



water

CONTRACT AND SPECIFICATIONS

**RIVERHEAD WATER DISTRICT
TOWN OF RIVERHEAD
SUFFOLK COUNTY, NEW YORK**

INSTALLATION OF EMERGENCY
GENERATORS
AT PLANT NO. 1 & 16

Project No: RDWD 16-08

TOWN SUPERVISOR

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TOWN COUNCIL

John Dunleavy
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TOWN CLERK

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JUNE 2017



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SECTION 001113 – NOTICE TO BIDDERS

The Town Board of Riverhead will receive bids for the “**Installation of Emergency Generators at Plant No. 1 & 16**” for the Riverhead Water District at the Town Clerk’s office, Town Hall, 200 Howell Avenue, Riverhead, New York 11901, until **2:05 P.M.**, on **Thursday, June 29, 2017** at which time and place all bids will be publicly opened and read aloud for:

**Riverhead Water District
Installation of Emergency Generators at Plant No. 1 & 16
PROJECT NO.: RDWD 16-08**

Plans and specifications may be examined on or after *Thursday, June 15, 2017* by visiting the Town of Riverhead website: <http://townofriverheadny.gov> and click on “Bid Requests”. Plans and specifications are available in electronic format only from the aforementioned website.

Each proposal must be accompanied by a bid bond in the amount of five percent (5%) of the total bid, or a certified check made payable to the TOWN OF RIVERHEAD as assurance that the bid is made in good faith.

The right is reserved to reject any or all bids, to waive any informality, and to accept the lowest responsible bid.

BY ORDER OF THE TOWN BOARD
TOWN OF RIVERHEAD
SUFFOLK COUNTY, NEW YORK

ACTING AS THE GOVERNING BODY
OF THE RIVERHEAD WATER DISTRICT

TOWN CLERK, TOWN OF RIVERHEAD

DATED: June 15, 2017

SECTION 002113 – INFORMATION FOR BIDDERS

BIDS FOR PROJECT

The Town of Riverhead, at the Town Clerk's office, will receive SEALED PROPOSALS for:

**Riverhead Water District
Installation of Emergency Generators at Plant No. 1 & 16
PROJECT NO.: RDWD 16-08**

TIME AND PLACE OF BID

Bids are to be submitted in sealed opaque envelopes, and will be received by the Town of Riverhead, at the Town Clerk's office, Town Hall, 200 Howell Avenue, Riverhead, New York, not later than **2:05 P.M.** prevailing time, on **Thursday, June 29, 2017** at which time and place they will be publicly opened and read aloud. Use of the mails shall be at the Bidder's own risk, and the Bidder shall be responsible for physical delivery of the bid at the time and place set for opening of bids.

BID ENVELOPE

All proposals and either the certified check or bid bond must be placed in a sealed opaque envelope bearing the Bidder's firm name and address and marked, "PROJECT NO.: RDWD 16-08, INSTALLATION OF EMERGENCY GENERATORS AT PLANT No. 1 & 16, FOR THE RIVERHEAD WATER DISTRICT, TOWN OF RIVERHEAD, SUFFOLK COUNTY, NEW YORK", but otherwise unmarked. Bid package shall include Proposal sheets, Qualifications of Bidder sheets, Approval of Subcontractor sheets, and the New York State Uniform Contracting Questionnaire.

PLANS AND SPECIFICATIONS

Plans and specifications may be examined on or after **Thursday, June 15, 2017** by visiting the Town of Riverhead website: <http://townofriverheadny.gov> and click on "Bid Requests".

Plans and specifications are available from the aforementioned Town of Riverhead website only. All contractors who intend to submit a bid package are required to register on the web site.

VERBAL ANSWERS

The Town Board, its agents, servants or employees, or the Engineer, will not be responsible in any manner for verbal answers to any inquiries regarding the meaning of the contract drawings or Specifications given prior to the awarding of the contract.

EXAMINATION OF SITE

Bidders must satisfy themselves by personal examination of the location of the proposed work and of the actual conditions and requirements of the work and shall not, at any time after the submission of a proposal, dispute or complain of such estimate or assert that there was any misunderstanding in regard to the depth or character of excavation to be made or the nature of the work to be done.

PROPOSAL

The Proposal contained herein shall be used in making out bids. Any proposal not in accordance with these instructions or containing bids not asked for may be rejected. While separate prices are required for various items under this contract, it is understood that the contract will be awarded as a whole.

As the estimates of quantities of items stated in the Proposal are approximate only, bidders are required to submit their proposal upon and in the following express conditions, which shall apply and become part of every proposal received.

Bids will be compared by total amounts, said total amount being the sum of the products of the quantities multiplied by the unit price bid for the various items, with due consideration being given to the lump sum prices bid for any contingent or optional items. Unbalanced bids will not be accepted.

Each bidder shall fill out in ink, in both words and figures, in the spaces provided, its unit or lump sum bid, as the case may be, for each item in said Proposal for which it is submitting a bid. If there is any discrepancy between the prices in words and figures, the prices in words shall govern as unit and lump sum prices.

A bid which does not include bids for all items in the Proposal may not be considered valid.

If the contract is not awarded by the Town Board within ninety (90) days after the receipt of bids, the obligation of the bidder under this Proposal may terminate at its option and it shall thereupon be entitled to a refund of its certified check or release of its bid bond furnished by it as security with its proposal.

BID BOND OR CERTIFIED CHECK

Each proposal from a Contractor shall be accompanied by a bid bond or certified check on a solvent bank of the STATE OF NEW YORK, in the amount of five percent (5%) of the total bid. Such check shall be made payable to TOWN OF RIVERHEAD, RIVERHEAD, NEW YORK, and the amount thereof shall be the measure of liquidated damages which the Town may sustain by failure, neglect or refusal of the bidder to execute and deliver the contract, should the contract be awarded to it. The checks of all unsuccessful bidders will be returned upon the rejection of bids and the awarding of the contract; also, the check of the successful bidder will be returned upon the execution of the contract and the furnishing of the required bond.

NAME OF BIDDER

Each bidder must state, in its proposal, its full name and business address, and the full name of every person, firm or corporation, interested in same, and the address of every person or firm, or president and secretary of every corporation, interested with it.

QUALIFICATIONS OF BIDDERS

(1) The Town Board reserves the right to waive any informalities in, or reject any and all bids. The Board reserves the right to reject any and all bids which do not conform to the Proposal.

(2) All bidders must prove to the satisfaction of the Town Board that they are reputable, reliable and responsible, and that they possess the necessary qualifications (financial, labor, equipment and otherwise) to complete successfully the proposed work.

(3) In determining the qualifications of a bidder, the Town Board will consider its record in the performance of any contracts entered into by it for the work contemplated or of similar nature, may make such investigation as it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Board all such information and data for this purpose as the Town Board may request.

(4) The Town Board shall be the sole judge of the qualifications of the bidders and of the merits thereof and reserves the right to reject any bid if the record of the bidder in the performance of contracts, payment of bills and meeting of obligations to subcontractors, material men or employees is not satisfactory to the Town Board, or if the evidence submitted by, or the investigation of, such bidders fails to satisfy the Town Board that it is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein.

PERFORMANCE AND MAINTENANCE BOND

The Contractor shall furnish a Performance Bond, Labor and Materials Bond, and a one (1) year Maintenance Bond each in an amount equal to one hundred (100%) percent of the total contract price as security for its faithful performance of this contract, for the payment of all persons performing labor or furnishing materials in connection with this contract. Such bonds shall also cover any penalties, interest charges and assessments levied by any governmental unit for failure to comply with laws and/or regulations governing public work. The Maintenance Bond shall be an assurance that all work and materials provided under this contract shall be maintained for a minimum period of one (1) year. The Maintenance Bond shall be furnished following final completion, and payment under the contract. The contractor shall be required to furnish all guarantees and warranties of manufacturers of products in connection with this contract, but no manufacturer's limitation of time shall act to limit the responsibility of the contractor or its surety hereunder.

The surety must be licensed in the State of New York and have a BEST A rating, or the surety shall present information satisfactory to the TOWN/DISTRICT to permit the TOWN/DISTRICT to accept the bond.

At the time of submission of bonds or at any time thereafter, the TOWN/DISTRICT may evaluate the surety or sureties proposed, and demand a change of surety if it determines that the financial position of such surety does not provide for a proper protection of the interests of the TOWN/DISTRICT. The TOWN/DISTRICT shall be guided by its legal counsel, and insurance industry consultants in determining proper sureties for TOWN/DISTRICT public works contracts. If the TOWN/DISTRICT notifies the contractor in writing that a surety is unacceptable for any reason, then the contractor shall replace the surety and the bond in question within five (5) business days with a surety and bond deemed suitable by the said TOWN/DISTRICT. The premiums charged for all such bonds shall be a cost of the contractor and not the TOWN/DISTRICT. Upon notice to change surety being forwarded to a contractor, no further payments shall be made until a new bond in proper form naming an acceptable surety is provided.

SIGNATURE OF CONTRACTOR

The bidder to whom a contract may be awarded shall attend at the office of the Town Board, with the sureties offered by it, within seven (7) days, Saturdays and Sundays excepted, after date of notification of the acceptance of its proposal, and there sign the contract in quadripartite for the work and furnish approved security for its performance.

In case of failure to do so, the bidder shall be considered as having abandoned the same, and the check accompanying its proposal shall be forfeited to the Town Board, or the penalty of the bid bond shall be invoked.

CONTRACTOR'S INSURANCE

The Contractor shall not commence any work until it has obtained and had approved by the Town all of the insurance specified and required by the Contract.

The Contractor shall not permit any subcontractor to commence any operation on the site until satisfactory proof of carriage of the above required insurance has been posted with, and approved by, the Town Board.

RESPONSIBILITY OF BIDDER

Attention is hereby particularly directed to the provisions of the contract whereby the Contractor will be responsible for any loss or damage that may happen to the work or any part thereof during its progress; and also whereby the Contractor shall make good any defects or faults that may occur during the progress of the work or within twelve (12) months after date of the Engineer's approval of the final payment request.

LABOR RATES

The Contractor shall pay not less than the minimum hourly wage rates on this contract as established in accordance with Section 220 of the Labor Law, as shown on the Wage Schedule and Prevailing Rate Schedule, either shown on the following pages or the current prevailing rates paid at the time of construction.

Each bidder shall submit with its bid a separate sealed list that names each subcontractor that the bidder will use to perform work on the contract, and the agreed-upon amount to be paid to each, for: (i) plumbing and gas fitting, (ii) steam heating, hot water heating, ventilating and air conditioning apparatus and (iii) electric wiring and standard illuminating fixtures. After the low bid is announced, the sealed list of subcontractors submitted with such low bid shall be opened and the names of such subcontractors shall be announced, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the owner, upon a showing presented to the owner of legitimate construction need for such change, which shall be open to public inspection. Legitimate construction need shall include, but not be limited to, a change in project specifications, a change in construction material costs, a change to subcontractor status as determined pursuant to paragraph (e) of subdivision two (2) of section two hundred twenty-two (222) of the labor law, or the subcontractor has become otherwise unwilling, unable or unavailable to perform the subcontract. The sealed lists of subcontractors submitted by all other bidders shall be returned to them unopened after the contract award.

COMPLETION OF WORK

Work is required to be completed to the satisfaction of the Engineer, and in substantial accordance with the Specifications hereunto annexed and the Plans therein referred to and the Change Orders amended to the Contract.

RESPONSIBILITY OF CONTRACTOR

Attention is hereby particularly directed to the provisions of the contract whereby the Contractor will be responsible for any loss or damage that may happen to the work or any part thereof during its progress; and also whereby the Contractor shall make good any defects or faults that may occur during the progress of the work or within twelve (12) months after its completion and acceptance. Any progress payments made by the Town during the completion of this contract by the Contractor shall not be a waiver of the foregoing provision.

TOWN BOARD

TOWN OF RIVERHEAD
SUFFOLK COUNTY, NEW YORK

END OF SECTION 002113

SECTION 004105 – BIDDER'S DECLARATION

TO THE TOWN COUNCIL
RIVERHEAD WATER DISTRICT

For the furnishing and installing of materials for all work included under contract as follows:

Made this day of _____, by

BIDDER'S DECLARATION:

The party named as Bidder declares that the only person or persons interested in this bid or proposal as principal or principals is or are named herein; and that no other person than herein named has any interest in this proposal or in the contract proposed to be taken; that this bid or proposal is made without any connections with any other person and persons making a bid or proposal for the same purpose; that the bid or proposal is in all respects fair and without collusion or fraud; that it has examined the site of the work, the contract and specifications and the drawings referred to; and has read the Information for Bidders hereto attached; and it proposes and agrees, if this proposal is accepted, it will contract in the form as approved to perform all the work mentioned in said contract and specifications; and it will accept in full payment therefore the following sums to wit:

END OF SECTION 004105

SECTION 004118 – PROPOSAL

Gentlemen:

The undersigned hereby offers to furnish all labor, equipment, materials and appurtenances for Installation of Emergency Generators at Plant Nos. 1 & 16 for the Riverhead Water District, all in accordance with the plans and specifications prepared by H2M architects + engineers for the following lump sum prices:

PLANT NO. 16 – EDWARDS AVENUE

ITEM A – INSTALLATION OF EMERGENCY GENERATOR AT PLANT No. 16 – EDWARDS AVE.

