJECTIVE

The objective of this project is to replace two (2) fire-tube steel boilers connected to common supply and return headers with four (4) high efficiency condensing boilers and create two independent heating systems within the New Jersey State Police Troop A Headquarters located in Buena Vista Township.

II. CONSULTANT QUALIFICATIONS

A. CONSULTANT & SUB-CONSULTANT PRE-QUALIFICATIONS

The Consultant shall be a firm pre-qualified with the Division of Property Management & Construction (DPMC) in the following discipline(s):

- **P020 Boiler/Steam Lines/High Pressure Systems**

The Consultant shall also have in-house capabilities or Sub-Consultants pre-qualified with DPMC in:

- **P002 Electrical Engineering**
- **P025 Estimating/Cost Analysis**

As well as, **any and all** other Architectural, Engineering and Specialty Disciplines necessary to complete the project as described in this Scope of Work (SOW).

III. PROJECT BUDGET

A. CONSTRUCTION COST ESTIMATE (CCE)

The initial Construction Cost Estimate (CCE) for this project is \$807,918.

The Consultant shall review this Scope of Work and provide a narrative evaluation and analysis of the accuracy of the proposed project CCE in their technical proposal based on their professional experience and opinion.

B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is \$1,037,266.

The CWE includes the construction cost estimate and all consulting, permitting and administrative fees.

The CWE is the Client Agency's financial budget based on this project Scope of Work and shall not be exceeded during the design and construction phases of the project unless DPMC approves the change in Scope of Work through a Contract amendment.

C. CONSULTANT'S FEES

The construction cost estimate for this project ***shall not*** be used as a basis for the Consultant's design and construction administration fees. The Consultant's fees shall be based on the information contained in this Scope of Work document and the observations made and/or the additional information received during the pre-proposal meeting.

IV. PROJECT SCHEDULE

A. SCOPE OF WORK DESIGN & CONSTRUCTION SCHEDULE

The following schedule identifies the estimated design and construction phases for this project and the estimated durations.

PROJECT PHASE	ESTIMATED DURATION (Calendar Days)
1. Site Access Approvals & Schedule Design Kick-off Meeting	14
2. Design Development Phase 50% (Minimum)	42
• <i>Project Team & DPMC Plan/Code Unit Review & Comment</i>	14
3. Final Design Phase 100%	42
• <i>Project Team & DPMC Plan/Code Unit Review & Approval</i>	14
4. Final Design Re-Submission to Address Comments	7
• <i>Project Team & DPMC Plan/Code Unit Review & Approval</i>	14
5. Permit Application Phase	7
• <i>Issue Plan Release</i>	
6. Bid Phase	42
7. Award Phase	28
8. Construction Phase	150

B. CONSULTANT'S PROPOSED DESIGN & CONSTRUCTION SCHEDULE

The Consultant shall submit a project design and construction bar chart schedule with their technical proposal that is similar in format and detail to the schedule depicted in **Exhibit 'A'**. The bar chart schedule developed by the Consultant shall reflect their recommended project phases, phase activities, activity durations.

The Consultant shall estimate the duration of the project Close-Out Phase based on the anticipated time required to complete each deliverable identified in Section XIV of this document entitled "Contract Deliverables - Project Close-Out Phase" and include this information in the bar chart schedule submitted.

A written narrative shall also be included with the technical proposal explaining the schedule submitted and the reasons why and how it can be completed in the time frame proposed by the Consultant.

This schedule and narrative will be reviewed by the Consultant Selection Committee as part of the evaluation process and will be assigned a score commensurate with clarity and comprehensiveness of the submission.

C. CONSULTANT DESIGN SCHEDULE

Based on the Notice to Proceed, Consultant shall update their approved schedule and shall distribute it at the design kickoff meeting. Note that this schedule shall be submitted in both paper format and on compact disk in a format compatible with *Microsoft Project*. This schedule will be binding for the Consultant's activities and will include the start and completion dates for each design activity. The Consultant and Project Team members shall use this schedule to ensure that all design milestone dates are being met for the project. The Consultant shall update the schedule to reflect performance periodically (minimally at each design phase) for the Project Team review and approval. Any recommendations for deviations from the approved design schedule must be explained in detail as to the causes for the deviation(s) and impact to the schedule.

D. BID DOCUMENT CONSTRUCTION SCHEDULE

The Consultant shall include a construction schedule in Division 1 of the specification bid document. This schedule shall contain, at minimum, the major activities and their durations for each trade specified for the project. This schedule shall be in "bar chart" format and will be used by the Contractors as an aid in determining their bid price. It shall reflect special sequencing or phased construction requirements including, but not limited to: special hours for building access,

weather restrictions, imposed constraints caused by Client Agency program schedules, security needs, lead times for materials and equipment, anticipated delivery dates for critical items, utility interruption and shut-down constraints, and concurrent construction activities of other projects at the site and any other item identified by the Consultant during the design phases of the project.

E. CONTRACTOR CONSTRUCTION PROGRESS SCHEDULE

The Contractor shall be responsible for preparing a coordinated combined progress schedule with the Sub-Contractors after the award of the contract. This schedule shall meet all of the requirements identified in the Consultant's construction schedule. The construction schedule shall be completed in accordance with the latest edition of the Instructions to Bidders and General Conditions and Bulletins that may be issued on the project.

The Consultant must review and analyze this progress schedule and recommend approval/disapproval to the Project Team until a satisfactory version is approved by the Project Team. The Project Team must approve the baseline schedule prior to the start of construction and prior to the Contractor submitting invoices for payment.

The Consultant shall note in Division 1 of the specification that the State will not accept the progress schedule until it meets the project contract requirements and any delays to the start of the construction work will be against the Contractor until the date of acceptance by the State.

The construction progress schedule shall be reviewed, approved, and updated by the Contractor, Consultant, and Project Team members at each regularly scheduled construction job meeting and the Consultant shall note the date and trade(s) responsible for project delays (as applicable).

V. PROJECT SITE LOCATION & TEAM MEMBERS

A. PROJECT SITE ADDRESS

The location of the project site is:

New Jersey State Police Troop "A" Headquarters
1045 Route 54
Williamstown, NJ

See **Exhibit 'B'** for the project site location map.

B. PROJECT TEAM MEMBER DIRECTORY

The following are the names, addresses, and phone numbers of the Project Team members.

PROJECT NAME: Heating Boiler Replacement
PROJECT LOCATION: New Jersey State Police Troop A Headquarters
PROJECT NO: S0628-00
DATE: June 21, 2019

1. DPMC Representative:

Name: Richard Herrero, Design Project Manager
Address: Division Property Management & Construction
20 West State Street, 3rd Floor
Trenton, NJ 08608-1206
Phone No: (609) 292-6558
E-Mail No: Richard.Herrero@treas.nj.gov

2. New Jersey State Police:

Name: Lieutenant Francis Boyd, Project Manager
Address: New Jersey State Police
Facility and Asset Control Bureau
P.O. Box 706
West Trenton, New Jersey 08628
Phone No: (609) 882-2000 Ext. 2559
E-Mail No: LPP4362@gw.njsp.org

VI. PROJECT DEFINITION

A. BACKGROUND

Troop A Headquarters, located on State Route 54 in Buena Vista Township, serves the southern geographical portion of the state from the Delaware River to the Atlantic Ocean, covering 2,104 square miles, with a population of over 1.7 million people.

In 2016, the state commissioned Lammey & Giorgio Architects and their sub-consultant, Eastern Consultants, Inc. to perform a study of the heating boiler system at the Troop A Headquarters. The study recommended replacement of the existing two boiler connected system with two independent boiler systems using four boilers and eliminating the requirement to have a Black Seal operator onsite.

This project is based on implementing the recommendations in the Lammey & Giorgio study report as shown in **Exhibit 'C'**. Photos are shown in **Exhibit 'D'**.

The successful Consultant and Contractors will be required to pass a New Jersey State Police background check.

B. FUNCTIONAL DESCRIPTION OF THE BUILDING

The Troop A Headquarters was built in 1994. It is a one-story structure with a gross area of 55,120 square feet. As-built drawings will be provided to the Consultant at the pre-proposal meeting.

VII. CONSULTANT DESIGN RESPONSIBILITIES

A. BOILERS

1. General:

The Consultant shall review the Heating Boiler Study by Lammey & Giorgio and shown in **Exhibit 'C'** and provide construction documents to install four (4) new high efficiency condensing boilers and create two independent heating systems with circulating pumps (with Variable Frequency Drives) sized and selected for the appropriate system capacity to meet the building's peak winter heating and peak summer reheat loads. Provide for all related support equipment, piping, valves, controls, and systems.

2. Removal and Replacement:

Ensure that all items to be removed are identified on the demolition drawing and coordinated with the delivery dates of any new equipment to be installed. The drawings shall identify the materials, equipment and systems that are to be returned to the Client Agency.

Investigate and provide a design that allows the equipment to be removed and new equipment installed in the designated area of the facility considering door, corridor, and ceiling clearances, material handling issues, building structural demolition requirements, and potential disassembly and assemble of equipment components. All building interior and exterior components affected by the removal of the equipment must be restored to their original condition.

3. Heating Load Calculations:

Provide three (3) sets of signed and sealed heating load calculations to the DPMC Design & Code Review Unit that will substantiate the recommended size/capacity of the new heating boilers.

4. Boiler Design Criteria:

Provide a design for the new boiler concrete pads and/or foundations, if required, and insure their orientation allows access for unit maintenance. Provide three (3) sets of signed and sealed

structural calculations that verify either the existing concrete pads and foundations or the new concrete pads and foundations will support the load of the new boilers. If the existing concrete pads are used, documentation certifying that the weight of new equipment is equal to or less than existing equipment will be acceptable in place of structural calculations.

All electrical components of the new boiler, controls, and related systems shall be designed to provide the proper temperature levels in the various rooms of the building. Investigate and provide room exhaust fans with temperature controls if appropriate. Wiring schematics shall be provided that indicate the proper tie-in of the electrical components to the existing or upgraded electrical supply (if required).

Ensure that all piping, valve supports, and hangers comply with area seismic requirements. Piping shall be insulated where appropriate and include ID tags, labels, thermometers, gages, isolation valves, etc.