For the installation of a permanent emergency generator at Plant No. 16 – Edwards Avenue including site work, removals, concrete work, furnish and install generator, conduit, wiring, restoration and all incidentals in accordance with the contract documents.

LUMP SUM (ITEM A) _____
_____(\$ _____)
DOLLARS

PLANT NO. 1 – PULASKI STREET

ITEM B1 – INSTALLATION OF EMERGENCY GENERATOR AT PLANT No. 1 - PULASKI STREET

For the installation of a permanent emergency generator at Plant No. 1 – Pulaski Street including site work, removals, concrete work, furnish and install generator, conduit, wiring, restoration and all incidentals in accordance with the contract documents.

LUMP SUM (ITEM B1) _____(\$ _____)
DOLLARS

ITEM B2 – NATURAL GAS ALLOWANCE ITEM

For all cash allowances specified in Section 012100 – Allowances

FIXED COST (ITEM B2) Fourty Thousand & 00/XX _____ (\$ **40,000.00**)
DOLLARS

SUM OF ITEMS B1 & B2 - INSTALLATION OF EMERGENCY GENERATOR AT PLANT No. 1 – PULASKI ST.

For the installation of a permanent emergency generator at Plant No. 1 – Pulaski Street including site work, removals, concrete work, furnish and install generator, conduit, wiring, restoration and all incidentals in accordance with the contract documents.

LUMP SUM (ITEM A) _____
_____(\$ _____)
DOLLARS

CONTINGENCY BID ITEM B3 – INSTALLATION OF BACK-UP PROPOANE FUEL SOURCE FOR EMERGENCY GENERATOR AT PLANT No. 1 – PULASKI STREET

For the installation of a back-up propane fuel system for the emergency generator at Plant No. 1 including the furnishing and installation of buried fuel tanks, supply lines and initial fill of tank.

LUMP SUM (CONTINGENCY ITEM B3) _____(\$ _____)
DOLLARS

THE TOWN OF RIVERHEAD/RIVERHEAD WATER DISTRICT RESERVES THE RIGHT TO AWARD THIS CONTRACT BASED ON EITHER THE SUM OF BOTH SITES OR ANY COMBINATION OF ITEMS. THE TOWN/DISTRICT RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS

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==

BIDDER: _____

BIDDER'S ADDRESS: _____

SIGNED BY: _____ TITLE: _____

PRINT NAME: _____ DATE: _____

PHONE: _____ FAX: _____

E-MAIL: _____

FEDERAL I.D. NO.: _____

WITHIN TEN (10) DAYS (WEEKENDS AND LEGAL HOLIDAYS EXCEPTED) AFTER ACCEPTANCE OF THIS BID BY THE TOWN/DISTRICT, THE BIDDER SHALL EXECUTE THE CONTRACT. THE BIDDER SHALL FURNISH THE REQUIRED BONDS AND INSURANCES TO THE WATER DISTRICT'S ATTORNEY WITHIN THE SAME TIME FRAME.

SCHEDULE OF WORK

ALL CONTRACT WORK INCLUDED WITHIN EACH SITE SHALL BE COMPLETED WITHIN TWO-HUNDRED (200) CONSECUTIVE CALENDAR DAYS AFTER THE DATE OF THE NOTICE TO PROCEED. A NOTICE TO PROCEED WILL BE ISSUED AND WILL INCLUDE THE COMPLETION DATE.

FAILURE OF THE CONTRACTOR TO COMPLETE ALL WORK WITHIN THE SPECIFIED TIME PERIOD WILL SUBJECT HIM TO LIQUIDATED DAMAGES AS SET FORTH IN THE CONTRACT, IN THE SUM OF FIVE HUNDRED DOLLARS (\$750.00) PER DAY, COMMENCING WITH THE 201ST DAY AS SET FORTH IN THE NOTICE TO PROCEED.

SPECIFIC DAMAGES WILL BE ASSESSED AND DEDUCTED FROM AMOUNTS OTHERWISE DUE THE CONTRACTOR FOR ADDITIONAL INSPECTION AND CONTRACT MANAGEMENT TIME REQUIRED BEYOND THE COMPLETION PERIODS ESTABLISHED. SUCH DEDUCTION SHALL BE NO LESS THAN \$100.00 PER DAY AND NO MORE THAN \$400.00 PER DAY.

THE BIDDER REPRESENTS HERewith THAT HE IS AWARE OF THE WORKING CONDITIONS, HAS CAREFULLY REVIEWED THE PROPOSAL AND SPECIFICATIONS, HAS CHECKED AND CERTIFIES THE ACCURACY OF THE BID.

THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE DISTRICT TO MINIMIZE DISTURBANCES TO DISTRICT OPERATIONS.

THE UNDERSIGNED HEREBY ALSO ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA, IF ANY:

ADDENDUM NO.	DATED

TELEPHONE NUMBER WHERE THE CONTRACTOR OR A COMPETENT REPRESENTATIVE CAN ACCEPT A TELEPHONE MESSAGE AND PROVIDE A REASONABLE REPLY AS SOON AS POSSIBLE, WITHIN 24 HOURS OF BEING CONTACTED.

DAY: (____)_____ NIGHT: (____)_____

EMERGENCY: (____)_____ FAX: (____)_____

END OF SECTION 004118

SECTION 004313 - BID SECURITY

Enclosed is a certified check or bid bond for five percent (5%) of the total amount of the bid as required by the foregoing "Information for Bidders."

The Bidder hereby agrees to appear with its sureties at the office of the Town of Riverhead, Town Clerk's office within ten (10) days (Weekends and Legal Holidays excepted) after due notice from the Town Board that the contract has been awarded to it and is ready for signature; such notice to be given in writing within thirty (30) days of opening of the bids (unless a moving fee is contained on the Proposal pages, and then to the last time interval of any moving fee contained on the Proposal pages); and, on the signing of such contract by the Bidder, to furnish the indemnifying bonds as provided in the General Conditions.

The Bidder hereby further agrees that in the event of its failure or refusal to enter into a contract in accordance with this bid within ten (10) days (Weekends and Legal Holidays excepted) after due notice from the Town Board that the contract has been awarded to it and is ready for signature, as given in accordance with the Information for Bidders and/or its failure to execute and deliver the bond for the full amount of the contract price, as provided in said Information for Bidders, the Bidder's check or bid bond which is herewith deposited with the Town Board shall (at the option of said Board) become due and payable as ascertained and liquidated damages for such default; otherwise, said check or bid bond will be returned to the undersigned.

The full names and residences of all persons and parties interested in the foregoing bid as principals are as follows:

NAME	ADDRESS
_____	_____
_____	_____
_____	_____

NAME OF BIDDER: _____

BUSINESS ADDRESS OF BIDDER: _____

DATED AT: _____ THE _____ DAY OF _____, 20 ____.

SECTION 004355 - INDEMNITY, LIMITATION OF LIABILITY

1.0 - INDEMNITY

The Contractor and all subcontractors performing work in connection with this Contract shall HOLD HARMLESS, INDEMNIFY and DEFEND the Owner and Engineer, their consultants and each of their officers, agents and employees from any liability, claims, losses or damage including reasonable costs of defense arising out of or alleged to arise from the Contractor's or subcontractor's negligence in the performance of the work described in the Contract Documents, but not including liability that may be due to the sole negligence of the Owner, the Engineer or their officers, agents and employees.

2.0 - LIMITATION OF LIABILITY

The Contractor and all subcontractors agree to limit the liability of the Owner and the Engineer due to the Engineer's professional negligent errors or omissions such that the total aggregate liability of the Engineer to those named shall not exceed Fifty Thousand Dollars (\$50,000) or five percent (5%) of the Contract award amount, whichever is greater.

3.0 - NO CLAIM FOR DELAY

The Contractor and all subcontractors agree to HOLD HARMLESS from any and all claims for loss or damages of any nature against the Owner or Engineer for delays in commencement, performance or completion of the Contract, regardless of whether said delays are, or may be, caused by the Owner, Engineer or any governmental agency.

END OF SECTION 004355

SECTION 004519 - NON-COLLUSIVE BIDDING CERTIFICATE

Pursuant to Section 103-D of the General Municipal Law, the Contractor makes the following statement under penalty of perjury, and by submission of this bid or proposal, the bidder certified that:

(a) This bid or proposal has been independently arrived at without collusion with any other bidder or with any competitor or potential competitor; (b) this bid or proposal has not been knowingly disclosed and will not be knowingly disclosed prior to the opening of the bids or proposals for this project to any other bidder, competitor or potential competitor; (c) no attempt has been or will be made to induce any other person, partnership or corporation to submit or not to submit a bid or proposal; (d) the person signing this bid or proposal certifies that he/she has fully informed him or herself regarding the accuracy of the statements contained in this certification and, under penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf; (e) that attached hereto (if a corporate bidder) is a certified copy of resolution authorizing the execution of this certificate by the signatory of this bid or proposal on behalf of the corporate bidder.

Resolve that _____ be authorized
NAME OF CORPORATION

to sign and submit the bid or proposal of this corporation for the following project:

INSTALLATION OF EMERGENCY GENERATORS AT PLANT NO. 1 & 16

and to include in such bid or proposal the certificate as to non-collusion required by Section 103-D of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate, this corporate bidder shall be liable under the penalties of perjury. The foregoing is a true and correct copy of the resolution adopted by

_____ at a meeting of its Board of Directors held on the _____ day of _____, 20____.

(Seal of the Corporation)

Secretary: _____

RESPECTIVELY SUBMITTED:

Firm Name: _____

Address: _____

Signed By: _____

Title: _____

END OF SECTION 004519

SECTION 004546 - UNIFORM CONTRACTING QUESTIONNAIRE

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

**INSTRUCTIONS FOR COMPLETING THE NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE FOR PROFIT CONSTRUCTION**

Please Read Before Completing Questionnaire

- Complete all sections of the Questionnaire.
- Submit this form as required by the contracting agency after being announced the low bidder for any competitively bid contract, or when proposed for subcontract work. If you have submitted one within six (6) months of the bid date with any contracting agency, as long as the information remains unchanged and accurate, you may submit a complete certified copy of that form, together with an Affidavit of No Change, to the Agency with which you are bidding. A contracting agency may require additional information deemed necessary for its review. Whenever more space is needed to answer any question or you wish to give further explanation, complete by attaching extra pages. All questions must be answered.
- For each “Yes” answer in Sections IV, V, VI, VII, VIII and IX, add additional explanatory material. For question 7.2, if your firm has OSHA citations, attach copies of each citation.
- A certified annual financial statement, including Accountant’s Review Report and Accompanying Notes, will be acceptable in lieu of completing the financial disclosure forms in the questionnaire.
- If you wish material in this Questionnaire to be held as confidential and exempt from disclosure under Freedom of Information, place an asterisk in front of all information you do not want disclosed to outside sources.
- This Questionnaire is generally valid for one calendar year, unless major changes have occurred (firm purchased by another business, bankruptcy, etc.), in which case re-submittal is required.
- Submit completed questionnaires marked “CONFIDENTIAL” to:

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
CONTRACT MANAGEMENT BUREAU
50 WOLF ROAD, 1st FLOOR, SUITE 1CM
ALBANY, NY 12232
(518) 457-1564

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

BUSINESS ENTITY INFORMATION				
<u>Legal Business Name*</u>			<u>EIN</u>	
Complete Address of the <u>Principal Place of Business</u>			Phone Number	Fax Number
E-mail		Website		
Authorized Contact for this Questionnaire				
Name			Phone Number	Fax Number
Title			E-mail	
Additional <u>Business Entity</u> Identities: If applicable, list any other <u>DBA</u> , <u>Trade Name</u> , <u>Former Name</u> , <u>Other Identity</u> , or <u>EIN</u> used in the last five (5) years, the state or county where filed and the status (active or inactive).				
Type (DBA, Trade Name, Other)	Name	EIN	State or County where filed	Status (ACTIVE OR INACTIVE)
SELECT				SELECT
SELECT				SELECT

I. BUSINESS CHARACTERISTICS				
1.0 <u>Business Entity</u> Type -				
a) <input type="checkbox"/>	<u>Corporation</u> (including <u>P.C.</u>)	Date of Incorporation		
b) <input type="checkbox"/>	<u>Limited Liability Company</u> (LLC or PLLC)	Date Organized		
c) <input type="checkbox"/>	<u>Limited Liability Partnership</u>	Date of Registration		
d) <input type="checkbox"/>	<u>Limited Partnership</u>	Date Established		
e) <input type="checkbox"/>	<u>General Partnership</u>	Date Established	County (if formed in NYS)	
f) <input type="checkbox"/>	<u>Sole Proprietor</u>	How many years in business?		
g) <input type="checkbox"/>	Other	Date Established		
If Other, explain:				
1.1 Was the <u>Business Entity</u> formed in New York State?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
If "No" indicate jurisdiction where the <u>Business Entity</u> was formed:				
United States <input type="checkbox"/> State				
Other <input type="checkbox"/> Country				

*All under lined terms are defined in the "New York State Vendor Responsibility Definitions List", which can be found at: <http://www.osc.state.ny.us/vendrep/documents/definitions.pdf>.