Ensure that the boiler room has the appropriate amount of make-up air circulation by providing properly sized air louvers and motorized damper interlocks if required.

Ensure that requirements for carbon monoxide monitoring are addressed.

Ensure all DEP permits and approvals are obtained in a timely manner to meet the appropriate project milestone dates.

5. Drawing Details:

The drawings shall identify the appropriate locations for the new boilers and other ancillary equipment required for this project. Piping and wiring schematics shall indicate the most efficient methods to connect the units and their related components to the existing piping and electrical systems. All patching and restoration work of the interior room finishes shall be part of this project.

6. Boiler Stack:

The Consultant shall provide construction documents to demolish the existing stack and close the roof opening.

Determine the NJDEP emissions controls and monitoring requirements for the new boilers and provide a design for the same.

Prepare and submit an Air Quality Permit to the NJDEP for review and approval. Copies of the approved permit shall be submitted to the Manager of the DPMC Design & Code Review Unit for record. Fees shall be paid from the Consultant's Permit Allowance.

7. Boiler Controls & Systems:

The boilers shall have state of the art microprocessor based controls, panels, instrumentation, etc. and interfaced to all appropriate equipment and systems.

The boilers shall be tied into the emergency generator.

8. Water Treatment System:

Provide a water treatment system that is compatible with the boiler design specifications ensuring that it is sufficient to prevent corrosion to the interior metal components of the boiler and related piping systems. The General Contractor must provide a water treatment specialist for start-up services.

9. Construction Coordination:

The building is occupied 24 hours a day, 7 days a week and will require the daily operation of the facility to be maintained at all times. All equipment demolition and installation procedures will have to be described in the design documents including, but not limited to: allowable utility shutdown and switchover durations, requirements for temporary bypass piping and isolation valves, temporary power and utility backup systems, phased construction milestone dates ensuring the heating equipment is installed during the appropriate season, etc.

10. Utility Coordination:

Utility shutdown and switchover schedule must be coordinated and approved by the Client Agency. This information shall be included in Division 1 of the specifications for Contractor reference during construction.

11. Boiler Training:

Require that the Contractor make provisions for a training session to the Client Agency Facility Engineers and other interested personnel to demonstrate the proper operation of the boilers, ancillary equipment, and controls. The Contractor shall use the boiler manufacturer's representative or approved representative to conduct the training session. The training time required shall be estimated by the Consultant and approved by the Client Agency.

Six (6) sets of drawings, equipment specifications, operating manuals, recommended spare parts lists, warranties, and all other relevant information shall be bound in a binder and forwarded to the DPMC Project Manager.

12. Boiler Spare Parts:

Identify and provide any manufacturer's recommended spare parts and special tools or instruments needed for the operation or maintenance of the equipment.

13. Warranty & Maintenance Agreement:

The boiler manufacturer shall provide a five (5) year warranty against defects in materials and workmanship after the units are installed, tested, and approved.

The Consultant shall include provisions for a one (1) year extended maintenance agreement as part of the contract, including parts, labor and semi-annual testing. The costs for this agreement shall be paid in full as part of the contract at project closeout. Any maintenance agreement beyond one (1) year will be the responsibility of the Client Agency.

B. GENERAL DESIGN OVERVIEW

1. Design Detail:

Section VII of this Scope of Work is intended as a guide for the Consultant to understand the overall basic design requirements of the project and is not intended to identify each specific design component related to code and construction items. The Consultant shall provide those details during the design phase of the project ensuring that they are in compliance with all applicable codes, regulating authorities, and the guidelines established in the DPMC Procedures for Architects and Engineers Manual.

The Consultant shall understand that construction documents submitted to DPMC shall go beyond the basic requirements set forth by the Uniform Construction Code N.J.A.C. 5:23-2.15(f). Drawings and specifications shall provide detail beyond that required to merely show the nature and character of the work to be performed. The construction documents shall provide sufficient information and detail to illustrate, describe and clearly delineate the design intent of the Consultant and enable all Contractors to uniformly bid the project.

The Consultant shall review and comply with the DPMC "Plan Review Instructions" which can be found on DPMC's web site at:

http://www.state.nj.us/treasury/dpmc/lists_and_publications.shtml

The Consultant shall ensure that all of the design items described in this scope of work are addressed and included in the project drawings and specification sections where appropriate.

It shall be the Consultant's responsibility to provide all of the design elements for this project. Under no circumstance may they delegate the responsibility of the design; or portions thereof, to the Contractor unless specifically allowed in this Scope of Work.

2. Specification Format:

The Consultant shall prepare the construction specifications in the Construction Specifications Institute (CSI) format entitled MasterFormat®, latest edition.

The project construction specifications shall include only those CSI MasterFormat® specification sections and divisions applicable to this specific project.

3. Submittal Schedule:

The Consultant shall include a submittal schedule in Division 1 of the specifications. The schedule (list of required submittals) shall identify the general conditions and/or specification section (number and name) and the type of submittal required (material data, product data, test results, calculations, etc.). The submittal schedule is a compilation of the submittals required on the project and is provided as an aid to the contractor.

4. Construction Cost Estimates:

The Consultant shall include with each design submittal phase identified in Paragraph IV.A, including the Permit Application Phase and Bid Phase, a detailed construction cost estimate itemized and summarized by the divisions and sections of the Construction Specification Institute (CSI) MasterFormat® 2014 applicable to the project.

The detailed breakdown of each work item shall include labor, equipment, material and total costs.

The construction estimate shall include all alternate bid items and all unit price items itemized and summarized by the divisions and sections of the specifications.

All cost estimates shall be adjusted for regional location, site factors, construction phasing, premium time, building use group, location of work within the building, temporary swing space, security issues, and inflation factors based on the year in which the work is to be performed.

The cost estimate shall include descriptions of all allowances and contingencies noted in the estimate.

All cost estimates must be submitted on a DPMC-38 Project Cost Analysis form at each design phase of the project supported by the detailed construction cost estimate. The Project Manager will provide cost figures for those items which may be in addition to the CCE such as art

inclusion, CM services, etc. and must be included as part of the CWE. This cost analysis must be submitted for all projects regardless of the Construction Cost Estimate amount.

C. PROJECT COMMENCEMENT

A pre-design meeting shall be scheduled with the Consultant and the Project Team members at the commencement of the project to obtain and/or coordinate the following information:

1. Project Directory:

Develop a project directory that identifies the name and phone number of key designated representatives who may be contacted during the design and construction phases of this project.

2. Site Access:

Develop procedures to access the project site and provide the names and phone numbers of approved escorts when needed. Obtain copies of special security and policy procedures that must be followed during all work conducted at the facility and include this information in Division 1 of the specification.

3. Project Coordination:

Review and become familiar with any current and/or future projects at the site that may impact the design, construction, and scheduling requirements of this project. Incorporate all appropriate information and coordination requirements in Division 1 of the specification.

4. Existing Documentation:

Review any documents and additional information that may be provided at a later date such as reports, studies, surveys, equipment manuals, as-built drawings, etc. The State does not attest to the accuracy of the information provided and accepts no responsibility for the consequences of errors by the use of any information and material contained in the documentation provided. It shall be the responsibility of the Consultant to verify the contents and assume full responsibility for any determination or conclusion drawn from the material used. If the information provided is insufficient, the Consultant shall take the appropriate actions necessary to obtain the additional information required.

All original documentation shall be returned to the provider at the completion of the project.

5. Scope of Work:

Review the design and construction administration responsibilities and the submission requirements identified in this Scope of Work with the Project Team members. Items such as:

contract deliverables, special sequencing or phased construction requirements, special hours for construction based on Client Agency programs or building occupancy, security needs, delivery dates of critical and long lead items, utility interruptions or shut down constraints for tie-ins, weather restrictions, and coordination with other project construction activities at the site shall be addressed.

This information and all general administrative information; including a narrative summary of the work for this project, ***shall be included in Division 1*** of the specification. The Consultant shall assure that there are no conflicts between the information contained in Division 1 of the specification and the DPMC General Conditions.

6. Project Schedule:

Review and update the project design and construction schedule with the Project Team members.

D. BUILDING & SITE INFORMATION

The following information shall be included in the project design documents.

1. Building Classification:

Provide the building Use Group Classification and Construction Type on the appropriate design drawing.

2. Building Block & Lot Number:

Provide the site Block and Lot Number on the appropriate design drawing.

3. Building Site Plan:

Only when the project scope involves site work, or when the design triggers code issues that require site information to show code compliance, shall a site plan be provided that is drawn in accordance with an accurate boundary line survey. The site plan shall include, but not be limited to, the following as may be applicable:

- The size and location of new and existing buildings and additions as well as other structures.
- The distance between buildings and structures and to lot lines.
- Established and new site grades and contours as well as building finished floor elevations.
- New and existing site utilities, site vehicular and pedestrian roads, walkways and parking areas.

4. Site Location Map:

Provide a site location map on the drawing cover sheet that identifies the vehicular travel routes from major roadways to the project construction site and the approved access roads to the Contractor's worksite staging area.

E. DESIGN MEETINGS & PRESENTATIONS

1. Design Meetings:

Conduct the appropriate number of review meetings with the Project Team members during each design phase of the project so they may determine if the project meets their requirements, question any aspect of the contract deliverables, and make changes where appropriate. The Consultant shall describe the philosophy and process used in the development of the design criteria and the various alternatives considered to meet the project objectives. Selected studies, sketches, cost estimates, schedules, and other relevant information shall be presented to support the design solutions proposed. Special considerations shall also be addressed such as: Contractor site access limitations, utility shutdowns and switchover coordination, phased construction and schedule requirements, security restrictions, available swing space, material and equipment delivery dates, etc.

It shall also be the responsibility of the Consultant to arrange and require all critical Sub-Consultants to be in attendance at the design review meetings.

Record the minutes of each design meeting and distribute within seven (7) calendar days to all attendees and those persons specified to be on the distribution list by the Project Manager.

2. Design Presentations:

The minimum number of design presentations required for each phase of this project is identified below for reference:

Design Development Phase: One (1) oral presentation at phase completion.

Final Design Phase: One (1) oral presentation at phase completion.

F. CONSTRUCTION BID DOCUMENT SUBMITTAL

In addition to submitting construction bid documents as defined in Section XIV Contract Deliverables, Consultant shall submit both specifications and drawings on compact disk (CD) in *Adobe Portable Document Format (.pdf)*.

VIII. CONSULTANT CONSTRUCTION RESPONSIBILITIES

A. GENERAL CONSTRUCTION ADMINISTRATION OVERVIEW

This section of the Scope of Work is intended as a guide for the Consultant to understand their overall basic construction administration responsibilities for the project and does not attempt to identify each specific activity or deliverable required during this phase. The Consultant shall obtain that information from the current publication of the DPMC Procedures for Architects and Engineers Manual and any additional information provided during the Consultant Selection Process.

B. PRE-BID MEETING

The Consultant shall attend, chair, record and distribute minutes of the Contractor pre-bid meetings. When bidders ask questions that may affect the bid price of the project, the Consultant shall develop a Bulletin(s) to clarify the bid documents in the format described in the Procedures for Architects and Engineers Manual, Section 9.2 entitled "Bulletins." These Bulletins must be sent to DPMC at least seven (7) calendar days prior to the bid opening date. DPMC will then distribute the document to all bidders.

C. POST BID REVIEW MEETING, RECOMMENDATION FOR AWARD

The Consultant; in conjunction with the Project Manager, shall review the bid proposals submitted by the various Contractors to determine the low responsible bid for the project. The Consultant; in conjunction with the Project Manager and Project Team members, shall develop a post bid questionnaire based on the requirements below and schedule a post bid review meeting with the Contractor's representative to review the construction costs and schedule, staffing, and other pertinent information to ensure they understand the Scope of the Work and that their bid proposal is complete and inclusive of all requirements necessary to deliver the project in strict accordance with the plans and specifications.

1. Post Bid Review:

Review the project bid proposals including the alternates, unit prices, and allowances within seven (7) calendar days from the bid due date. Provide a bid tabulation matrix comparing all bids submitted and make a statement about the high, low, and average bids received. Include a comparison of the submitted bids to the approved current construction cost estimate. When applicable, provide an analysis with supporting data, detailing why the bids did not meet the construction cost estimate.

2. Review Meeting:

Arrange a meeting with the apparent low bid Contractor to discuss their bid proposal and other issues regarding the award of the contract. Remind the Contractor that this is a Lump Sum bid. Request the Contractor to confirm that their bid proposal does not contain errors. Review and confirm Alternate pricing and Unit pricing and document acceptance or rejection as appropriate.

Comment on all omissions, qualifications and unsolicited statements appearing in the proposals. Review any special circumstances of the project. Ensure the Contractor's signature appears on all post bid review documents.

3. Substitutions:

Inquire about any potential substitutions being contemplated by the Contractor and advise them of the State's guidelines for the approval of substitutions and the documentation required. Review the deadline and advise the Contractor that partial submissions are not acceptable. Submission after the deadline may be rejected by the State.

Equal substitutions that are proposed by the Contractor that are of lesser value must have a credit change order attached with the submittal (See Article 4.7.5 "Substitutions" of the General Conditions). The State has the right to reject the submission if there is no agreement on the proposed credit. Contractor will be responsible to submit a specified item.

4. Schedule:

Confirm that the Contractor is aware of the number of calendar days listed in the contract documents for the project duration and that the Contractor's bid includes compliance with the schedule duration and completion dates. Particular attention shall be given to special working conditions, long lead items and projected delivery dates, etc. Review project milestones (if applicable). This could give an indication of Contractor performance, but not allow a rejection of the bid.

Review the submittal timeframes per the Contract documents. Ask the Contractor to identify what products will take over twenty-eight (28) calendar days to deliver from the point of submittal approval.

5. Performance:

Investigate the past performance of Contractor by contacting Architects and owners (generally three of each) that were listed in their DPMC pre-qualification package or other references that may have been provided. Inquire how the Contractor performed with workmanship, schedule, project management, change orders, cooperation, paper work, etc.

6. Letter of Recommendation:

The Consultant shall prepare a Letter of Recommendation for contract award to the Contractor submitting the lowest responsible bid within three (3) calendar days from the post bid review meeting. The document shall contain the project title, DPMC project number, bid due date and expiration date of the proposal. It shall include a detailed narrative describing each post bid meeting agenda item identified above and a recommendation to award the contract to the apparent low bid Contractor based on the information obtained during that meeting. Describe any acceptance or rejection of Alternate pricing and Unit pricing.

Comment on any discussion with the Contractor that provides a sense of their understanding of the project and any special difficulties that they see, and how they might approach those problems.

Attach all minutes of the Post bid meeting and any other relevant correspondence with the Letter of Recommendation and submit them to the Project Manager.

7. Conformed Drawings:

The Consultant shall prepare and distribute two (2) sets of drawings stamped “Conformed Drawings” to the Project Manager that reflect all Bulletins and/or required changes, additions, and deletions to the pertinent drawings within fourteen (14) calendar days of the construction contract award date.

Any changes made in Bulletins, meeting minutes, post bid review requirements shall also be reflected in the specification.

D. DIRECTOR’S HEARING

The Consultant must attend any Director’s hearing(s) if a Contractor submits a bid protest. The Consultant shall be present to interpret the intent of the design documents and answer any technical questions that may result from the meeting. In cases where the bid protest is upheld, the Consultant shall submit a new “Letter of Recommendation” for contract award. The hours required to attend the potential hearings and to document the findings shall be estimated by the Consultant and the costs will be included in the base bid of their fee proposal.

E. CONSTRUCTION JOB MEETINGS, SCHEDULES, LOGS

The Consultant shall conduct all of the construction job meetings, to be held bi-weekly for the duration of construction, in accordance with the procedures identified in the A/E manual and those listed below.

1. Meetings:

The Consultant and Sub-Consultant(s) shall attend the pre-construction meeting and all construction job meetings during the construction phase of the project. The Consultant shall chair the meeting, transcribe and distribute the job-meeting minutes for every job meeting to all attendees and to those persons specified to be on the distribution list by the Project Manager. The Agenda for the meeting shall include, but not be limited to the items identified in the Procedures for Architects and Engineers Manual, Section 10.3.1, entitled "Agenda."

Also, the Consultant is responsible for the preparation and distribution of minutes within three (3) calendar days of the meeting. The format to be used for the minutes shall comply with those identified in the "Procedures for Architects and Engineers Manual," Section 10.3.4, entitled, "Format of Minutes." All meeting minutes are to have an "action" column indicating the party that is responsible for the action indicated and a deadline to accomplish the assigned task. These tasks must be reviewed at each job progress meeting until it is completed and the completion date of each task shall be noted in the minutes of the meeting following the task completion.

2. Schedules:

The Consultant; with the input from the Client Agency Representative and Project Manager, shall review and recommend approval of the project construction schedule prepared by the Contractor. The schedule shall identify all necessary start and completion dates of construction, construction activities, submittal process activities, material deliveries and other milestones required to give a complete review of the project.

The Consultant shall record any schedule delays, the party responsible for the delay, the schedule activity affected, and the original and new date for reference.

The Consultant shall ensure that the Contractor provides a two (2) week "look ahead" construction schedule based upon the current monthly updated schedule as approved at the bi-weekly job meetings and that identifies the daily planned activities for that period. This Contractor requirement must also be included in Division 1 of the specification for reference.

3. Submittal Log:

Based on the Submittal Schedule in Division 1 of the specifications, the Consultant shall develop and implement a submittal log that includes all of the required project submittals as identified in the general conditions and technical specifications. The dates of submission shall be determined and approved by all affected parties during the pre-construction meeting.

Examples of the submissions to be reviewed and approved by the Consultant and Sub-Consultant (if required) include: project schedule, schedule of values, shop drawings, equipment and material catalog cuts, spec sheets, product data sheets, MSDS material safety data sheets,

specification procedures, color charts, material samples, mock-ups, etc. The submittal review process must be conducted at each job progress meeting and shall include the Consultant, Sub-Consultant, Contractor, Project Manager, and designated representatives of the Client Agency.

The Consultant shall provide an updated submittal log at each job meeting that highlights the status of all required submissions.

F. CONSTRUCTION SITE ADMINISTRATION SERVICES

The Consultant and Sub-Consultant(s) shall provide construction site administration services during the duration of the project. The Consultant and Sub-Consultant(s) do not necessarily have to be on site concurrently if there are no critical activities taking place that require the Sub-Consultant's participation.

The services required shall include, but not be limited to; field observations sufficient to verify the quality and progress of construction work, conformance and compliance with the contract documents, and to attend/chair meetings as may be required by the Project Manager to resolve special issues.

Consultant and Sub-Consultant(s) shall conduct weekly site inspection/field observation visits. Site inspection/field observation visits may be conducted in conjunction with regularly scheduled bi-weekly construction job meetings, depending on the progress of work, for weeks that construction job meetings are scheduled. The Consultant and their Sub-Consultant(s) shall submit a field observation report for each site inspection to the Project Manager within three (3) calendar days of the site visit. Also, they shall conduct inspections during major construction activities including, but not limited to the following examples: concrete pours, steel and truss installations, code inspections, final testing of systems, achievement of each major milestone required on the construction schedule, and requests from the Project Manager. The assignment of a full time on-site Sub-Consultant does not relieve the Consultant of their site visit obligation.

The Consultant shall refer to Section XIV. Contract Deliverables of this Scope of Work subsection entitled "Construction Phase" to determine the extent of services and deliverables required during this phase of the project.

G. SUB-CONSULTANT PARTICIPATION

It is the responsibility of the Consultant to ensure that they have provided adequate hours and/or time allotted in their technical proposal so that their Sub-Consultants may participate in all appropriate phases and activities of this project or whenever requested by the Project Manager. This includes the pre-proposal site visit and the various design meetings and construction job meetings, site visits, and close-out activities described in this Scope of Work. Field observation reports and/or meeting minutes are required to be submitted to the Project Manager within three

(3) calendar days of the site visit or meeting. All costs associated with such services shall be included in the base bid of the Consultant's fee proposal.