Note: These terms may not have their ordinary, common or traditional meanings. Each vendor is strongly encouraged to read the respective definitions for any and all underlined terms. By submitting this questionnaire, the vendor agrees to be bound by the terms as defined in the "New York State Vendor Responsibility Definitions List" as it existed at the time of certifications.

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

EIN:

I. BUSINESS CHARACTERISTICS			
1.2 Is the <u>Business Entity</u> currently <u>registered to do business in New York State</u> ? <i>Note: Select "Not Required" if the <u>Business Entity</u> is a <u>Sole Proprietor</u> or <u>General Partnership</u></i>			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required
If "No," explain why the <u>Business Entity</u> is not required to be <u>registered to do business in New York State</u> :			
1.3 Is the responding <u>Business Entity</u> a <u>Joint Venture</u> ? Note: If the submitting <u>Business Entity</u> is a <u>Joint Venture</u> , also submit a separate questionnaire for each <u>Business Entity</u> comprising the <u>Joint Venture</u> .			<input type="checkbox"/> Yes <input type="checkbox"/> No
1.4 If the <u>Business Entity's</u> <u>Principal Place of Business</u> is not in New York State, does the <u>Business Entity</u> maintain an office in New York State? <i>(Select "N/A" if <u>Principal Place of Business</u> is in New York State.)</i>			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
If "Yes," provide the address and telephone number for one office located in New York State.			
1.5 Is the <u>Business Entity</u> a New York State certified <u>Minority-Owned Business Enterprise</u> , or <u>Women-Owned Business Enterprise</u> , or <u>New York State Small Business</u> , or federally certified <u>Disadvantaged Business Enterprise</u> ?			<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes," check all that apply: <input type="checkbox"/> New York State certified <u>Minority-Owned Business Enterprise</u> (MBE) <input type="checkbox"/> New York State certified <u>Women-Owned Business Enterprise</u> (WBE) <input type="checkbox"/> <u>New York State Small Business</u> <input type="checkbox"/> Federally certified <u>Disadvantaged Business Enterprise</u> (DBE)			
1.6 Identify each person who is, or has been within the past five (5) years, a <u>Business Entity Official</u> or <u>Principal Owner</u> of 5.0% or more of the firm's shares, or one of the five largest shareholders or a director, an officer, a partner or a proprietor. <u>Joint Ventures</u> : Provide information for all firms involved. <i>(Attach additional pages if necessary.)</i>			
Name	Title	Percentage Ownership <i>(Enter 0% if not applicable)</i>	Employment Status with the Firm
			<input type="checkbox"/> Current <input type="checkbox"/> Former
			<input type="checkbox"/> Current <input type="checkbox"/> Former
			<input type="checkbox"/> Current <input type="checkbox"/> Former
			<input type="checkbox"/> Current <input type="checkbox"/> Former
II. AFFILIATE and JOINT VENTURE RELATIONSHIPS			
2.0 Are there any other <u>construction</u> -related firms in which, now or in the past five years, the submitting <u>Business Entity</u> or any of the individuals listed in question 1.6 either owned or owns 5.0% or more of the shares of, or was or is one of the five largest shareholders or a director, officer, partner or proprietor of said other firm?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Firm/Company Name	Firm/Company EIN <i>(If Available)</i>	Firm/Company's Primary Business Activity	

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

EIN:

II. AFFILIATE and JOINT VENTURE RELATIONSHIPS		
Firm/Company Address		
Explain relationship with the firm and indicate percent ownership, if applicable (enter N/A, if not applicable):		
Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting Business Entity has in common with this affiliate ?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Individual's Name	Position/Title with Firm/Company	
2.1 Does the Business Entity have any construction -related affiliates not identified in the response to 2.0 above?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Affiliate Name	Affiliate EIN (If available)	Affiliate's Primary Business Activity
Affiliate Address		
Explain relationship with the affiliate and indicate percent ownership, if applicable (enter N/A, if not applicable):		
Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting Business Entity has in common with this firm?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Individual's Name	Position/Title with Firm/Company	
2.2 Has the Business Entity participated in any construction Joint Ventures within the past three (3) years? <i>Attach additional pages if necessary.</i>		<input type="checkbox"/> Yes <input type="checkbox"/> No
Joint Venture Name	Joint Venture EIN (If available)	Identify parties to the Joint Venture
III. CONTRACT HISTORY		
3.0 List the ten most recent construction contracts the Business Entity has completed using Attachment A – Completed Construction Contracts, found at http://www.osc.state.ny.us/vendrep/documents/attachmenta.doc . If less than ten, include most recent subcontracts on projects up to that number.		
3.1 List all current uncompleted construction contracts by using Attachment B – Uncompleted Construction Contracts, found at http://www.osc.state.ny.us/vendrep/documents/attachmentb.doc .		
IV. INTEGRITY – CONTRACT BIDDING		
Within the past five (5) years, has the Business Entity, an affiliate or any predecessor company or entity:		
4.0 Been suspended or debarred from any government contracting process or been disqualified on any government procurement?		<input type="checkbox"/> Yes <input type="checkbox"/> No
4.1 Been subject to a denial or revocation of a government prequalification?		<input type="checkbox"/> Yes <input type="checkbox"/> No
4.2 Had any bid rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid?		<input type="checkbox"/> Yes <input type="checkbox"/> No
4.3 Had a proposed subcontract rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid?		<input type="checkbox"/> Yes <input type="checkbox"/> No
4.4 Had a low bid rejected on a government contract for failure to make good faith efforts on any Minority-Owned Business Enterprise, Women-Owned Business Enterprise or Disadvantaged Business Enterprise goal or statutory affirmative action requirements on a previously held contract?		<input type="checkbox"/> Yes <input type="checkbox"/> No

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

EIN:

IV. INTEGRITY – CONTRACT BIDDING	
Within the past five (5) years, has the Business Entity, an affiliate or any predecessor company or entity:	
4.5 Agreed to a voluntary exclusion from bidding/contracting with a <u>government entity</u> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.6 Initiated a request to withdraw a bid submitted to a <u>government entity</u> or made any claim of an error on a bid submitted to a <u>government entity</u> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>For each “Yes,” provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u> involved, project(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.</i>	

V. INTEGRITY – CONTRACT AWARD	
Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:	
5.0 Defaulted on or been <u>suspended</u> , cancelled or <u>terminated for cause</u> on any contract?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.1 Been subject to an <u>administrative proceeding</u> or civil action seeking specific performance or restitution (except any disputed work proceeding) or requiring the <u>Business Entity</u> to enter into a formal monitoring agreement in connection with any <u>government contract</u> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.2 Had its surety called upon to complete any contract whether government or private sector?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>For each “Yes,” provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u>/owners involved, project(s), contract number(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.</i>	

VI. CERTIFICATIONS/LICENSES	
Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:	
6.0 Had a revocation or <u>suspension</u> of any business or professional permit and/or license?	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.1 Had a denial, decertification, revocation or forfeiture of New York State certification of <u>Minority-Owned Business Enterprise</u> , <u>Women-Owned Business Enterprise</u> or a <u>federal</u> certification of <u>Disadvantaged Business Enterprise</u> status, for other than a change of ownership?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>For each “Yes,” provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u> involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.</i>	

VII. LEGAL PROCEEDINGS	
Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:	
7.0 Been the subject of a criminal <u>investigation</u> , whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or <u>federal</u> law?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.1 Been the subject of: (i) An indictment, grant of immunity, <u>judgment</u> or conviction (including entering into a plea bargain) for conduct constituting a crime; or (ii) Any criminal <u>investigation</u> , felony indictment or conviction concerning the formation of, or any business association with, an allegedly false or fraudulent <u>Minority-Owned Business Enterprise</u> , <u>Women-Owned Business Enterprise</u> , or a <u>Disadvantaged Business Enterprise</u> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
7.2 Received any OSHA citation and Notification of Penalty containing a violation classified as <u>serious</u> or <u>willful</u> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

EIN:

VII. LEGAL PROCEEDINGS	
Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:	
7.3 Had a <u>government entity</u> find a willful prevailing wage or supplemental payment violation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.4 Had a New York State Labor Law violation deemed willful?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.5 Entered into a consent order with the New York State Department of Environmental Conservation, or a <u>federal</u> , state or local government enforcement determination involving a violation of <u>federal</u> , state or local environmental laws?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.6 Other than previously disclosed, been the subject of any <u>citations, notices, violation orders</u> , pending administrative hearings or proceedings or determinations of a violation of:	
▪ <u>Federal</u> , state or local health laws, rules or regulations;	<input type="checkbox"/> Yes <input type="checkbox"/> No
▪ <u>Federal</u> , state or local environmental laws, rules or regulations;	<input type="checkbox"/> Yes <input type="checkbox"/> No
▪ Unemployment insurance or workers compensation coverage or <u>claim</u> requirements;	<input type="checkbox"/> Yes <input type="checkbox"/> No
▪ Any labor law or regulation, which was deemed willful;	<input type="checkbox"/> Yes <input type="checkbox"/> No
▪ Employee Retirement Income Security Act (ERISA);	<input type="checkbox"/> Yes <input type="checkbox"/> No
▪ <u>Federal</u> , state or local human rights laws;	<input type="checkbox"/> Yes <input type="checkbox"/> No
▪ <u>Federal</u> , state or local security laws?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>For each "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u> involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.</i>	

VIII. LEADERSHIP INTEGRITY	
If the Business Entity is a Joint Venture Entity, answer "N/A - Not Applicable" to questions in this section.	
Within the past five (5) years has any individual previously identified or any individual having the authority to sign, execute or approve bids, proposals, contracts or supporting documentation on behalf of the Business Entity with New York State been subject to:	
8.0 A <u>sanction</u> imposed relative to any business or professional permit and/or license?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
8.1 A criminal <u>investigation</u> , whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or <u>federal</u> law?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
8.2 Misdemeanor or felony charge, indictment or conviction for:	
(i) Any business-related activity including but not limited to fraud, coercion, extortion, bribe or bribe-receiving, giving or accepting unlawful gratuities, immigration or tax fraud, racketeering, mail fraud, wire fraud, price-fixing or collusive bidding; or	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
(ii) Any crime, whether or not business-related, the underlying conduct of which related to truthfulness, including but not limited to the filing of false documents or false sworn statements, perjury or larceny?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
8.3 A <u>debarment</u> from any <u>government contracting process</u> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<i>For each "Yes," provide an explanation of the issue(s), the individual involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u> involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.</i>	

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

EIN:

IX. FINANCIAL AND ORGANIZATIONAL CAPACITY		
9.0 Within the past five (5) years, has the <u>Business Entity</u> or any <u>affiliate</u> received any <u>formal unsatisfactory performance assessment(s)</u> from any <u>government entity</u> on any contract?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the <u>government entity</u> involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.</i>		
9.1 Within the past five (5) years, has the <u>Business Entity</u> or any <u>affiliate</u> had any <u>liquidated damages</u> assessed over \$25,000?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, relevant dates, the contracting party involved, the amount assessed and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.</i>		
9.2 Within the past five (5) years, has the <u>Business Entity</u> or any <u>affiliate</u> had any <u>liens, claims or judgments</u> (not including UCC filings) over \$25,000 filed against the <u>Business Entity</u> which remain undischarged or were unsatisfied for more than 90 days?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "Yes," provide an explanation of the issue(s), the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, relevant dates, the Lien holder or Claimants' name(s), the amount of the <u>lien(s)</u> and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.</i>		
9.3 In the last seven (7) years, has the <u>Business Entity</u> or any <u>affiliate</u> initiated or been the subject of any bankruptcy proceedings, whether or not closed, or is any bankruptcy proceeding pending?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "Yes," provide the <u>Business Entity</u> involved, the relationship to the submitting <u>Business Entity</u>, the bankruptcy chapter number, the court name and the docket number. Indicate the current status of the proceedings as "Initiated," "Pending" or "Closed." Provide answer below or attach additional sheets with numbered responses.</i>		
9.4 What is the <u>Business Entity's</u> Bonding Capacity?		
a. Single Project		b. Aggregate (All Projects)
9.5 List <u>Business Entity's</u> Gross Sales for the previous three (3) Fiscal Years:		
1st Year (Indicate year) Gross Sales	2nd Year (Indicate year) Gross Sales	3rd Year (Indicate year) Gross Sales
9.6 List <u>Business Entity's</u> Average Backlog for the previous three (3) fiscal years: (Estimated total value of uncompleted work on outstanding contracts)		
1st Year (Indicate year) Amount	2nd Year (Indicate year) Amount	3rd Year (Indicate year) Amount
9.7 Attach <u>Business Entity's</u> annual <u>financial statement</u> and accompanying notes or complete Attachment C – Financial Information, found at http://www.osc.state.ny.us/vendrep/documents/attachmentc.xls		

X. FREEDOM OF INFORMATION LAW (FOIL)	
10.0 Indicate whether any information provided herein is believed to be exempt from disclosure under the Freedom of Information Law (FOIL). <i>Note: A determination of whether such information is exempt from FOIL will be made at the time of any request for disclosure under FOIL. Attach additional pages if necessary.</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>Indicate the question number(s) and explain the basis for the claim.</i>	

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR PROFIT CONSTRUCTION (CCA-2)**

EIN:

Certification

The undersigned: (1) recognizes that this questionnaire is submitted for the express purpose of assisting New York State contracting entities in making responsibility determinations regarding an award of a contract or approval of a subcontract; (2) recognizes that the Office of the State Comptroller (OSC) will rely on information disclosed in the questionnaire in making responsibility determinations and in approving a contract or subcontract; (3) acknowledges that the New York State contracting entities and OSC may, in their discretion, by means which they may choose, verify the truth and accuracy of all statements made herein; and (4) acknowledges that intentional submission of false or misleading information may constitute a misdemeanor or felony under New York State Penal Law, may be punishable by a fine and/or imprisonment under Federal Law, and may result in a finding of non-responsibility, contract suspension or contract termination.