H. DRAWINGS

1. Shop Drawings:

Each Contractor shall review the specifications and determine the numbers and nature of each shop drawing submittal. Five (5) sets of the documents shall be submitted with reference made to the appropriate section of the specification. The Consultant shall review the Contractor's shop drawing submissions for conformity with the construction documents within seven (7) calendar days of receipt. The Consultant shall return each shop drawing submittal stamped with the appropriate action, i.e. "Approved", "Approved as Noted", "Approved as Noted Resubmit for Records", "Rejected", etc.

2. As-Built & Record Set Drawings:

The Contractor(s) shall keep the contract drawings up-to-date at all times during construction and upon completion of the project, submit their AS-BUILT drawings to the Consultant with the Contractor(s) certification as to the accuracy of the information prior to final payment. All AS-BUILT drawings submitted shall be entitled AS-BUILT above the title block and dated.

The Consultant shall review the Contractor(s)' AS-BUILT drawings at each job progress meeting to ensure that they are up-to-date. Any deficiencies shall be noted in the progress meeting minutes.

The Consultant shall acknowledge acceptance of the AS-BUILT drawings by signing a transmittal indicating they have reviewed them and that they reflect the AS-BUILT conditions as they exist.

Upon receipt of the AS-BUILT drawings from the Contractor(s), the Consultant shall obtain the original reproducible drawings from DPMC and transfer the AS-BUILT conditions to the original full sized signed reproducible drawings to reflect RECORD conditions within fourteen (14) calendar days of receipt of the AS-BUILT information.

The Consultant shall note the following statement on the original RECORD-SET drawings. "The AS-BUILT information added to this drawing(s) has been supplied by the Contractor(s). The Architect/Engineer does not assume the responsibility for its accuracy other than conformity with the design concept and general adequacy of the AS-BUILT information to the best of the Architect's/Engineer's knowledge."

Upon completion, The Consultant shall deliver the RECORD-SET original reproducible drawings to DPMC who will acknowledge their receipt in writing. This hard copy set of

drawings and two (2) sets of current release AUTO CAD discs shall be submitted to DPMC. The discs shall contain all AS-BUILT drawings in both “.dwg” (native file format for AUTO CAD) and “.pdf” (*Adobe* portable document format) file formats.

I. CONSTRUCTION DEFICIENCY LIST

The Consultant shall prepare, maintain and continuously distribute an on-going deficiency list to the Contractor, Project Manager, and Client Agency Representative during the construction phase of the project. This list shall be separate correspondence from the field observation reports and shall not be considered as a punch list.

J. INSPECTIONS: SUBSTANTIAL & FINAL COMPLETION

The Consultant and their Sub-Consultant(s) accompanied by the Project Manager, Code Inspection Group, Client Agency Representative and Contractor shall conduct site inspections to determine the dates of substantial and final completion. The Project Manager will issue the only recognized official notice of substantial completion. The Consultant shall prepare and distribute the coordinated punch list, written warranties and other related DPMC forms and documents, supplied by the Contractor, to the Project Manager for review and certification of final contract acceptance.

If applicable, the punch list shall include a list of attic stock and spare parts.

K. CLOSE-OUT DOCUMENTS

The Consultant shall review all project close-out documents as submitted by the Contractors to ensure that they comply with the requirements listed in the “Procedure for Architects and Engineers’ Manual.” The Consultant shall forward the package to the Project Manager within fourteen (14) calendar days from the date the Certificate of Occupancy/Certificate of Approval is issued. The Consultant shall also submit a letter certifying that the project was completed in accordance with the contract documents, etc.

L. CLOSE-OUT ACTIVITY TIME

The Consultant shall provide all activities and deliverables associated with the “Close-Out Phase” of this project as part of their Lump Sum base bid. The Consultant and/or Sub-Consultant(s) may not use this time for additional job meetings or extended administrative services during the Construction Phase of the project.

M. TESTING, TRAINING, MANUALS AND ATTIC STOCK

The Consultant shall ensure that all equipment testing, training sessions and equipment manuals required for this project comply with the requirements identified below.

1. Testing:

All equipment and product testing conducted during the course of construction is the responsibility of the Contractor. However, the Consultant shall ensure the testing procedures comply with manufacturers recommendations. The Consultant shall review the final test reports and provide a written recommendation of the acceptance/rejection of the material, products or equipment tested within seven (7) calendar days of receipt of the report.

2. Training:

The Consultant shall include in the specification that the Contractor shall schedule and coordinate all equipment training with the Project Manager and Client Agency representatives. It shall state that the Contractor shall submit the Operation and Maintenance (O&M) manuals, training plan contents, and training durations to the Consultant, Project Manager and Client Agency Representative for review and approval prior to the training session.

The Consultant shall ensure that the training session is video recorded by the Contractor. A copy of the recording shall be transmitted to the Project Manager on compact disk who will forward the material to the Client Agency for future reference.

All costs associated with the training sessions shall be borne by the Contractor installing the equipment. A signed letter shall be prepared stating when the training was completed and must be accompanied with the training session sign-in sheet as part of the project close-out package.

3. Operation & Maintenance Manuals:

The Consultant shall coordinate and review the preparation and issuance of the equipment manuals provided by the Contractor(s) ensuring that they contain the operating procedures, maintenance procedures and frequency, cut sheets, parts lists, warranties, guarantees, and detailed drawings for all equipment installed at the facility.

A troubleshooting guide shall be included that lists problems that may arise, possible causes with solutions, and criteria for deciding when equipment shall be repaired and when it must be replaced.

Include a list of the manufacturer's recommended spare parts for all equipment being supplied for this project.

A list of names, addresses and telephone numbers of the Contractors involved in the installations and firms capable of performing services for each mechanical item shall be included. The content of the manuals shall be reviewed and approved by the Project Manager and Client Agency Representative.

The Consultant shall include in the specification that the Contractor must provide a minimum of ten (10) “throwaway” copies of the manual for use at the training seminar and seven (7) hardbound copies as part of the project close-out package.

4. Attic Stock:

The Consultant shall determine and recommend whether “attic stock” should be included for all aspects of the project. If required, the Consultant shall specify attic stock items to be included in the project.

Prior to project close-out, the Consultant must prepare a comprehensive listing of all items for delivery by the Contractor to the Owner and in accordance with the appropriate specification/plan section. Items shall include, but not be limited to: training sessions, O&M manuals, as-built drawings, itemized attic stock requirements, and manufacturer guarantees/warranties.

N. CHANGE ORDERS

The Consultant shall review and process all change orders in accordance with the contract documents and procedures described below.

1. Consultant:

The Consultant shall prepare a detailed request for Change Order including a detailed description of the change(s) along with appropriate drawings, specifications, and related documentation and submit the information to the Contractor for the change order request submission. This will require the use of the current DPMC 9b form.

2. Contractor:

The Contractor shall submit a DPMC 9b Change Order Request form to the Project Manager within seven (7) calendar days after receiving the Change Order from the Consultant. The document shall identify the changed work in a manner that will allow a clear understanding of the necessity for the change. Copies of the original design drawings, sketches, etc. and specification pages shall be highlighted to clarify and show entitlement to the Change Order.

Copies shall be provided of job minutes or correspondence with all relative information highlighted to show the origin of the Change Order. Supplementary drawings from the Consultant shall be included if applicable that indicate the manner to be used to complete the

changed work. A detailed breakdown of all costs associated with the change, i.e. material, labor, equipment, overhead, Sub-Contractor work, profit and bond, and certification of increased bond shall be provided.

If the Change Order will impact the time of the project, the Contractor shall include a request for an extension of time. This request shall include a copy of the original approved project schedule and a proposed revised schedule that reflects the impact on the project completion date.

Documentation to account for the added time requested shall be included to support entitlement of the request such as additional work, weather, other Contractors, etc. This documentation shall contain dates, weather data and all other relative information.

3. Recommendation for Approval:

The Consultant shall evaluate the reason for the change in work and provide a detailed written recommendation for approval or disapproval of the Change Order Request including backup documentation of costs in CSI format and all other considerations to substantiate that decision.

4. Code Review:

The Consultant shall determine if the Change Order request will require Code review and shall submit six (6) sets of signed and sealed modified drawings and specifications to the DPMC Plan & Code Review Unit for approval, if required. The Consultant must also determine and produce a permit amendment request if required.

5. Cost Estimate:

The Consultant shall provide a detailed cost estimate of the proposed Change Order Request, as submitted by the Contractor, in CSI format (latest edition) for all appropriate divisions and sub-divisions using a recognized estimating formula. The estimate shall then be compared with that of the Contractor's estimate. If any line item in the Consultant's estimate is lower than the corresponding line item in the Contractor's estimate, the Consultant in conjunction with the Project Manager is to contact the Contractor by telephone and negotiate the cost differences. The Consultant shall document the negotiated agreement on the Change Order Request form. If the Contractor's total dollar value changes based on the negotiations, the Consultant shall identify the changes on the Change Order Request form accordingly.

When recommending approval or disapproval of the change order, the Consultant shall be required to prepare and process a Change Order package that contains at a minimum the following documents:

- DPMC 9b Change Order Request
- DPMC 10 Consultant's Evaluation of Contractor's Change Order Request
- Consultant's Independent Detailed Cost Estimate

- Notes of Negotiations

6. Time Extension:

When a Change Order Request is submitted with both cost and time factors, the Consultant's independent cost estimate is to take into consideration time factors associated with the changed work. The Consultant is to compare their time element with that of the Contractor's time request and if there is a significant difference, the Consultant in conjunction with the Project Manager is to contact the Contractor by telephone and negotiate the difference.

When a Change Order Request is submitted for time only, the Consultant is to do an independent evaluation of the time extension request using a recognized scheduling formula.

Requests for extension of contract time must be done in accordance with the General Conditions Article 10.1 "Changes in the Work".

7. Submission:

The Consultant shall complete all of the DPMC Change Order Request forms provided and submit a completed package to the Project Manager with all appropriate backup documentation within seven (7) calendar days from receipt of the Contractor's change order request. The Consultant shall resubmit the package at no cost to the State if the change order package contents are deemed insufficient by the Project Manager.

8. Meetings:

The Consultant shall attend and actively participate at all administrative hearings or settlement conferences as may be called by Project Manager in connection with such Change Orders and provide minutes of those meetings to the Project Manager for distribution.

9. Consultant Fee:

All costs associated with the potential Contractor Change Order Requests shall be anticipated by the Consultant and included in the base bid of their fee proposal.

If the Client Agency Representative requests a scope change; and it is approved by the Project Manager, the Consultant may be entitled to be reimbursed through an amendment and in accordance with the requirements stated in paragraph 10.01 of this Scope of Work.

IX. PERMITS & APPROVALS

A. NJ UNIFORM CONSTRUCTION CODE PERMIT

The project construction documents must comply with the latest adopted edition of the NJ Uniform Construction Code (NJUCC).

The latest NJUCC Adopted Codes and Standards can be found at:

<http://www.state.nj.us/dca/divisions/codes/codereg/>

The Consultant shall complete the NJUCC permit application and all applicable technical sub-code sections with all technical site data required. The Agent section of the application and certification section of the building sub-code section shall be signed. These documents shall be forwarded to the DPMC Project Manager.

The Consultant may obtain copies of all NJUCC permit applications at the following website:

<http://www.state.nj.us/dca/divisions/codes/forms/>

All other required project permits shall be obtained and paid for by the Consultant in accordance with the procedures described in Paragraph IX.B.

1. Prior Approval Certification Letters:

The issuance of a construction permit for this project may be contingent upon acquiring various “prior approvals” as defined by N.J.A.C. 5:23-1.4. It is the Consultant’s responsibility to determine which prior approvals, if any, are required. The Consultant shall submit a general certification letter to the DPMC Plan & Code Review Unit Manager during the Permit Phase of this project that certifies all required prior approvals have been obtained.

In addition to the general certification letter discussed above, the following specific prior approval certification letters, where applicable, shall be submitted by the Consultant to the DPMC Plan & Code Review Unit Manager: Soil Erosion & Sediment Control, Water & Sewer Treatment Works Approval, Coastal Areas Facilities Review, Compliance of Underground Storage Tank Systems with N.J.A.C. 7:14B, Pinelands Commission, Highlands Council, Well Construction and Maintenance; Sealing of Abandoned Wells with N.J.A.C. 7:9D, Certification that all utilities have been disconnected from structures to be demolished, Board of Health Approval for Potable Water Wells, Health Department Approval for Septic Systems. It shall be noted that in accordance with N.J.A.C. 5:23-2.15(a)5, a permit cannot be issued until the letter(s) of certification is received.

2. Multi-building or Multi-site Permits:

A project that involves many buildings and/or sites requires that a separate permit shall be issued for each building or site. The Consultant must determine the construction cost estimate for *each* building and/or site location and submit that amount where indicated on the permit application.

3. Special Inspections:

In accordance with the requirements of the New Jersey Uniform Construction Code N.J.A.C. 5:23-2.20(b), Bulletin 03-5 and Chapter 17 of the International Building Code, the Consultant shall be responsible for the coordination of all special inspections during the construction phase of the project.

Bulletin 03-5 can be found at:

http://www.state.nj.us/dca/divisions/codes/publications/pdf_bulletins/b_03_5.pdf

a. Definition:

Special inspections are defined as an independent verification by a certified Special Inspector for **Class I buildings and smoke control systems in any class building**. The special inspector is to be independent from the Contractor and responsible to the Consultant so that there is no possible conflict of interest.

Special inspectors shall be certified in accordance with the requirements in the New Jersey Uniform Construction Code.

b. Responsibilities:

The Consultant shall submit with the permit application, a list of special inspections and the agencies or special inspectors that will be responsible to carry out the inspections required for the project. The list shall be a separate document, on letter head, signed and sealed.

B. OTHER REGULATORY AGENCY PERMITS, CERTIFICATES AND APPROVALS

The Consultant shall identify and obtain all other State Regulatory Agency permits, certificates, and approvals that will govern and affect the work described in this Scope of Work. An itemized list of these permits, certificates, and approvals shall be included with the Consultant's Technical Proposal and the total amount of the application fees should be entered in the Fee Proposal line item entitled, **"Permit Fee Allowance."**

The Consultant may refer to the Division of Property Management and Construction “Procedures for Architects and Engineers Manual”, Section 6.4.8, which presents a compendium of State permits, certificates, and approvals that may be required for this project.

The Consultant shall determine the appropriate phase of the project to submit the permit application(s) in order to meet the approved project milestone dates.

Where reference to an established industry standard is made, it shall be understood to mean the most recent edition of the standard unless otherwise noted. If an industry standard is found to be revoked, or should the standard have undergone substantial change or revision from the time that the Scope of Work was developed, the Consultant shall comply with the most recent edition of the standard.

C. STATE INSURANCE APPROVAL

The Consultant shall respond in writing to the FM Global Insurance Underwriter plan review comments through the DPMC Plan & Code Review Unit Manager as applicable. The Consultant shall review all the comments and, with agreement of the Project Team, modify the documents while adhering to the project’s SOW requirements, State code requirements, schedule, budget, and Consultant fee.

D. PUBLIC EMPLOYEES OCCUPATIONAL SAFETY & HEALTH PROGRAM

A paragraph shall be included in the design documents, if applicable to this project that states: The Contractor shall comply with all the requirements stipulated in the Public Employees Occupational Safety & Health Program (PEOSHA) document, paragraph 12:100-13.5 entitled “Air quality during renovation and remodeling”. The Contractor shall submit a plan demonstrating the measures to be utilized to confine the dust, debris, and air contaminants in the renovation or construction area of the project site to the Project Team prior to the start of construction.

The link to the document is:

<http://www.nj.gov/health/workplacehealthandsafety/peosh/peosh-health-standards/iaq.shtml>

E. PERMIT MEETINGS

The Consultant shall attend and chair all meetings with Permitting Agencies necessary to explain and obtain the required permits.

F. MANDATORY NOTIFICATIONS

The Consultant shall include language in Division 1 of the specification that states the Contractor shall assure compliance with the New Jersey “One Call” Program (1-800-272-1000) if any excavation is to occur at the project site.

The One Call Program is known as the “New Jersey Underground Facility Protection Act”, refer to N.J.A.C. 14:2.

G. CONSULTANT FEE

The Consultant shall determine the efforts required to complete and submit all permit applications, obtain and prepare supporting documentation, attend meetings, etc., and include the total cost in the base bid of their fee proposal under the “Permit Phase”.

X. GENERAL REQUIREMENTS

A. SCOPE CHANGES

The Consultant must request any changes to this Scope of Work in writing. An approved DPMC 9d Consultant Amendment Request form reflecting authorized scope changes must be received by the Consultant prior to undertaking any additional work. The DPMC 9d form must be approved and signed by the Director of DPMC and written authorization issued from the Project Manager prior to any work being performed by the Consultant. Any work performed without the executed DPMC 9d form is done at the Consultant’s own financial risk.

B. ERRORS AND OMISSIONS

The errors and omissions curve and the corresponding sections of the “Procedures for Architects and Engineers Manual” are eliminated. All claims for errors and omissions will be pursued by the State on an individual basis. The State will review each error or omission with the Consultant and determine the actual amount of damages, if any, resulting from each negligent act, error or omission.

C. ENERGY INCENTIVE PROGRAM

The Consultant shall review the programs described on the “New Jersey’s Clean Energy Program” website at: <http://www.njcleanenergy.com> to determine if any proposed upgrades to the mechanical and/or electrical equipment and systems for this project qualify for “New Jersey Clean Energy Program” rebates and incentives such as SmartStart, Pay4Performance, Direct Install or any other incentives.

The Consultant shall be responsible to complete the appropriate registration forms and applications, provide any applicable worksheets, manufacturer's specification sheets, calculations, attend meetings, and participate in all activities with designated representatives of the programs and utility companies to obtain the entitled financial incentives and rebates for this project. All costs associated with this work shall be estimated by the Consultant and the amount included in the base bid of their fee proposal.

XI. ALLOWANCES

A. PERMIT FEE ALLOWANCE

The Consultant shall obtain and pay for all of the project permits in accordance with the guidelines identified below.

1. Permits:

The Consultant shall determine the various permits, certificates, and approvals required to complete this project.

2. Permit Costs:

The Consultant shall estimate the application fee costs for all of the required project permits, certificates, and approvals (excluding the NJ Uniform Construction Code permit) and include that amount in their fee proposal line item entitled **"Permit Fee Allowance"**, refer to Paragraph IX.A. A breakdown of each permit and application fee shall be attached to the fee proposal for reference.

NOTE: The NJ Uniform Construction Code permit is excluded since it will be paid for by the State.

3. Applications:

The Consultant shall complete and submit all permit applications to the appropriate permitting authorities and the costs shall be paid from the Consultant's permit fee allowance. A copy of the application(s) and the original permit(s) obtained by the Consultant shall be given to the DPMC Project Manager for distribution during construction.

4. Consultant Fee:

The Consultant shall determine what is required to complete and submit the permit applications, obtain supporting documentation, attend meetings, etc., and include the total cost in the base bid of their fee proposal under the “Permit Phase” column.

Any funds remaining in the permit allowance will be returned to the State at the close of the project.

XII. SUBMITTAL REQUIREMENTS

A. CONTRACT DELIVERABLES

All submissions shall include the Contract Deliverables identified in Section XIV of this Scope of Work and described in the DPMC Procedures for Architects and Engineers Manual.

B. CATALOG CUTS

The Consultant shall provide catalog cuts as required by the DPMC Plan & Code Review Unit during the design document review submissions. Examples of catalog cuts include, but are not limited to: mechanical equipment, hardware devices, plumbing fixtures, fire suppression and alarm components, specialized building materials, electrical devices, etc.

C. PROJECT DOCUMENT BOOKLET

The Consultant shall submit all of the required Contract Deliverables to the Project Manager at the completion of each phase of the project. All reports, meeting minutes, plan review comments, project schedule, cost estimate in CSI format (2004 Edition), correspondence, calculations, and other appropriate items identified on the Submission Checklist form provided in the A/E Manual shall be presented in an 8½” x 11” bound “booklet” format.

D. DESIGN DOCUMENT CHANGES

Any corrections, additions, or omissions made to the submitted drawings and specifications at the Permit Phase of the project must be submitted to DPMC Plan & Code Review Unit as a complete document. Corrected pages or drawings may not be submitted separately unless the Consultant inserts the changed page or drawing in the original documents. No Addendums or Bulletins will be accepted as a substitution to the original specification page or drawing.