The undersigned certifies that he/she:

- is knowledgeable about the submitting Business Entity's business and operations;
- has read and understands all of the questions contained in the questionnaire;
- has not altered the content of the questionnaire in any manner;
- has reviewed and/or supplied full and complete responses to each question;
- to the best of his/her knowledge, information and belief, confirms that the Business Entity's responses are true, accurate and complete, including all attachments, if applicable;
- understands that New York State will rely on the information disclosed in the questionnaire when entering into a contract with the Business Entity; and
- is under obligation to update the information provided herein to include any material changes to the Business Entity's responses at the time of bid/proposal submission through the contract award notification, and may be required to update the information at the request of the New York State contracting entities or OSC prior to the award and/or approval of a contract, or during the term of the contract.

Signature of Owner/Officer _____

Printed Name of Signatory _____

Title _____

Name of Business _____

Address _____

City, State, Zip _____

Sworn to before me this _____ day of _____, 20____;

_____ Notary Public

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT A - COMPLETED CONSTRUCTION CONTRACTS**

EIN:

Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontractison projects up to that number.						
1.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Design Architect and/or Design Engineer			
2.	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
	Agency/Owner		Award Date	Amount		Date Completed
3.	Contact Person	Telephone No.	Design Architect and/or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
4.	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Design Architect and/or Design Engineer			
5.	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Design Architect and/or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Design Architect and/or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	
	Agency/Owner		Award Date	Amount		Date Completed
	Contact Person	Telephone No.	Design Architect and/or Design Engineer			
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable	

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT A - COMPLETED CONSTRUCTION CONTRACTS**

EIN:

Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number.						
Agency/Owner	Telephone No.	Design Architect and/or Design Engineer	Award Date	Amount	Date Completed	
6.						
Contact Person	Telephone No.	Design Architect and/or Design Engineer				
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable	
7.						
Agency/Owner			Award Date	Amount	Date Completed	
Contact Person	Telephone No.	Design Architect and/or Design Engineer				
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable	
8.						
Agency/Owner			Award Date	Amount	Date Completed	
Contact Person	Telephone No.	Design Architect and/or Design Engineer				
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable	
9.						
Agency/Owner			Award Date	Amount	Date Completed	
Contact Person	Telephone No.	Design Architect and/or Design Engineer				
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable	
10.						
Agency/Owner			Award Date	Amount	Date Completed	
Contact Person	Telephone No.	Design Architect and/or Design Engineer				
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable	

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B - UNCOMPLETED CONSTRUCTION CONTRACTS**
EIN:

Question 3.1: List all current uncompleted construction contracts.									
1.	Agency/Owner		Award Date	Amount	Date Completed				
	Contact Person		Telephone No.	Design Architect and/or Design Engineer					
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to Others	Uncompleted Amount				
2.	Agency/Owner		Award Date	Amount	Date Completed				
	Contact Person		Telephone No.	Design Architect and/or Design Engineer					
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to Others	Uncompleted Amount				
3.	Agency/Owner		Award Date	Amount	Date Completed				
	Contact Person		Telephone No.	Design Architect and/or Design Engineer					
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to Others	Uncompleted Amount				
4.	Agency/Owner		Award Date	Amount	Date Completed				
	Contact Person		Telephone No.	Design Architect and/or Design Engineer					
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable				
			Total Contract Amount	Amount Sublet to Others	Uncompleted Amount				

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B - UNCOMPLETED CONSTRUCTION CONTRACTS**
EIN:

Question 3.1: List all current uncompleted construction contracts.									
5. Agency/Owner		Award Date	Amount			Date Completed			
Contact Person		Telephone No.	Design Architect and/or Design Engineer						
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable					
		Total Contract Amount	Amount Sublet to Others	Uncompleted Amount					
6. Agency/Owner		Award Date	Amount			Date Completed			
Contact Person		Telephone No.	Design Architect and/or Design Engineer						
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable					
		Total Contract Amount	Amount Sublet to Others	Uncompleted Amount					
7. Agency/Owner		Award Date	Amount			Date Completed			
Contact Person		Telephone No.	Design Architect and/or Design Engineer						
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable					
		Total Contract Amount	Amount Sublet to Others	Uncompleted Amount					
8. Agency/Owner		Award Date	Amount			Date Completed			
Contact Person		Telephone No.	Design Architect and/or Design Engineer						
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable					
		Total Contract Amount	Amount Sublet to Others	Uncompleted Amount					

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B - UNCOMPLETED CONSTRUCTION CONTRACTS**

EIN:

Question 3.1: List all current uncompleted construction contracts.									
9.		Agency/Owner	Telephone No.	Design Architect and/or Design Engineer	Award Date	Amount	Date Completed		
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		Total Contract Amount	Amount Sublet to Others	EIN of JV, if applicable		Uncompleted Amount	
10.									
Agency/Owner		Telephone No.	Design Architect and/or Design Engineer		Award Date	Amount	Date Completed		
Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		Total Contract Amount	Amount Sublet to Others	EIN of JV, if applicable		Uncompleted Amount	
Grand Total All Uncompleted Contracts \$0.00									

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C – FINANCIAL INFORMATION**

EIN:
As of Date:

ASSETS

<u>Current Assets</u>			
1. <u>Cash</u>		\$	
2. <u>Accounts receivable – less allowance for doubtful accounts</u>			\$
Retainers included in accounts receivable			
Claims included in accounts receivable not yet approved or in litigation			
3. <u>Total accounts receivable</u>		\$	0.00
4. <u>Notes receivable – due within one year</u>		\$	
4. <u>Inventory – materials</u>		\$	
5. <u>Contract costs in excess of billings on uncompleted contracts</u>		\$	
6. <u>Accrued income receivable</u>			
Interest			
Other (list)			
7. <u>Total accrued income receivable</u>		\$	0.00
<u>Deposits</u>			
Bid and plan			
Other (list)			
8. <u>Total deposits</u>		\$	0.00
<u>Prepaid expenses</u>			
Income Taxes			
Insurance			
Other (List)			
9. <u>Total prepaid expenses</u>		\$	0.00
<u>Other current assets</u>			
(List)			
10. <u>Total other current assets</u>		\$	0.00
<u>Total current assets</u>		\$	0.00

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C – FINANCIAL INFORMATION**

EIN:

11.	<u>Investments</u>		
	Listed securities present market value	\$	
	Unlisted securities present value		
	Total investments	\$	0.00
12.	<u>Fixed Assets</u>		
	Land		
	Building and improvements		
	Leasehold improvements		
	Machinery and equipment		
	Automotive equipment		
	Office furniture and fixtures		
	Other (list)		
	Total	\$	0.00
	Less: accumulated depreciation	\$	
	Total fixed assets net		0.00
13.	<u>Other Assets</u>		
	Loans receivable		
	officers		
	employees		
	shareholders		
	Cash surrender value of officers' life insurance		
	Organization expense – net of amortization		
	Notes receivable – due after one year		
	Other (list)		
	Total Other Assets	\$	0.00
14.	<u>TOTAL ASSETS</u>	\$	0.00

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C – FINANCIAL INFORMATION**

EIN:

LIABILITIES

15.	Current Liabilities		
	Accounts payable	\$	
16.	Loans from shareholders – due within one year		
17.	Notes payable – due within one year		
18.	Mortgage payable – due within one year		
19.	Other payables – due within one year (List)	\$	
20.	Total other payables – due within one year		0.00
21.	Billings in excess of costs and estimated earnings		
	Accrued expenses payable		
	Salaries and wages		
	Employees' benefits		
	Insurance		
	Other		
22.	Total accrued expenses payable		0.00
23.	Dividends payable		
	Income taxes payable		
	State		
	Federal		
	Other		
	Total income taxes payable		0.00
24.	Total Current Liabilities	\$	0.00
25.	Deferred Income Taxes Payable		
	State		
	Federal		
	Other		
	Total deferred income taxes	\$	0.00

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C – FINANCIAL INFORMATION**

EIN:

26.	<u>Long Term Liabilities</u> Loans from shareholders – due after one year Notes payable – due after one year Mortgage – due after one year Other payables – due after one year (List)	\$ 0.00
27.	Total long term liabilities <u>Other Liabilities</u> (List)	\$ 0.00
28.	Total other liabilities <u>TOTAL LIABILITIES</u>	\$ 0.00
 <u>NET WORTH</u> 		
29.	Net Worth (if proprietorship or partnership)	\$
30.	Stockholders' Equity Common stock issued and outstanding Preferred stock issued and outstanding Retained earnings Total Less: Treasury Stock	\$ 0.00
31.	TOTAL STOCKHOLDERS EQUITY	\$ 0.00
32.	TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$ 0.00

SECTION 004550 - QUALIFICATION OF BIDDERS

TOWN OF RIVERHEAD / RIVERHEAD WATER DISTRICT

SUFFOLK COUNTY

NEW YORK

The District may make such investigation as the District deems necessary to determine the responsibility of any Bidder or to determine the ability of any Bidder to perform the Work. Bidders shall furnish to the District all information and data required by the District, including complete financial data, within the time and in the form and manner required by the District. The District reserves the right to reject any bid if the evidence required by the District is not submitted as required or if the evidence submitted by or the investigation of any Bidder fails to satisfy the District that the Bidder is responsible, or is able or qualified to carry out the obligations of the Contract or to complete the Work as contemplated. At the discretion of the District, any bidder may be required to complete and submit the enclosed New York State Uniform Contracting Questionnaire to assist in determining the bidder's qualifications.

The following is a list showing the name of the Owner, Location, Date of Construction, General Description of Work, Amount of the Contract and Contract Period for projects of similar nature in size, construction method and construction procedure, which have been completed by the undersigned as the prime contractor, and which have been in operation for a period of not less than one year (minimum of five such projects).

Project No.1

Owner: _____

Contact Name and Phone Number: _____

Location: _____

General Description: _____

Contract Amount: _____

Contract Period: _____

Project No.2

Owner: _____

Contact Name and Phone Number: _____

Location: _____

General Description: _____

Contract Amount: _____

Contract Period: _____

Project No.3

Owner: _____

Contact Name and Phone Number: _____

Location: _____

General Description: _____

Contract Amount: _____

Contract Period: _____

Project No.4

Owner: _____

Contact Name and Phone Number: _____

Location: _____

General Description: _____

Contract Amount: _____

Contract Period: _____

Project No.5

Owner: _____

Contact Name and Phone Number: _____

Location: _____

General Description: _____

Contract Amount: _____

Contract Period: _____

The following is a list of the major areas of construction work under this contract to be performed by subcontractors to the bidder, showing the Type of Work and the name of the Owner, Location and Date of Construction for work of similar nature in size, construction method and construction procedure, which have been completed by the undersigned, and which have been in operation for a period of not less than one year (minimum of five such projects).

Subcontractor Name: _____

Type of Work: _____

<u>Owner</u>	<u>Contact Name</u>	<u>Phone Number</u>	<u>Location</u>	<u>Contract Amount</u>

Subcontractor Name: _____

Type of Work: _____

<u>Owner</u>	<u>Contact Name</u>	<u>Phone Number</u>	<u>Location</u>	<u>Contract Amount</u>

Subcontractor Name: _____

Type of Work: _____

<u>Owner</u>	<u>Contact Name</u>	<u>Phone Number</u>	<u>Location</u>	<u>Contract Amount</u>
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The Riverhead Water District reserves the right to reject any and all bids which do not include a completed qualifications section and/or do not meet the necessary qualifications criteria, for both prime contractor and subcontractors, as described within this qualifications section, for construction work to be performed and completed as required by the contract documents.