E. SINGLE-PRIME CONTRACT

All references to “separate contracts” in the Procedures for Architects and Engineers Manual, Chapter 8, shall be deleted since this project will be advertised as a “Single Bid” (Lump Sum All Trades) contract. The single prime Contractor will be responsible for all work identified in the drawings and specifications.

The drawings shall have the required prefix designations and the specification sections shall have the color codes as specified for each trade in the DPMC Procedure for Architects and Engineers Manual.

The Consultant must still develop the Construction Cost Estimate (CCE) for each trade and the amount shall be included on the DPMC-38 Project Cost Analysis form where indicated. This document shall be submitted at each design phase of the project and updated immediately prior to the advertisement to bid.

PROJECT NAME: Heating Boiler Replacement
PROJECT LOCATION: New Jersey State Police Troop A Headquarters
PROJECT NO: S0628-00
DATE: June 21, 2019

XIII. SOW SIGNATURE APPROVAL SHEET

This Scope of Work shall not be considered a valid document unless all signatures appear in each designated area below.

The Client Agency approval signature on this page indicates that they have reviewed the design criteria and construction schedule described in this project Scope of Work and verifies that the work will not conflict with the existing or future construction activities of other projects at the site.

SOW PREPARED BY: James W. Wright 6/21/2019
JAMES WRIGHT, MANAGER DATE
DPMC PROJECT PLANNING & INITIATION

SOW APPROVED BY: LT Francis Boyd 6-24-2019
LT. FRANCIS BOYD, PROJECT MANAGER DATE
NEW JERSEY STATE POLICE

SOW APPROVED BY: Richard Herrero 7/8/2019
RICHARD HERRERO, PROJECT MANAGER DATE
DPMC PROJECT MANAGEMENT GROUP

SOW APPROVED BY: Richard Flodmand 7/10/19
RICHARD FLODMAND, DEPUTY DIRECTOR DATE
DIV PROPERTY MGT & CONSTRUCTION

XIV. CONTRACT DELIVERABLES

The following is a listing of Contract Deliverables that are required at the completion of each phase of this project. The Consultant shall refer to the DPMC publication entitled, "Procedures for Architects and Engineers," Volumes I and II, 2nd Edition, dated January, 1991 to obtain a more detailed description of the deliverables required for each item listed below.

The numbering system used in this "Contract Deliverables" section of the scope of work corresponds to the numbering system used in the "Procedures for Architects and Engineers" manual and some may have been deleted if they do not apply to this project.

DESIGN DEVELOPMENT PHASE: 50% Complete Design Documents (Minimum)

7.1 Project Schedule (Update Bar Chart Schedule)

7.2 Meetings & Minutes (Minutes within seven (7) calendar days of meeting)

7.3 Correspondence

7.4 Submission Requirements

- 7.4.1 A/E Statement of Site Visit, As-Built Drawing Verification (if available)
- 7.4.2 Space Analysis & Program Requirements
- 7.4.3 Special Features Description: security, special structural features, etc.
- 7.4.4 Site Evaluation
- 7.4.8 Regulatory Agency Approvals
- 7.4.9 Confirm Utility Availability (On Site & Public)
 - Gas Service
 - Electric Service
- 7.4.10 Drawings: 6 sets
 - Cover Sheet (See A/E Manual for format)
 - Site Utility Plan
 - Floor Plans
 - Elevations
 - Sections/Details
 - Structural Drawings, Seismic Design Load Criteria
 - HVAC Drawings, Heating Equipment Schedules
 - Plumbing Drawings, Pipe Distribution & Riser Details, Fixture Schedule
 - Electrical Drawings, Riser Diagram, Panel Schedules, Service Size

- 7.4.11 Specifications: 6 sets (See A/E Manual for format, include Division 1 and edit to describe the administrative and general requirements of the project)
- 7.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
- 7.4.13 Bar Chart of Design and Construction Schedule
- 7.4.14 Oral Presentation of Submission to Project Team
- 7.4.15 SOW Compliance Statement
- 7.4.16 This Submission Checklist (See A/E Manual, Figure 6.4.16 for format)
- 7.4.17 Deliverables Submission in Booklet Form: 7 sets

7.5 Approval

- 7.5.1 Respond to Submission Comments

7.6 Submission Forms

- Figure 7.4.12 Current Working Estimate/Cost Analysis
- Figure 7.4.16 Submission Checklist

FINAL DESIGN PHASE 100% Complete Construction Documents

This Final Design Phase may require more than one submission based on the technical quality and code conformance of the design documents.

8.1 Schedule (Update Bar Chart Schedule)

8.2 Meeting & Minutes (Minutes within seven (7) calendar days of meeting)

8.3 Correspondence

8.4 Submission Requirements

- 8.4.1 A/E Statement of Site Visit
 - 8.4.2 Space Analysis
 - 8.4.3 Special Features Description: security, special structural features, etc.
 - 8.4.4 Site Evaluation
 - 8.4.8 Regulatory Agency Approvals (Include itemized list specific to this project)
 - 8.4.10 Drawings: 6 sets
 - 8.4.11 Specifications: 6 sets
 - 8.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
 - 8.4.13 Bar Chart of Design and Construction Schedule
 - 8.4.14 Oral Presentation of this Submission to Project Team
 - 8.4.15 Plan Review/SOW Compliance Statement
 - 8.4.16 This Submission Checklist
-

8.4.17 Deliverables Submission in Booklet Form: 7 sets

8.5 Approvals

8.5.1 Respond to Submission Comments

PERMIT APPLICATION PHASE

This Permit Application Phase should not include any additional design issues. Design documents shall be 100% complete at the Final Design Phase.

8.6 Permit Application Submission Requirements

- 8.6.1 - 8.6.7: If all of the deliverables of these sections have been previously submitted to DPMC and approved there are no further deliverables due at this time
- 8.6.8 Regulatory Agency Approvals
 - (a) UCC Permit Application & Technical Sub-codes completed by A/E
- 8.6.9 Utility Availability Confirmation
- 8.6.10 Signed and Sealed Drawings: 6 sets
- 8.6.11 Signed and Sealed Specifications: 6 sets
- 8.6.12 Current Working Estimate/Cost Analysis
- 8.6.13 Bar Chart Schedule
- 8.6.14 Project Presentation (N/A this Project)
- 8.6.15 Plan Review/SOW Compliance Statement
- 8.6.16 Submission Checklist

8.7 Approvals

8.8 Submission Forms

- Figure 8.4.12 Current Working Estimate/Cost Analysis
- Figure 8.4.16 Submission Checklist (Final Review Phase)
- Figure 8.6.12-b Bid Proposal Form (Form DPMC -3)
- Figure 8.6.12-c Notice of Advertising (Form DPMC -31)
- Figure 8.6.16 Submission Checklist (Permit Phase)
- Figure 8.7 Bid Clearance Form (Form DPMC -601)

BIDDING AND CONTRACT AWARD

9.0 Bidding Phase Requirements

- 9.01 Original Drawings signed & sealed by A/E and drawings on compact disk (CD) in *Adobe Portable Document Format (.pdf)*

- 9.02 One Unbound Specification Color Coded per A/E Manual Section 8.4.11 and specifications on compact disk (CD) in *Adobe Portable Document Format (.pdf)*
- 9.03 Bid Documents Checklist
- 9.04 Bid Proposal Form
- 9.05 Notice for Advertising

9.1 Chair Pre-Bid Conference/Mandatory Site Visit

9.2 Prepare Bulletins

9.3 Attend Bid Opening

9.4 Recommendation for Contract Award

- 9.4.1 Prepare Letter(s) of Recommendation for Award & Cost Analysis

9.5 Attend Post Bid Review Meeting(s)

9.6 Submission Checklist

9.7 Submission Forms

- Figure 9.4.1 Cost Analysis
- Figure 9.6 Submission Checklist

CONSTRUCTION PHASE

10.1 Site Construction Administration

10.2 Pre-Construction Meeting

10.3 Construction Job Meetings

- 10.3.1 Agenda: Schedule and Chair Construction Job Meetings
- 10.3.2 Minutes: Prepare and Distribute Minutes within 5 working days of meeting
- 10.3.3 Schedules; Approve Contractors' Schedule & Update
- 10.3.4 Minutes Format: Prepare Job Meeting Minutes in approved format, figure 10.3.4-a

10.4 Correspondence

10.5 Prepare and Deliver Conformed Drawings

10.7 Approve Contractors Invoicing and Payment Process

10.8 Approve Contractors 12/13 Form for Subs, Samples and Materials

10.10 Approve Test Reports

10.11 Approve Shop Drawings

10.12 Construction Progress Schedule

10.12.1 Construction Progress Schedule

10.13 Review & Recommend or Reject Change Orders

10.13.1 Scope Changes

10.13.2 Construction Change Orders

10.13.3 Field Changes

10.14 Construction Photographs

10.15 Submit Field Observation Reports

10.16 Submission Forms

Figure 10.3.4-a Job Meeting Format of Minutes

Figure 10.3.4-b Field Report

Figure 10.6 DPMC Insurance Form-24

Figure 10.6-a Unit Schedule Breakdown

Figure 10.6-b Monthly Estimate for Payment to Contractor DPMC 11-2

Figure 10.6-c Monthly Estimate for Payment to Contractor DPMC 11-2A

Figure 10.6-d Invoice DPMC 11

Figure 10.6-e Prime Contractor Summary of Stored Materials DPMC 11-3

Figure 10.6-f Agreement & Bill of Sale certificate for Stored Materials DPMC 3A

Figure 10.7-a Approval Form for Subs, Samples & Materials DPMC 12

Figure 10.7-b Request for Change Order DPMC 9b

Figure 10.9 Transmittal Form DPMC 13

Figure 10.10 Submission Checklist

PROJECT CLOSE-OUT PHASE

11.1 Responsibilities: Plan, Schedule and Execute Close-Out Activities

11.2 Commencement: Initiate Close-Out w/DPMC 20A Project Close-Out Form

11.3 Develop Punch List & Inspection Reports

11.4 Verify Correction of Punch List Items

11.5 Determination of Substantial Completion

11.6 Ensure Issuance of “Temporary Certificate of Occupancy or Approval”

11.7 Initiation of Final Contract Acceptance Process

11.8 Submission of Close-Out Documentation

11.8.1 As-Built & Record Set Drawings, 3 sets AUTOCAD Discs Delivered to DPMC

11.8.2 (a) Maintenance and Operating manuals, Warranties, etc.: 7 sets each

(b) Guarantees

(c) Testing and Balancing Reports

(d) Boiler Inspection Certificates

(e) Shop Drawings

(f) Letter of Contract Performance

11.8.3 Final Cost Analysis-Insurance Transfer DPMC 25

11.8.4 This Submission Checklist

11.9 Final Payment

11.9.1 Contractors Final Payment

11.9.2 A/E Invoice and Close-Out Forms for Final Payment

11.10 Final Performance Evaluation of the A/E and the Contractors

11.11 Ensure Issuance of a “Certificate of Occupancy or Approval”

11.12 Submission Forms

Figure 11.2 Project Close-Out Documentation List DPMC 20A

Figure 11.3-a Certificate of Substantial Completion DPMC 20D

Figure 11.3-b Final Acceptance of Consultant Contract DPMC 20C

Figure 11.5 Request for Contract Transition Close-Out DPMC 20X

Figure 11.7 Final Contract Acceptance Form DPMC 20

Figure 11.8.3-a Final Cost Analysis

Figure 11.8.3-b Insurance Transfer Form DPMC 25

Figure 11.8.4 Submission Checklist

PROJECT NAME: Heating Boiler Replacement
PROJECT LOCATION: New Jersey State Police Troop A Headquarters
PROJECT NO: S0628-00
DATE: June 21, 2019

XV. EXHIBITS

The attached exhibits in this section will include a sample project schedule, and any supporting documentation to assist the Consultant in the design of the project such as maps, drawings, photographs, floor plans, studies, reports, etc.

END OF SCOPE OF WORK

February 7, 1997
Rev.: January 29, 2002

Responsible Group Code Table

The codes below are used in the schedule field "GRP" that identifies the group responsible for the activity. The table consists of groups in the Division of Property Management & Construction (DPMC), as well as groups outside of the DPMC that have responsibility for specific activities on a project that could delay the project if not completed in the time specified. For reporting purposes, the groups within the DPMC have been defined to the supervisory level of management (i.e., third level of management, the level below the Associate Director) to identify the "functional group" responsible for the activity.

<u>CODE</u>	<u>DESCRIPTION</u>	<u>REPORTS TO ASSOCIATE DIRECTOR OF:</u>
CM	Contract Management Group	Contract Management
CA	Client Agency	N/A
CSP	Consultant Selection and Prequalification Group	Technical Services
A/E	Architect/Engineer	N/A
PR	Plan Review Group	Technical Services
CP	Construction Procurement	Planning & Administration
CON	Construction Contractor	N/A
FM	Financial Management Group	Planning & Administration
OEU	Office of Energy and Utility Management	N/A
PD	Project Development Group	Planning & Administration

EXHIBIT 'A'

Activity ID	Description	Reph	Weeks
CV3055	Review & Approve Final Design Submittal	CM	
CV3056	Consolidate & Return Final Design Comments	CM	
CV3060	Prepare & Submit Permit Application Documents	AE	
CV3068	Prepare & Submit Bidding Cost Analysis (DPMC-38)	CM	
Plan Review-Permit Acquisition			
CV4001	Review Constr. Documents & Secure UCC Permit	PR	
CV4010	Provide Funding for Construction Contracts	CA	
CV4020	Secure Bid Clearance	CM	
Advertise-Bid-Award			
CV5001	Advertise Project & Bid Construction Contracts	CP	
CV5010	Open Construction Bids	CP	
CV5011	Evaluate Bids & Prep. Recommendation for Award	CM	
CV5012	Evaluate Bids & Prep. Recommendation for Award	AE	
CV5014	Complete Recommendation for Award	CP	
CV5020	Award Construction Contracts/Issue NTP	CP	
Construction			
CV6000	Project Construction Start/Issue NTP	CM	
CV6001	Contract Start/Contract Work (25%) Complete	CON	
CV6002	Preconstruction Meeting	CM	
CV6003	Begin Preconstruction Submittals	CON	
CV6004	Longest Lead Procurement Item Ordered	CON	
CV6005	Lead Time for Longest Lead Procurement Item	CON	
CV6006	Prepare & Submit Shop Drawings	CON	
CV6007	Complete Construction Submittals	CON	
CV6011	Roughing Work Start	CON	
CV6012	Perform Roughing Work	CON	
CV6010	Contract Work (50%+) Complete	CON	
CV6013	Longest Lead Procurement Item Delivered	CON	
CV6020	Contract Work (75%) Complete	CON	

NOTE:

Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.

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DRCA - TEST

Sheet 2 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit "A"



Project Site Location Map

New Jersey State Police Troop A Headquarters

EXHIBIT 'B'

**Heating Boiler Study
New Jersey State Police
Troop A Headquarters
1045 Route 54
Williamstown, NJ**



Lamney + Giorgio / Architects
215 Highland Avenue, #B
Haddon Twp., NJ 08108

L + G



Eastern Consultants, Inc.
2211 Lehigh Street
Easton, PA 18042

Prepared by:
David J. Parsons, PE

May 16, 2016

EXHIBIT 'C'

Lammey + Giorgio / Architects
215 Highland Avenue, # B
Haddon Twp, NJ 08108

May 16, 2016

Captain Cliff J. Hunt
Facility & Building Maintenance Unit
New Jersey State Police
Division Headquarters
River Road PO Box 7068
West Trenton, NJ 08628

Re: Heating Boiler Study
NJ State Police
Troop A Headquarters
1054 Route 54
Williamstown, NJ
DPMC: X0161-00 / Work Order #05
L+G: 14332.04

Dear Captain Hunt:

This letter transmits the Final Study for the above referenced project. As you know, this work was completed by our subconsultant, David J. Parsons, PE of Eastern Consultants, Inc.

The Study notes that the two existing boilers are in fair condition, but the burners are in poor condition. Both should be replaced as soon as possible.

Once replaced in accordance with our recommendations to install two separate boiler systems that are connected to two independent heating supply and return branch piping systems, the boilers will be able to function without the need for a Black Seal Operator. Some piping reconfiguration will be required, as well as boiler vent and air intakes, pumps, expansion tanks, controls, and electrical circuits.

We estimate construction costs for this work to be approximately \$807,918 based on third quarter 2017 dollars. A 6% escalation factor has been applied to generate the base construction cost estimate for that date. Total project costs, including fees, contingencies, etc. are estimated at approximately \$1,096,259.



EXHIBIT 'C'

It should also be understood that this work should be completed as soon as possible because of the poor condition of the existing burners. It is not unreasonable to expect that one of the burners could fail during the upcoming heating season. Burner replacement costs on an emergency basis could be in the range of \$45,000 to \$50,000 each, with a four to six week lead time from the date of placing an order to receipt of burner.

Please review and advise if you have any questions regarding this information.
Thank you again for the opportunity to be of service.

Sincerely,

LAMMEY & GIORGIO, P.A.



William P. Lammey, AIA

Encl: Study

cc: D. Parsons w/encl

L + G



EXHIBIT 'C'

**HEATING BOILER STUDY
TROOP A HEADQUARTERS BUILDING
NEW JERSEY STATE POLICE
1045 ROUTE 54
WILLIAMSTOWN, NEW JERSEY**

PURPOSE:

This study includes a review of the existing building and heating system, an analysis of the boilers and the requirements for Black Seal boiler operator, recommendation, and a preliminary construction cost for the recommended work.

EXISTING CONDITIONS:

The headquarters building was built in 1994. The building is a one story structure with a total gross area of 55,120 square feet.

The building is divided into the following spaces:

Offices: 33,130 square feet. These spaces are heated, ventilated and cooled. The office spaces have large HVAC units with cooling coils that cool the space with chilled water from a central chiller and have heating coils that are heated with hot water supplied by the heating boilers. Additional perimeter radiation and some cabinet heaters provide supplemental heat to the office spaces and are supplied with hot water from the boilers.

Maintenance Bay and Storage Rooms: 20,690 square feet. These spaces are heated and ventilated. The maintenance bay and smaller utility rooms have unit heaters and radiation for heat, and the maintenance bay has two heating and ventilating units to ventilate the bays. Another heating and ventilation unit heats the storage spaces. The boilers supply hot water to the heating coils in these units.

Sally Port: 1,300 square feet. This space is not heated.

The building is heated by a hot water hydronic system that consists of the boilers, hot water circulation pumps, and hot water pipe distribution system to supply hot water to the HVAC units, heating and ventilation units, unit heaters, and radiation throughout the building.

There are currently two natural gas heating boilers and three hot water pumps in the boiler that provide hot water to the piping distribution system. The control system runs one pump and brings on a second pump if required in colder weather. The third pump is a standby pump in case one of the other pumps fail.

The two existing fire-tube steel boilers are equipped with natural gas burners. The boilers are in fair condition but are at the end of their expected life cycle. The burners are aging and one burner was not operational and has an ongoing history of ignition problems which has kept this boiler out of service. The burners are in poor condition and should be replaced soon if the boilers are not replaced.

Each boiler is rated at 70 Boiler Horsepower (BHP). The two boilers are connected to common supply and return headers. Water from the supply header is pumped to the supply pipes for the HVAC equipment and radiation in the building and then returns to the return header and back into the boilers. The total connected load with two boilers on the hydronic heating system is 140 BHP.

During my site visit one boiler was not operational and the maintenance staff was working on repairing the burner. They were also working to separate the connections between the two boilers. This was being done so they could run only one boiler without the one boiler being connected to the heating system and would not need an operator on site. They were also preparing flanges and pipes so that they could to reconnect the second boiler to the system in the event the prime boiler fails.

ANALYSIS:

Currently the two boilers, which are connected together, supply hot water to the building, have a combined capacity of 140 BHP. New Jersey Department of Labor and Workforce regulations require that any boiler or boilers connected together with a capacity of over 100 BHP or more requires that a Black Seal Operator in charge and operators must be on site at any time the building is occupied and the boilers are in operation. With one boiler physically disconnected and only one boiler at 70 BHP no operator has to be on site. This is a temporary measure and action should be taken to provide a more reliable heating system.