BIDDER

FIRM NAME: _____

ADDRESS: _____

PREPARED BY: _____

SIGNED BY: _____

TITLE: _____

END OF SECTION 004550

SECTION 004555 - CONTRACTOR'S RESPONSIBILITY

It is the Contractor's responsibility to inform the Engineer in advance when a situation arises that forces the Contractor to cancel work for a given day. For example, if the Contractor informs the Engineer that he will be on the job on a certain day and then has to cancel the appointment because he cannot obtain certain materials or equipment, it is the Contractor's responsibility to inform the Engineer of these latest developments and to let him know that construction observation services will not be needed for that day.

In the event that the Engineer is not given ample warning of such a cancellation and, as a result, unnecessary time is spent sending field personnel out to the project site to observe the previously scheduled construction, sufficient funds will be deducted from monies due the Contractor to reimburse the Engineer for his wasted time.

By the same token, sufficient funds will be deducted from monies due the Contractor to reimburse the Engineer for any services rendered in the field or in the office regarding work that had to be performed a second time due to substandard work on the part of the Contractor on the original work.

END OF SECTION 004555

SECTION 005209 – CONTRACT

SECTION 005209 - CONTRACT

CONTRACT IN QUADRUPLICATE FOR Installation of Emergency Generators at Plant No. 1 & 16; RDWD 16-08 AT TOWN OF RIVERHEAD, SUFFOLK COUNTY, NEW YORK, dated _____, 20__, BY AND BETWEEN THE TOWN BOARD OF THE TOWN OF RIVERHEAD, SUFFOLK COUNTY, NEW YORK, acting for and in behalf of the RIVERHEAD WATER DISTRICT (herein called the TOWN DISTRICT), and _____ (herein called the CONTRACTOR).

WITNESSETH, that the TOWN DISTRICT and the CONTRACTOR, in consideration of the premises and of the mutual covenants, considerations and agreements herein contained, agree as follows:

This Contract is hereby awarded to the CONTRACTOR for the work and material called for under his bid in the Proposal section of the Contract and designated as Items: _____

and if required by the District Engineers, Items: _____

for the sum of: _____

_____ (\$ _____)

for the unit and/or lump sum price(s) as listed in the Proposal herein.

SECTION 005209 – CONTRACT

1. CONTRACT DOCUMENTS AND DEFINITIONS

The Notice to Bidders, Information for Bidders, Proposal, General Conditions, Contract, Specifications and Plans, together with any Addenda, shall form part of this Contract, and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The titles, headings, headlines and marginal notes contained herein are solely to facilitate reference to the various provisions of the contract documents and in no way affect, limit or cast light upon the interpretation of the provisions to which they refer. Whenever the term "contract documents" is used, it shall mean and include this Contract, the Plans, Specifications, any Addenda, and the Notice to Bidders, Information for Bidders, General Conditions and Proposal. In case of any conflict or inconsistency between the provisions of the Contract and those of the Specifications, the provisions of the Contract shall govern.

WORK: The term WORK, as used herein, refers to all of the work proposed to be accomplished at the site of the project and all such other work as is in any manner required to accomplish the completed project, and includes all plant, labor, materials, supplies, equipment and other facilities and acts necessary or proper for or incidental to the carrying out and completion of the terms of this Contract. The term WORK PERFORMED shall be construed to include material delivered to and suitably stored at the site of the project.

EXTRA WORK: The term EXTRA WORK, as used herein, refers to and includes all work required by the TOWN DISTRICT which, in the judgment of the Engineer, with the Town's approval, involves changes in or additions to work required by the Plans, Specifications and any Addenda in their present form.

SUBCONTRACTOR: The term SUBCONTRACTOR, as used herein, shall mean any person, firm or corporation applying labor and material for work at the site of the project, but not including the parties to this Contract.

ENGINEER: In the performance of the work, the TOWN DISTRICT shall be represented by its Consulting Engineer H2M architects + engineers (herein called the ENGINEER).

NOTICE: The term NOTICE, as used herein, shall mean and include written notice. Written notice shall be deemed to have been duly served when delivered to, or at the last known business address of, the person, firm or corporation for whom intended or to his, their, or its duly authorized agents, representatives or officers, or when enclosed in a postage prepaid wrapper or envelope addressed to such person, firm, or corporation at his, their, or its last known business address and deposited in a United States Mail Box.

DIRECTED, REQUIRED, APPROVED, ACCEPTABLE: Whenever they refer to the work, or its performance, "directed", "required", "permitted", "ordered", "designated", "prescribed", and words of like import shall imply the direction, requirement, permission, order, designation or prescription of the Engineer, and "approved", "satisfied", or "satisfactory", "in the judgment of", and words of like import, shall mean approved or acceptable to, or satisfactory to, in the judgment of the Engineer.

2. SCOPE OF THE WORK

The Contractor will furnish all plant, labor, material, supplies, equipment and other facilities and things necessary or proper for or incidental to, the work contemplated by this Contract as required by, and in strict accordance with, the applicable Plans, Specifications and Addenda prepared by the Engineer and/or required by and in strict accordance with, such changes as are ordered and approved pursuant to this Contract, and will perform all other obligations imposed on him by the Contract.

SECTION 005209 – CONTRACT

3. COMPENSATION TO BE PAID TO THE CONTRACTOR

A. Agreed Prices: It is understood and agreed that the Contractor will accept as payment in full the summation of products, of the actual quantities in place upon the completion of the work, as determined by the Engineer's measurements by the unit prices bid, no allowance being made for anticipated profit or for reason of variations from the estimated quantities set forth in the Proposal.

B. Extra Work and/or Changes: The TOWN DISTRICT may, at any time, by a written order, and without notice to the sureties, require the performance of such extra work or changes in the work as it may find necessary or desirable. The amount of compensation to be paid to the Contractor for any extra work, as so ordered, shall be determined as follows:

- (1) By such applicable unit prices, if any, as set forth in the contract; or
- (2) If no such unit prices are set forth, then by unit prices or by a lump sum mutually agreed upon by the TOWN DISTRICT and the Contractor; or
- (3) If no such unit prices are set forth, and if the parties cannot agree upon unit prices or a lump sum, then by actual net cost in money to the Contractor of the materials, permits, wages, or applied labor, premium for Workers' Compensation Insurance, payroll taxes required by law, rental for plant and equipment used (excluding small tools) to which total cost will be added 20 percent as full compensation for all other items of profit, costs and expenses, including administration, overhead, superintendence, insurance, insurance other than Workers' Compensation Insurance, material used in temporary structures, allowances made by the Contractor to subcontractors, additional premiums upon the Performance Bond of the Contractor and the use of small tools.

4. TIME OF ESSENCE

Inasmuch as the provisions of this Contract relating to the time for performance and completion of the work are for the purpose of enabling the TOWN DISTRICT to proceed with the construction of a public improvement, in accordance with a predetermined program, such provisions are of the essence of this Contract.

5. COMMENCEMENT OF WORK

The Contractor agrees that he will commence work within ten (10) consecutive calendar days after signing this Contract, and that the day he commences work shall constitute the first of the consecutive calendar days allowed for completion of the work.

6. TIME FOR COMPLETION

The time for completion of this Contract shall be within the number of calendar days stated in the Bid Proposal and the date of such completion shall be the date of the certificate of completion hereinafter specified.

The TOWN DISTRICT reserves the right to order the Contractor to suspend operations when, in the opinion of the Engineer, improper weather conditions make such action advisable, and to order the Contractor to resume operations when weather and ground conditions permit. The days during which such suspension of work is in force are not chargeable against the specified completion time.

SECTION 005209 – CONTRACT

7. LIQUIDATED DAMAGES FOR DELAY

The time limit being essential to and of the essence of this Contract, the Contractor hereby agrees that the TOWN DISTRICT shall be, and is hereby authorized to deduct and retain out of the money which may be due or may become due to said Contractor under this agreement, the sum of FIVE HUNDRED DOLLARS (\$500.00) per day, which amount is hereby agreed upon, fixed and determined by the parties hereto as the LIQUIDATED DAMAGES, including overhead charges, services, inspector's wages, and interest on the money invested, that the TOWN DISTRICT will suffer by reason of such default, for each and every day during which the aforesaid work may be incomplete over and beyond the time herein stipulated for its completion, provided, however, that the TOWN DISTRICT shall have the right to extend the time for the completion of said work.

8. EXTENSIONS OF TIME - NO WAIVER

If the Contractor shall be delayed in the completion of his work by reason of unforeseeable causes beyond his control and without his fault or negligence, including but not restricted to Acts of God or of any public enemy, acts or neglect of the TOWN DISTRICT, acts or neglect of any other Contractor, fires, floods, epidemics, quarantine restrictions, strikes, riots, civil commotion or freight embargoes, the period herein above specified for completion of his work shall be extended by such time as shall be fixed by the TOWN DISTRICT.

No such extension of time shall be considered a waiver by the TOWN DISTRICT of its right to terminate the Contract for abandonment or delay by the Contractor as hereinafter provided or relieve the Contractor from full responsibility for performance of his obligations hereunder.

9. CONTRACT SECURITY

A. The Contractor shall furnish a Performance Bond in an amount equal to one hundred percent (100%) of the total contract price as security for the faithful performance of this Contract, and for the payment of all persons performing labor or furnishing materials in connection with this Contract.

B. Additional or Substitute Bond - If, at any time, the TOWN DISTRICT shall be or become dissatisfied with any surety or sureties, then upon the Performance Bond, or if, for any other reason, such bond shall cease to be adequate security to the TOWN DISTRICT, the Contractor shall, within five (5) days after notice from the TOWN DISTRICT, substitute an acceptable bond in such form and sum, and signed by such other surety as may be satisfactory to the TOWN DISTRICT. The premiums on such bonds shall be paid by the Contractor. No further payments shall be deemed due, nor shall be made until the new surety shall have been qualified.

C. Prior to release of the Performance Bond, the Contractor shall deliver to the TOWN DISTRICT a Maintenance Bond equal to one hundred percent (100%) of the total Contract price, including all extras. This Maintenance Bond shall remain in full force and effect for a period of one (1) year after the date of the Engineer's approval of the final payment request and such bond, which shall be executed by the Contractor and issued by a reliable, solvent surety company authorized to do business in the State of New York shall guarantee to the TOWN DISTRICT that the Contractor shall promptly remedy any defects or faults that may occur within twelve (12) months after completion and acceptance of the work performed by the Contractor pursuant to this Contract.

10. CONTRACTOR'S INSURANCE

The Contractor shall not commence any work until he has obtained and had approved by the TOWN DISTRICT all of the insurance required under this Contract, as enumerated herein:

SECTION 005209 – CONTRACT

Compensation Insurance

Public Liability and Property Damage Insurance

Contractor's Protective Liability and Property Damage Insurance

Owner's (TOWN DISTRICT) and Engineer's Protective Public Liability and Property Damage Insurance

Automobile Public Liability and Property Damage Insurance

The Contractor shall not permit any subcontractor to commence any operation on the site until satisfactory proof of carriage of the above required insurance has been posted with, and approved by, the TOWN DISTRICT.

A. Compensation Insurance - The Contractor shall take out and maintain, during the life of this Contract, Workers' Compensation Insurance for all of his employees employed at the site of the project, and in any case of any of the work being sublet, the Contractor shall require the subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees, unless such employees are covered by the protection afforded by the Contractor.

B. Commercial General Liability and Insurance - The Contractor shall take out and maintain during the life of this Contract such insurance as shall protect him and any subcontractor performing work covered by this Contract for claims for damages for personal injury, including accidental death, as well as from claims for property damage which may arise from operations under this Contract, whether such operations be by himself or by any subcontractor, or by any one directly or indirectly employed by either of them, and the amounts of such insurance shall be as follows:

(1) Comprehensive General Liability Insurance in the amount not less than ONE MILLION DOLLARS (\$1,000,000.) each occurrence and TWO MILLION DOLLARS (\$2,000,000.) general aggregate.

(2) Umbrella Liability for bodily injury and property damage in an amount not less than FIVE MILLION DOLLARS (\$5,000,000.)

C. Commercial General Liability and Umbrella Liability - The above policies for commercial general liability and umbrella liability insurance must be so written as to include Contractor's Protective Liability Insurance to protect the contractor against claims arising from the operations of any subcontractor.

The above policies for Commercial General Liability insurance must name the Town of Riverhead, The Riverhead Water District, its employees, public officials, officers, agents, etc., as additional insureds on a primary and non-contributory basis for General Liability, Automobile Liability and/or Excess Umbrella Liability. That additional insured status must be evidenced by a copy of endorsement CG 20 10 10 01, "additional insured – owners, lessee or contractors – scheduled person or organization" endorsement (see attached sample) or its equivalent and copy of endorsement CG 20 37 10 01, "additional insured – owners, lessees or contractors - completed operations" endorsement (see attached sample), or its equivalent.

D. Blanket Waiver of Subrogation – The above policies for workers' compensation insurance as well as comprehensive general liability insurance, automobile insurance, and excess umbrella liability insurance shall include waiver of transfer of rights of recovery against the Town of Riverhead, The Riverhead Water District, and H2M architects + engineers. Such waiver of subrogation shall be evidenced by certificate of insurance or copy of endorsement to the appropriate policy.

SECTION 005209 – CONTRACT

E. Owner's Protective Liability Insurance – (TOWN DISTRICT, and/or TOWN BOARD, TOWN OF RIVERHEAD as OWNER and H2M architects + engineers as engineer) – If the Town of Riverhead, Riverhead Water District deem necessary, the Contractor shall furnish to the TOWN DISTRICT with respect to the operations he or any of his subcontractors perform, a regular Owner's Protective Liability Insurance Policy for and in behalf of the TOWN DISTRICT and/or TOWN BOARD, TOWN OF RIVERHEAD as OWNER, providing for a limit of not less than ONE MILLION DOLLARS (\$1,000,000.) each occurrence, a total limit of TWO MILLION DOLLARS (\$2,000,000.) general aggregate for all damages arising out of bodily injuries to, or death of, two or more persons in any one accident; and regular Protective Property Damage Insurance providing for a limit of not less than ONE HUNDRED THOUSAND DOLLARS (\$100,000.) for all damages. The insurance must fully cover the legal liability of the TOWN DISTRICT, TOWN BOARD, TOWN OF RIVERHEAD as OWNER and H2M architects + engineers as ENGINEER. The coverage provided under this policy must not be affected if the TOWN DISTRICT performs work in connection with the project either for, or in cooperation with, the Contractor or as an aid thereto, whether the same be a part of the Contract or separate therefrom, by means of its own employees or agents, or if the TOWN DISTRICT directs or supervises the work to be performed by the Contractor.

F. Commercial Automobile Liability - The Contractor shall take out and maintain during the life of the Contract such automobile public liability insurance as shall protect him and any subcontractor performing work covered by this Contract from claims for damages for personal injury, including accidental death as well as from claims for property damage which may arise from operations under this Contract, whether such operations be by himself or by any subcontractor, or by any one directly or indirectly employed by either of them and the amounts of such insurance shall be as follows:

- (1) Automobile Public Liability Insurance in an amount not less than ONE MILLION DOLLARS (\$1,000,000.) for bodily injuries, including wrongful death per occurrence.
- (2) Umbrella Liability for bodily injury and property damage in an amount of not less than FIVE MILLION DOLLARS (\$5,000,000.).

11. PROOF OF CARRIAGE OF INSURANCE

The Contractor shall furnish the TOWN DISTRICT with certificates of each insurer insuring the Contractor or any subcontractor under this Contract, except with respect to subdivision D. of paragraph 10. In respect to this paragraph, the Contractor shall furnish the TOWN DISTRICT with the original insurance policy and a copy to the Engineer.

Both certificates, as furnished, and the insurance policy, as required, shall bear the policy numbers, the expiration date of the policy and the limit or limits of liability thereunder. Both the certificates and the policy shall be further endorsed to provide the TOWN DISTRICT and Engineer with any notice of cancellation at least thirty (30) days prior to the actual date of such cancellation.

12. COMPLIANCE WITH LABOR AND PENAL LAWS

The Contractor hereby expressly agrees to comply with all the provisions of the Labor Law and any and all amendments thereto, insofar as the same are applicable to this Contract. The Labor Laws, as amended, provide that no laborer, worker or mechanic in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by this Contract, shall be permitted or required to work more than eight (8) hours in any one calendar day, except in cases of extraordinary emergency caused by fire, flood, or danger to life or property; that no such person shall be employed more than eight (8) hours in any day or more than five (5) days in any week, except in such emergency; that the wages to be paid for a legal day's work as hereinbefore defined, to laborers,

SECTION 005209 – CONTRACT

workers, or mechanics upon the work called for under this Contract, or for any materials used upon or in connection therewith shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality within the State where such work is to be done and each laborer, worker, or mechanic employed by the Contractor, subcontractor, or other person about or upon the work shall be paid the wages herein provided; that employees engaged in the construction outside the limits of cities and villages are no longer exempt from the provisions of the Labor Laws which required the payment of the prevailing rate of wages and the eight (8) hour day.

Section 220A of the Labor Law, as amended by Chapter 472 of the Laws of 1932, provides that before payment is made by or on behalf of the State or any City, County, Town or Village or other civil division of the State, of any sums due on account of a contract for a public improvement, it is the duty of the Comptroller or the financial officer of the Municipal Corporation to require the Contractor and each and every subcontractor to file a certified statement in writing, in satisfactory form, certifying to the amounts then due and owing to any and all laborers for daily or weekly wages on account of labor performed upon the work of the Contract, setting forth therein the names of the persons whose wages are unpaid and the amount due each, respectively.

Section 220B of the Labor Law, as amended, provides that any interested person who shall have previously filed a protest in writing objecting to the payment to any Contractor or subcontractor to the extent of the amount or amounts due or to become due to him for daily or weekly wages for labor performed on the public improvement for which the Contract was entered into, or if, for any other reason, it may be deemed advisable, the Comptroller of the State or other financial officer of the Municipal Corporation may deduct from the whole amount of any payment on account thereof the sum or sums admitted by any Contractor or subcontractor in such statement or statements so filed to be due and owing by him on account of labor performed and may withhold the amount so deducted for the benefit of the laborers for daily or weekly wages, whose wages are unpaid as shown by the verified statements filed by any Contractor or subcontractor and may pay directly to any person the amount or amounts so shown to be due for such wages.

Section 220C of the Labor Law, as amended, provides the penalty for making of a false oath or verification.

Section 220D of the Labor Law provides that the advertised specifications for every Contract for the construction, reconstruction, maintenance and/or repair of highways to which the State, County, Town and/or Village is a party shall contain the provision stating the minimum rate of hourly wage that can be paid, as shall be designated by the Industrial Commissioner, to the laborers employed in the performance of the Contract, either by the Contractor, subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the Contract, and the Contract shall contain a stipulation that such laborers shall be paid not less than such hourly minimum rate of wage. Any person or corporation that willfully pays after entering into such Contract less than such stipulated minimum hourly wage scale shall be guilty of a misdemeanor and, upon conviction, shall be punished for a first offense by a fine of Five Hundred Dollars (\$500.) or by imprisonment for not more than thirty (30) days, or by both fine and imprisonment for a second offense by a fine of One Thousand Dollars (\$1,000.) and, in addition thereto, the Contract on which the violation has occurred shall be forfeited; and no such person or corporation shall be entitled to receive any sum or nor shall any officer, agent or employee of the State pay the same or authorize its payment from the funds under his charge or control to any person or corporation for work done upon any contract, on which the Contractor has been convicted of second offense in violation of the provisions of this Section.

The minimum wage rates established by the Industrial Commissioner, State of New York, for this Contract, are as set forth in the INFORMATION FOR BIDDERS.

All excavation shall be done in compliance with Article 36 of the General Business Law and notices given as provided by GBL Section 761.

SECTION 005209 – CONTRACT

13. PAYMENT OF EMPLOYEES

The Contractor and each of his subcontractors shall pay each of his employees engaged in work on this project under this Contract in full (less deductions made mandatory by law) in cash and not less often than once each week.

14. ESTIMATES AND PAYMENTS

A. Monthly: At the end of each calendar month during the progress of the work, the Contractor shall submit a payment requisition to the Engineer. The Engineer will review the requisition and prepare a payment request based on the estimated amount of work performed and the quantity of materials furnished, based on the prices set forth in the Proposal. In consideration of the work done and the materials furnished, the TOWN DISTRICT will pay or cause to be paid to the Contractor the amount estimated by the Engineer as due him less a sum equal to five percent (5%) of such amount and less such additional amount as may be necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. The making of any such estimate or payment made thereon shall not be taken or construed as an acceptance by the Engineer or the TOWN DISTRICT of any work so estimated and paid for. The amount of the monthly estimate remaining unpaid will be retained by the TOWN DISTRICT as a guarantee that the Contractor will faithfully and completely fulfill all obligations imposed by the Contract and Specifications, and against any damages incurred by the TOWN DISTRICT by reason of any failure on the part of the Contractor to fulfill all conditions and obligations herein contained. All partial payments are subject to correction in any subsequent payment. The retained amounts shall be paid as set forth in the following subsection B.

B. Final: Thirty (30) days after the Contractor shall have substantially completed the work required of it under the Contract the Engineer will prepare an approval of Final Payment Request. Thereafter the TOWN DISTRICT will pay to the Contractor the remaining amount of the Contract balance less a sum equal to two (2) times the value of any remaining items to be completed and less an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of work are satisfactorily completed or corrected, the TOWN DISTRICT shall promptly pay, upon receipt of a requisition for these items less an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. Any claims, liens and judgments referred to in this section shall pertain to the project and shall be filed in accordance with the terms of the applicable Contract and/or applicable laws.

C. In order to secure the performance of the covenant of the Contractor, prior to release of the Performance Bond, the Contractor shall deliver to the TOWN DISTRICT a Maintenance Bond equal to one hundred percent (100%) of the total Contract price, including all extras. This Maintenance Bond shall remain in full force and effect for a period of one (1) year after the date of the Engineer's approval of the Final Payment Request and such bond, which shall be executed by the Contractor and issued by a reliable, solvent surety company authorized to do business in the State of New York shall guarantee to the TOWN DISTRICT that the Contractor shall promptly remedy any defects or faults that may occur within twelve (12) months after completion and acceptance of the work performed by the Contractor pursuant to this Contract.

D. Measurements for Payment: The Engineer shall make due measurement of the work done during the progress of the work and his estimate shall be final and conclusive evidence of the amounts of work performed by the Contractor under, and by virtue of, this agreement, and shall be taken as the full measure of compensation to be received by the Contractor. When requested by the Contractor, the Engineer shall measure, re-measure or re-estimate any portion of the work; but the expense of such re-measurement or re-estimating shall, unless material error be proved, be paid for by the Contractor.

SECTION 005209 – CONTRACT

E. Should all work not be completed and final payment request not submitted within one (1) year after the punch list has been issued, the TOWN DISTRICT will be under no obligation to make final payment.

15. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of the final payment shall be, and shall operate as a release to the TOWN DISTRICT from all claims and all liabilities to the Contractor for all things done or furnished in connection with this work, and for every act and neglect of the TOWN DISTRICT and other relating to, or arising out of, this work, excepting the Contractor's claims for interest upon the final payment, if these payments be improperly delayed. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this Contract or the Performance Bond.

16. CONSTRUCTION REPORTS

The Contractor shall submit to the Engineer prior to the commencing of any work under this Contract a detailed schedule and plan of operation, indicating the manner in which the Contractor proposes to prosecute the work, and a time schedule therefore. Such schedules are not intended to bind the Contractor to a predetermined plan or procedure, but rather to enable the Engineer to coordinate the work of the Contractor with work required of and to be performed by others.

The Contractor shall furnish the Engineer with periodic estimates for partial payments as required elsewhere in the contract documents and, in addition thereto, will furnish the Engineer with a detailed estimate for final payment. Prior to being eligible to receive final payment under this Contract, the Contractor shall furnish the Engineer with substantial proof that all bills for services rendered and materials supplied have been paid. The enumeration of the above reports in no way relieves the Contractor of his responsibility under existing Federal or State laws of filing such other reports with agencies other than the TOWN DISTRICT as may be required by such existing laws or regulations.

17. INSPECTION AND TESTS

All material and workmanship shall be subject to inspection, examination and test by the Engineer and other representatives of the TOWN DISTRICT at any time during the construction and at any and all places where manufacturing of materials used and/or construction is carried on.

Without additional charge, the Contractor shall furnish promptly all reasonable facilities, labor and materials necessary to make tests so required safe and convenient.

If, at any time, before final acceptance of the entire work, the Engineer, with the TOWN DISTRICT's approval, considers necessary or advisable an examination of any portion of the work already completed, by removing or tearing out the same, the Contractor shall, upon request, furnish promptly all necessary facilities, labor and materials for such examination. If such work is found to be defective in any material respect, due to the fault of the Contractor or any subcontractor, or if any work shall be covered over without the approval or consent of the Engineer, with the TOWN DISTRICT's approval, whether or not the same shall be defective, the Contractor shall be liable for the expenses of such examination and of satisfactory reconstruction.

If, however, such approval and consent shall have been given, and such work is found to meet the requirements of this Contract, the Contractor shall be recompensed for the expense of such examination and reconstruction in the manner herein provided for the payment of costs of extra work pursuant to a Change Order signed by the TOWN DISTRICT and the Contractor.

The selection of laboratories and/or agencies for the inspection and tests of supplies, materials or equipment shall be subject to the approval of the Engineer. Satisfactory documentary evidence that the

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material has passed the required inspection and test must be furnished the Engineer prior to the incorporation of the material in the work.

Any rejected work shall be removed from the site of the project completely at the expense of the Contractor.