The existing building design load obtained from the As-built drawings for this building is 4,305 MBH or approximately 128 BHP. The existing two boilers are sized at 140 BHP and incorporated the additional pick-up capacity to allow for times when building must be heated from set-back temperature to occupied space temperatures. Boilers are normally sized based on the design conditions or 5 degrees Fahrenheit outside temperature. Most of the time the boilers do not have the deal with these low temperatures, and one of the boilers running will be able to carry the building 95% of the time so that if one boiler is out of service the remaining boiler can keep the building in operation most of the time.

The exiting boilers are at the end of the usable life cycle and should be replaced.

Two direct replacement boilers with the same performance of the existing boilers will require a Black Seal operator in charge and operator on site whenever the building is occupied.

RECOMMENDATION:

The building heating supply and return mains split into two separate branches to the building heating equipment just outside the boiler room. Recommend that the two separate boiler systems are connected to the two separate heating supply and return major branch pipes at this location to create two independent heating systems. Piping zone 1 connects to heating equipment supplying 2421 MBH (56%), and zone 2 connects to heating equipment supplying 1,883 MBH (44 %). Recommend removing the supply and return connections to H&V Unit 1 from zone 1 and connecting them to zone 2 to equalize the two system loads as follows. Zone 1 will be 2046 MBH (47.5%) and zone 2 will be 2259 MBH (52.5%) which will make the two zones have an almost equal heating load.

Recommend separating existing building heating pipe distribution system into two independent zones. Each zone will be connected to a separate independent boiler system having a capacity of less than 100

BHP. This will eliminate the requirement to have a Black Seal operator and full time operators whenever the building is occupied and the boilers are on.

Two new boilers piped together will serve zone one piping, and two new boilers would serve zone two piping. This will provide two separate independent heating systems each less than 100 BHP which will not require full time boiler operators.

Recommend installing two independent heating systems. Each system will have two (2) boilers with a combined capacity of 89 BHP. New equipment in the boiler room shall include the following equipment:

- Two (2) independent building boiler systems. Each system will have two (2) 44.5 BHP boilers piped to common supply and return header and two circulation pumps and will be piped to connect to one of the two existing heating zones supply and return lines just outside of the boiler room.
- All boilers will be high-efficiency gas fired boilers to reduce the gas consumption and provide savings in annual operating costs.
- New boiler vent and air intake will be installed for each new condensing boiler.
- One main circulator pump and backup pump with VFD drives will be provided for each boiler system.
- New expansion tanks will be provided for each independent boiler system.
- New operating control shall be provided for the two new boiler systems will integrated into the existing Metysis building temperature control system.
- Provide new electrical circuits for new boilers and pumps and controls.
- Disconnect H&V Unit No. 1 from zone one heating system and reconnect to zone 2 heating system.
- Remove the existing boilers, pumps, expansion tanks, pumps, piping, breaching, sack, wiring and controls made obsolete by the renovations will be demolished and removed from the site.

CONSTRUCTION COST ESTIMATE:

See our Preliminary Construction Cost Estimate that follows. These costs are estimated at \$807,918.39, which includes a 6% Escalation factor between now and the estimated mid-point of construction.

Total project costs are provided on the attached DPMC-38 form. These costs include construction, design, fees, contingencies, and other items indicated. We estimate total project costs at \$1,096,259.

Because of the condition of the existing burners, State Police should be prepared for emergency repairs while waiting for the boiler replacement to be funded, designed and constructed. A budget cost of \$45,000 to \$50,000 per burner replacement should be expected, along with a 4 to 6 week lead time from date the burner is order until it is delivered to the site.

PRELIMINARY CONSTRUCTION COST ESTIMATE
HEATING BOILER STUDY
NJ STATE POLICE TROOP A HQ BUILDING
05/16/16

ITEM	QUANTITY	UNIT COST		TOTALS	
		LABOR	TOTAL	LABOR	AMOUNT
MOBILIZATION	1.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00
CONDENSING BOILERS	4.00	\$20,000.00	\$61,717.00	\$80,000.00	\$246,868.00
BOILER PUMPS	4.00	\$400.00	\$1,000.00	\$1,600.00	\$4,000.00
BOILER VENTS	4.00	\$1,500.00	\$3,000.00	\$6,000.00	\$12,000.00
CIRCULATION PUMPS	4.00	\$820.00	\$15,000.00	\$3,280.00	\$60,000.00
CIRC. PUMP VFD DRIVES	4.00	\$500.00	\$2,500.00	\$2,000.00	\$10,000.00
EXPANSION TANK	2.00	\$500.00	\$3,000.00	\$1,000.00	\$6,000.00
AIR COTROL FITTINGS	2.00	\$500.00	\$3,000.00	\$1,000.00	\$6,000.00
GAS PIPING	4.00	\$1,500.00	\$3,000.00	\$6,000.00	\$12,000.00
WATER PIPING	4.00	\$500.00	\$800.00	\$2,000.00	\$3,200.00
BACKFLOW PREVENTOR	1.00	500.00	1500.00	500.00	1500.00
ATC CONTROLS	6.00	\$2,000.00	\$4,000.00	\$12,000.00	\$24,000.00
DEMOLITION	1.00	\$15,000.00	\$20,000.00	\$15,000.00	\$20,000.00
HW PIPING - BOILERS	4.00	\$5,000.00	\$9,000.00	\$20,000.00	\$36,000.00
HW PIPING ZONES & H&V1	3.00	\$5,000.00	\$8,500.00	\$15,000.00	\$25,500.00
DRAIN & REFILL SYSTEM	4.00	\$2,000.00	\$2,500.00	\$8,000.00	\$10,000.00
GLYCOL/WATER FILL	1.00	\$2,000.00	\$14,000.00	\$2,000.00	\$14,000.00
CHEM FILTER & TANK	1.00	\$1,000.00	\$4,000.00	\$1,000.00	\$4,000.00
ELECTRICAL	8.00	\$1,000.00	\$1,800.00	\$8,000.00	\$14,400.00
BRANCH CKT WIRING/FT2	4000.00	\$0.60	\$1.20	\$2,400.00	\$4,800.00
ROOF REPAIR - STACK	1.00	\$1,000.00	\$2,000.00	\$1,000.00	\$2,000.00
ROOF VENTS	8.00	\$800.00	\$1,500.00	\$6,400.00	\$12,000.00
STARTUP & TEST BOILERS/EA	4.00	\$1,000.00	\$1,600.00	\$4,000.00	\$6,400.00
STARTUP & TEST PUMPS/EA	4.00	\$1,000.00	\$1,600.00	\$4,000.00	\$6,400.00
WARRANTY SERVICE	4.00	\$800.00	\$1,200.00	\$3,200.00	\$4,800.00
BALANCING	6.00	\$1,000.00	\$1,000.00	\$6,000.00	\$6,000.00
DEMOBILIZATION	1.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00
AREA ADJUSTMENT		23.60%	9.30%	\$51,301.68	\$51,881.72
SUB TOTAL					\$609,749.72
TOTAL LABOR				\$268,681.68	
LABOR ADJUSTMENT					
FACTOR				0.00%	
LABOR ADJUSTMENT					
AMOUNT					\$0.00
SUBTOTAL					\$609,749.72
OVERHEAD				15.00%	\$91,462.46
PROFIT				10.00%	\$60,974.97
SUBTOTAL					\$762,187.16
ESCALATION @ 6%					\$45,731.23
TOTAL					\$807,918.39

PROJECT COST ANALYSISDPMC NUMBER: X0161-00 / WO 05Date: 5/16/2016Project Name: Heating Boiler Study, Troop A HeadquartersProject Phase:
Scope of WorkLocation: Williamstown, NJ**Cost Phase "C" - Construction**

1 General Construction	
2 Structural Steel	<u>0</u>
3 Plumbing	<u>0</u>
4 HVAC	<u>807,918</u>
5 Electrical	
6 Other Trades (specify): <u>Fire Protection</u>	
7 TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)	<u>807,918</u>

Cost Phase "D" - Design

8 Consultant Design Fee	<u>76,000</u>
9 Consultant Construction Administration Fee	<u>26,000</u>
10 Asbestos Remediation Design Fee	<u>0</u>
11 Asbestos Monitoring Fees	<u>0</u>
12 Survey Services	<u>0</u>
13 Testing Services	<u>0</u>
14 Roofing Inspection	<u>0</u>
15 Other (specify): _____	
16 TOTAL DESIGN SERVICES (Lines 8 thru 15)	<u>102,000</u>

Cost Phase "K" - Affirmative Action

17 Affirmative Action (1/2 % of Line 7)	<u>4,040</u>
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Cost Phase "M" - Management Fees

18 DPMC Management Fee (8% of Line 7)	<u>64,633</u>
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Cost Phase "N" - Construction Management

19 Construction Management Services (CM/CPM)	<u>0</u>
--	----------

Cost Phase "O" - Contingency

20 Construction (10% of Line 7)	<u>80,792</u>
21 Design (10% of Line 16)	<u>10,200</u>
22 TOTAL PROJECT CONTINGENCY (Lines 20 & 21)	<u>90,992</u>

Cost Phase "P" - Permits

23 U.C.C. (DCA or DPMC) Plan Review Fee	<u>13,338</u>
24 U.C.C. Permit/Field Inspection/C.O. Fee	<u>13,338</u>
25 Soil Conservation	
26 Other (specify): _____	<u>0</u>
27 TOTAL PERMIT FEES (Lines 23 thru 26)	<u>26,676</u>

Cost Phase "R" - Arts Inclusion

28 Arts Inclusion Allowance	<u>0</u>
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Cost Phase "B" - Other Costs

29 Other (specify): _____	<u>0</u>
30 Other (specify): _____	<u>0</u>
31 TOTAL OTHER COSTS (Lines 29 & 30)	<u>0</u>

32 CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31) **\$1,096,259**



Boiler #1 currently disconnected.



Boiler #2. Hot water pumps in the background.

EXHIBIT 'D'



Common header connecting the two boilers.



Stack through roof to be removed. Roof opening to be closed and sealed up.

EXHIBIT 'D'



Heating water supply and return lines at wall just outside boiler room.



Heating water supply and return lines split into two branches in this area.

EXHIBIT 'D'