18. PLANS AND SPECIFICATIONS - INTERPRETATIONS

The Contractor shall keep at the site of the work one (1) copy of the Plans and Specifications signed and identified by the Engineer. Anything shown on the Plans and not mentioned in the Specifications or mentioned in the Specifications and not shown on the Plans shall have the same effect as if shown or mentioned respectively in both. In case of any conflict or inconsistency between the Plans and Specifications, the Plans shall govern. Any discrepancy between the figures and drawings shall be submitted to the Engineer, whose decision therein shall be conclusive.

19. SUBSURFACE CONDITIONS FOUND DIFFERENT

Should the Contractor encounter subsurface conditions at the site materially differing from those shown on the Plans or indicated in the Specifications, he shall immediately give notice to the Engineer of such conditions before they are disturbed; the Engineer shall thereupon promptly investigate the conditions and if he finds that they materially differ from those shown on the Plans or indicated in the Specifications, he shall at once make such changes in the Plans and/or Specifications as he may find necessary.

Any increase or decrease of cost resulting from such changes will be adjusted in the manner provided herein for adjustment as to extra and/or additional work and changes shall be by Change Order executed by the TOWN DISTRICT and Contractor.

20. CONTRACTOR'S TITLE TO MATERIALS

No material or supplies for the work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work.

21. SUPERINTENDENCE BY CONTRACTOR

At the site of the work the Contractor shall employ a Construction Superintendent or Foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Engineer and shall be one who can be continued in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

22. PROTECTION OF WORK, PERSONS AND PROPERTY

Precaution shall be exercised at all times for the proper protection of all persons, property and work. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law. The Contractor shall furnish entirely at his own expense any and all additional safety measures deemed necessary by the TOWN DISTRICT or its Engineer to adequately safeguard the traveling public. The Contractor shall give notice to the owners of all utilities which may serve the area and request their assistance in predetermining the location and depth of the various pipes, conduits, manholes and other underground facilities.

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The Contractor shall, at all hours of the day, safely guard and protect his own work and adjacent property from any damage and shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the contract documents, or by the TOWN DISTRICT or its duly authorized representatives.

The Contractor shall provide and maintain such watchers, barriers, lights, flares and other signals, at his own expense, as will effectively prevent any accident in consequence of his work for which the TOWN DISTRICT might be liable. The Contractor shall be liable for all injury or damage caused by his act or neglect, or that of his employees.

23. PATENT RIGHTS

As part of his obligation hereunder and without any additional compensation, the Contractor will pay for any patent fees or royalties required in respect to the work or any part thereof and will fully indemnify the TOWN DISTRICT for any loss on account of any infringement of any patent rights, unless prior to his use in the work of a particular process or a product of a particular manufacturer, he notifies the TOWN DISTRICT in writing that such process or product is an infringement of a patent.

24. REPRESENTATIONS OF CONTRACTOR

The Contractor represents and warrants:

A. That he is financially solvent and that he is experienced in and competent to perform the type of work involved under this Contract and able to furnish the plan, materials, supplies and/or equipment to be furnished for the work; and

B. That he is familiar with all Federal, State and Municipal Laws, ordinances and regulations which may in any way affect the work of those employed hereunder, including but not limited to any special acts relating to the work; and

C. That such work required by these contract documents as is to be done by him can be satisfactorily constructed and used for the purpose for which it is intended and that such construction will not injure any person or damage any property; and

D. That he has carefully examined the Plans, Specifications, and the site of the work, and that from his own investigation he has satisfied himself as to the nature and location of the work, the character, location, quality and quantity of surface and subsurface materials, structures and utilities likely to be encountered, the character of equipment, and other facilities needed for the performance of the work, the general local conditions which may in any way affect the work or its performance.

25. AUTHORITY OF THE ENGINEER

In the performance of the work, the Contractor shall abide by all orders and directions and requirements of the Engineer and shall perform all work to the satisfaction of the Engineer, at such time and places, by such methods, and in such manner and sequence as he may require. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the work, shall interpret the plans, specifications, contract documents and any extra work orders and shall decide all other questions in connection with the work. Upon request, the Engineer shall confirm in writing any oral orders, directions, requirements or determinations. The enumeration herein or else-where in the contract documents of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control, or in which work shall be performed to his satisfaction or subject to his approval, or inspection, shall not imply that only matters similar to those enumerated shall be so governed and so performed, but without exception all the work shall be governed and so performed. Nothing herein shall be construed to

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give the Contractor a claim for extra work unless prior thereto an appropriate Change Order has been executed by the TOWN DISTRICT and Contractor for such work.

26. SURVEYS

The Contractor shall provide all layouts, measurements, lines, and grades necessary for the execution of the work, and will furnish the necessary stakes and spikes for laying out such lines and grades and the unskilled labor necessary to place same and/or assist in measuring.

27. CHANGES AND ALTERATIONS

The TOWN DISTRICT reserves the right to make alterations in the location, line, grade, plans, form or dimensions of the work, or any part thereof, either before or after the commencement of the construction. If such alterations diminish the amount of work to be done, no claim for damages or anticipated profits will be warranted on the work which may be dispensed with. If such alterations increase the amount of work, such increases shall be paid for according to the quantity of work actually done and at the unit prices for such work as contained in the schedule of prices.

If such alterations decrease the amount of work, such decreases shall be a credit to the TOWN DISTRICT based on the quantity of work not performed as agreed to by the TOWN DISTRICT and the Contractor and at the unit prices for such work as contained in the Schedule of Prices.

28. CORRECTION OF WORK

All work and all materials, whether incorporated into the work or not, all processes of manufacture and all methods of construction shall be, at all times and places, subject to the inspection of the Engineer who shall be the final judge of quality, materials, processes of manufacture and methods of construction suitable for the purpose for which they are used. Should they fail to meet his approval they shall be forthwith reconstructed, made good and replaced and/or corrected as the case may be, by the Contractor at his own expense. Rejected materials shall immediately be removed from the site.

If, in the opinion of the Engineer, it is not desirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as, in the judgment of the Engineer, shall be equitable.

The Contractor expressly warrants that his work shall be free from any defects in materials or workmanship, and agrees to correct any defects, settlements, or shrinkages which may appear within one (1) year following the date of the final payment request. Neither the acceptance of the completed work nor payment therefor shall operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance Bond.

29. WEATHER CONDITIONS

The Contractor will and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If any work or materials shall have been damaged or injured by reason of the failure on the part of the Contractor or any of his subcontractors to protect his, or their work, such work and materials shall be removed and replaced at the expense of the Contractor.

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30. THE TOWN DISTRICT'S RIGHT TO WITHHOLD PAYMENTS

The TOWN DISTRICT may withhold from the Contractor so much of any approved payments due him as may, in the judgment of the TOWN DISTRICT, be necessary:

- A. To assure the payment of just claims then due and unpaid of any persons supplying labor or materials for the work;
- B. To protect the TOWN DISTRICT from loss due to defective work not remedied; or
- C. To protect the TOWN DISTRICT from loss due to injury to persons or damage to the work or property of other contractors or subcontractors or others, caused by the act or neglect of the Contractor or any of his subcontractors. The TOWN DISTRICT shall have the right, as agent for the Contractor, to apply any such amount so withheld in such manner as the TOWN DISTRICT may deem proper to satisfy such claims or to secure such protection. Such application of such money shall be deemed payments for the account of the Contractor.

31. THE TOWN DISTRICT'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If:

- A. The Contractor shall file for any form of bankruptcy relief or make an assignment for the benefit of creditors; or
- B. A receiver or liquidator shall be appointed for the Contractor for any of his property and shall not be dismissed within twenty (20) days after such appointment, or the proceedings in connection therewith shall not be stayed on appeal within the said twenty (20) days; or
- C. The Contractor shall violate any provision of this Contract; or
- D. The Contractor shall fail or refuse to regard laws, ordinances, regulations, or the instructions of the Engineer and/or the TOWN DISTRICT;

then, and in any such event, the TOWN DISTRICT without prejudice to any other rights or remedy it may have, and after seven (7) days written notice to the Contractor and Contractor's Surety may terminate the employment of the Contractor and take possession of the premises and all material, tools and appliances therein, and complete the work by contract or otherwise, as the TOWN DISTRICT solely may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished.

If the unpaid balance of the compensation to be paid the Contractor hereunder shall exceed the expense of so completing the work (including compensation for additional managerial, engineering, administration, legal, testing and observation services and any damages for delay), such excess shall be paid to Contractor.

If the expense shall exceed the unpaid balance, the Contractor and his sureties shall be liable to the TOWN DISTRICT for such excess.

32. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the work shall be stopped by order of the Court or any public authority, Federal or State agency, for a period of three (3) months through no act or fault of the Contractor or any of his agents, servants, employees, materialmen, or subcontractors, the Contractor may, upon ten (10) days notice to the TOWN DISTRICT, discontinue his performance of the work and/or terminate the Contract.

SECTION 005209 – CONTRACT

Upon termination by the Contractor the TOWN DISTRICT may take possession of the work and complete the work by Contract or otherwise, as the TOWN DISTRICT solely may deem expedient.

If the Contract is terminated by the Contractor, the liability of the TOWN DISTRICT to the Contractor shall be for all work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment, including reasonable profit and damages.

33. RESPONSIBILITY OF WORK

The Contractor agrees to be responsible for the entire work embraced in this Contract until its completion and final acceptance, and that any unfaithful or imperfect work that may become damaged from any cause, either by act or commission or omission to properly guard and protect the work that may be discovered at any time before the completion and acceptance shall be removed and replaced by good and satisfactory work without any charge to the TOWN DISTRICT and that such removal and replacement will be performed immediately on the requirement of the Engineer, notwithstanding the fact that it may have been overlooked by the proper inspector, and partial payment made thereon. It is fully understood by the Contractor that the inspection of the work shall not relieve him of any obligation to do sound and reliable work as herein prescribed, and that any omission to disapprove of any work by the Engineer at or before the time of a partial payment or other estimate shall not be construed to be an acceptance of any defective work.

34. USES OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

- A. To take every precaution against injury to persons or damages to property;
- B. To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any of his subcontractors, or other contractors;
- C. To place upon any of the completed work only such superimposed loads as are consistent with the safety of that portion of the work;
- D. To frequently clean up all refuse, rubbish, scrap materials and debris caused by the operations to the end that at all times the site of the work shall present a neat and orderly and workmanlike appearance;
- E. Before the Engineer's approval of the Final Payment Request, to remove all surplus material, temporary structures, plants of any description and debris of any and every nature resulting from his operations and to put the site in a neat and orderly condition.

35. POWER OF THE CONTRACTOR TO ACT IN AN EMERGENCY

In case of an emergency which threatens loss or injury to property and/or safety to life, the Contractor will be permitted to act as he sees fit without previous instructions from the TOWN DISTRICT. He shall notify the TOWN DISTRICT thereof immediately thereafter and any compensation claimed by the Contractor due to extra work made necessary because of his acts in such emergency shall be submitted to the TOWN DISTRICT for approval and Change Order executed by the TOWN DISTRICT and the Contractor.

Where the Contractor has not taken action but has notified the Engineer of an emergency indicating injury to persons or damage to adjoining property or to the work being accomplished under this

SECTION 005209 – CONTRACT

Contract, then upon authorization from the Engineer to prevent such threatened injury or damage, he shall act as instructed by the Engineer. The amount of reimbursement claimed by the Contractor on account of any such action shall be determined in the manner provided herein for the payment of extra work and shall be incorporated into a Change Order executed by the TOWN DISTRICT and Contractor.

36. SUITS AT LAW

The Contractor shall indemnify and save harmless the TOWN DISTRICT from and against all suits, claims, demands or actions for any injury sustained or alleged to be sustained by any party or parties in connection with the construction of the work or any part thereof, or any commission or omission of the Contractor, his employees or agents or any subcontractors and in case any such action shall be brought against the TOWN DISTRICT, the Contractor shall immediately take care of and defend the same at his own cost and expense.

37. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and, if through mistake or otherwise, any such provision is not inserted or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

38. SUBLETTING, SUCCESSOR AND ASSIGNS

The Contractor shall not sublet any part of the work under this Contract, nor assign any money due him hereunder without first obtaining the written consent of the TOWN DISTRICT. This Contract shall inure to the benefit of and shall be binding upon the parties hereunder and upon their respective successors and assigns, but neither party shall assign or transfer his interest herein in whole or in part without consent of the other.

SECTION 005209 – CONTRACT

IN WITNESS WHEREOF, the parties hereto have set their hands and seals the day and year first above written.

RIVERHEAD WATER DISTRICT

BY: _____
SEAN WALTER, SUPERVISOR

(TOWN SEAL)

CONTRACTOR
BY: _____

TITLE: _____

(SEAL)

STATE OF NEW YORK)
) ss:
COUNTY OF SUFFOLK)

On the ___ day of _____, 20__, before me personally came SEAN WALTER, to me known, who being by me duly sworn, did depose and say that he is the duly elected SUPERVISOR of the TOWN OF RIVERHEAD, COUNTY OF SUFFOLK, NEW YORK, and that at a meeting of the Town Board of the Town of Riverhead, duly held on the ___ day of _____, 20__, the said Board, also acting in its capacity as the Governing Body of the Riverhead Water District, authorized the said SUPERVISOR to execute all and any contracts on behalf of the Board; that he knows the seal of said Town, and that the said Water District seal is also the seal of the Town of Riverhead; that the seal affixed to the foregoing instrument is its corporate seal; that it was affixed thereto by order of the said Board, and that he signed his name thereto and executed the said instrument on behalf of the said Water District by like order and authority.

NOTARY PUBLIC

SECTION 005209 – CONTRACT

ACKNOWLEDGMENT OF CONTRACTOR, IF A CORPORATION

STATE OF NEW YORK)
) ss:
COUNTY OF)

On this ___ day of _____, 20__, before me personally came and appeared _____, to me known, who by me being duly sworn, did depose and say that he resides at _____ that he is the _____ of _____, the Corporation described in and which executed the foregoing instrument, that he knows the seal of said corporation, that one of the seals affixed to said instrument is such seal, that it was so affixed by order of the Directors of said Corporation, and that he signed his name thereto by like order.

NOTARY PUBLIC

SECTION 005209 – CONTRACT

ACKNOWLEDGMENT OF CONTRACTOR, IF A PARTNERSHIP

STATE OF NEW YORK)
) ss:
COUNTY OF)

On this ___ day of _____, 20__, before me personally came and appeared _____,
to me known, and known to me to be one of the members of the firm of _____,
described in and who executed the foregoing instrument, and he acknowledged to me that he executed
the same as and for the act and deed of said form.

NOTARY PUBLIC

END OF SECTION 005209

SECTION 006295 – IRANIAN INVESTMENT ACTIVITIES CERTIFICATION

IRANIAN INVESTMENT ACTIVITIES CERTIFICATION

(To be completed by the Bidder and submitted with the bid)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the state finance law.

Dated: _____ 2017

(Name of corporation or partnership)

(Individual)

(Officer stating title) (Partner)

END OF SECTION 006295

SECTION 007305 – GENERAL CONDITIONS

1. GENERAL CONDITIONS

The "General Conditions" are hereby made a part of these specifications and are attached herein.

Where any article of the General Conditions is supplemented hereby, the provisions of such article shall remain in effect. All the supplemental provisions shall be considered as added thereto. Where any such article is amended, voided or superseded thereby, the provisions of such article not so specifically amended, voided or superseded shall remain in effect.

Work, materials, plant, labor and other requirements of the General Conditions shall be furnished by the contractor. No direct payment shall be made for these General Conditions, and payment shall be deemed to be included in the Contract price or various items of the entire Contract.

2. CONTRACT DOCUMENTS

The Contract Documents include, but are not limited to, the General Conditions, General Specifications, Detailed Specifications, Plans, Proposal Form, Contract and other sections as either cited on the Index page(s) or actually included in the bound documents.

Each section of the Contract Documents is intended to be complementary to the other sections. It is intended that they include all items of labor and materials and everything required and necessary to complete the work, even though some items of work or materials may not be particularly mentioned in every section or may have been inadvertently omitted from the Drawings or Specifications or both.

3. APPROVAL OF SUBCONTRACTORS AND MATERIALS

Prior to commencing any work under this Contract, the contractor shall submit to the Engineer for approval a list of all the subcontractors and material suppliers it proposes to use for this Contract. No subcontractor or material supplier will be permitted to deliver materials or perform any work on this Contract until it has been approved by the Engineer.

4. INTERPRETATION OF DRAWINGS, ETC.

In the event of discrepancies between the Drawings and the Specifications, the following order shall be given preference when making interpretations:

- a. Addenda (later dates to take precedence over earlier dates).
- b. Drawings (schedules or notes to take precedence over other data shown on Drawings).
- c. Technical Specifications
- d. General Specifications
- e. General Conditions

On all Plans, Drawings, etc., the figure dimensions shall govern in the case of discrepancy between the scales and figures.

The contractor shall take no advantage of any error or omission in the Plans, or of any discrepancy between the Plans and Specifications, and the Engineer shall make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the Specifications and of the Plans as construed by him, and his decision shall be final.

All work that may be called for in the Specifications and not shown on the Plans, or shown on the Plans and not called for in the Specifications, shall be furnished and executed by the contractor as if designated in both. Should any work or material be required which is not denoted in the Plans and Specifications, either directly or indirectly, but which is, nevertheless, necessary for the proper carrying out of the intent thereof, it is understood and agreed that the same is implied and required, and that the contractor shall perform such work and furnish such materials as if they were completely delineated and described.

5. ADDITIONAL WORK

Additional work, if required to be performed under this Contract, will be in accordance with the applicable paragraphs of the Contract. The Engineer shall be the sole judge as to whether such work was intended as part of the Contract or is in addition thereto.

6. SAFETY PROVISIONS

The contractor shall take every precaution and shall provide such equipment and facilities as are necessary or required for the safety of its employees. In case of an accident, first aid shall be administered to any who may be injured in the progress of the work. In addition, the contractor shall also be prepared for the removal to the hospital for treatment of any employee either seriously injured or ill.

7. SANITARY REGULATIONS

In addition to compliance with the Occupational Safety and Health Act, the contractor shall erect and maintain necessary sanitary conveniences for the use of employees on the work. Such conveniences shall be properly secluded from observation, and their use shall be strictly enforced. Such sanitary conveniences shall be constructed in compliance with all laws, ordinances or regulations governing these facilities. The contents of same shall be removed with sufficient frequency to prevent nuisance, and disposed of to the satisfaction of the Engineer.

The contractor shall obey and enforce such other sanitary regulations and orders and shall take such precautions against infectious diseases as may be deemed necessary. In case any infectious diseases occur among its employees, it shall arrange for the immediate removal of the patient from the work and his isolation from all persons connected with the work.

8. RESPONSIBILITY OF ENGINEER AND CONTRACTOR DURING CONSTRUCTION

By means of the on-site observations of the work in progress, the Engineer will endeavor to provide protection for the Owner against defects and deficiencies in the contractor's work, but the furnishing of such services shall not include construction review of the contractor's construction means, methods, techniques, sequences or procedures, or of any safety precautions and programs in connection with the work.

The contractor is responsible for complete conformance to the Plans and Specifications, proper construction procedures, coordination with subcontractors, other contractors and utilities, and safe working conditions for its employees.

9. LABOR

All contractors and subcontractors employed upon the work shall and will be required to conform to the Labor Laws of the State of New York and the various acts amendatory and supplementary thereto; and to all other laws, ordinances and legal requirements applicable thereto. All contractors and subcontractors shall submit original copies of certified payroll records for each period worked at the site. In addition all contractors and subcontractors shall provide a completed Affidavit of Labor Form 220 and Riverhead Town Wage Disclaimer Form for each payroll week prior to issuance of any partial or final payment.

All labor shall be performed in the best and most workmanlike manner by mechanics skilled in their respective trades. The standards of the work required throughout shall be of such grade as will bring results of the first class only.

10. CLAIMS OR PROTESTS

If the contractor considers any work required of him to be outside the requirements of the Contract, or considers any record or ruling of the Engineers or Inspectors as unfair, he shall ask for written instructions or decisions immediately, and then file a written protest with the Owner against the same within five days thereafter, or be considered as having accepted the record or ruling.

11. NOTIFICATION, INTERFERENCE AND INJURY TO UTILITIES

The contractor shall cooperate in every way with the utility companies. All excavation shall be done in compliance with Article 36 of the General Business Law and notices given as provided by GBL, Section 761.

All conduits, water mains and gas mains encountered in the construction shall be properly and safely taken care of by the contractor, who shall, upon encountering same, notify the public corporation to whom they belong, in order that they may be changed in such a manner as not to interfere with the final construction.

In case any damage shall result to any service pipe for water or gas, or any private or public sewer or conduit by reason of negligence on the part of the contractor, he shall, without delay and at his own expense, repair same to the satisfaction of the Engineer, and in case such repairs are not made promptly or satisfactorily, the Owner may have the repairs made by another contractor or otherwise, and deduct the cost of same from any monies due or to become due the contractor.

12. INFRINGEMENT OF PATENTS

The contractor further agrees to hold himself responsible for any claims made against the Owner for any infringement of patents by the use of patented articles in any one phase of construction of the work and the completion of same, or any process connected with the work agreed to be performed under this Contract, or of any materials used upon said work and to save harmless and indemnify the Owner from all costs, expenses and damages which the Owner shall be obliged to pay by reason of any infringement or patents used in the construction and completion of the work.

13. DAMAGES

All damage, direct or indirect, of whatever nature resulting from either the performance of, or resulting to the work under, this Contract during its progress from whatever cause, shall be borne and sustained by the contractor, and all work shall be solely at his risk until the date of the final payment request.

14. GUARANTEE/WARRANTY

This contractor shall guarantee and warrant his work and that of his subcontractors against defects in workmanship and/or materials for a period of one (1) year from the date of final payment request by the Engineer, except as otherwise specified. Upon written notification from the Engineer, the contractor shall repair, replace or reconstruct such defects to the satisfaction of the Engineer at no cost to the Owner.

15. STANDARDIZATION

The general items specified with the Technical Specifications indicate specific manufacturers and/or catalog numbers etc., for the purpose of standardization within the District in order to minimize the stockpiling of replacement parts.

END OF SECTION 007305

SECTION 007343 - WAGE RATES

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission; a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion [online](#).

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project. There are very few exceptions to this rule. Complete information regarding these exceptions is available on the "[4 Day / 10 Hour Work Schedule](#)" form (PW 30.1).

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule from the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12240; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.state.ny.us.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.state.ny.us.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.state.ny.us.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. Payrolls must be maintained for at least Five (5) years from the project's date of completion. [See Spota Bill Notice](#). At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment. Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed \$100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds \$25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYS DOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "[Public Work Project](#)" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12240 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of \$50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.

IMPORTANT NOTICE

FOR

CONTRACTORS & CONTRACTING AGENCIES

Social Security Numbers on Certified Payrolls

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concerns with regard to inclusion of this information on payrolls if another identifier will suffice.

For these reasons, *the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor.*

NOTE: This change does not affect the Department's ability to request and receive the entire social security number from employers during the course of its public work / prevailing wage investigations.

**To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

**To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12240

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

Construction Industry Fair Play Act

Required Posting For Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site.

Failure to post the notice can result in penalties of up to \$1,500 for a first offense and up to \$5,000 for a second offense.

The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, www.labor.ny.gov.

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.state.ny.us .

WORKER NOTIFICATION

(Labor Law §220, paragraph a of subdivision 3-a)

Effective February 24, 2008

This provision is an addition to the existing prevailing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her particular job classification. The required notification will be provided with each wage schedule, may be downloaded from our website www.labor.state.ny.us or made available upon request by contacting the Bureau of Public Work at 518-457-5589.

* In the event that the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

Attention Employees

THIS IS A: **PUBLIC WORK PROJECT**

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at:
www.labor.ny.gov

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5156		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

OSHA 10-hour Construction Safety and Health Course – S1537-A

Effective July 18, 2008

This provision is an addition to the existing prevailing wage rate law, Labor Law §220, section 220-h. It requires that on all public work projects of at least \$250,000.00, all laborers, workers and mechanics working on the site, be certified as having successfully completed the OSHA 10-hour construction safety and health course. It further requires that the advertised bids and contracts for every public work contract of at least \$250,000.00, contain a provision of this requirement.

NOTE: The OSHA 10 Legislation only applies to workers on a public work project that are required, under Article 8, to receive the prevailing wage.

Where to find OSHA 10-hour Construction Course

1. NYS Department of Labor website for scheduled outreach training at:

www.labor.state.ny.us/workerprotection/safetyhealth/DOSH_ONSITE_CONSULTATION.shtm

2. OSHA Training Institute Education Centers:

Rochester Institute of Technology OSHA Education Center

Rochester, NY

Donna Winter

Fax (585) 475-6292

e-mail: dlwtpo@rit.edu

(866) 385-7470 Ext. 2919

www.rit.edu/~outreach/course.php3?CourseID=54

Atlantic OSHA Training Center

UMDNJ – School of Public Health

Piscataway, NJ

Janet Crooks

Fax (732) 235-9460

e-mail: crooksje@umdnj.edu

(732) 235-9455

<https://ophp.umdnj.edu/wconnect/ShowSchedule.awp?~~GROUP~AOTCON~10~>

Atlantic OSHA Training Center

University at Buffalo

Buffalo, New York

Joe Syracuse

Fax (716) 829-2806

e-mail: mailto:japs@buffalo.edu

(716) 829-2125

http://www.smbs.buffalo.edu/CENTERS/trc/schedule_OSHA.php

Keene State College

Manchester, NH

Leslie Singleton

e-mail: lsingletin@keene.edu

(800) 449-6742

www.keene.edu/courses/print/courses_osh.cfm

3. List of trainers and training schedules for OSHA outreach training at:

www.OutreachTrainers.org

Requirements for OSHA 10 Compliance

Chapter 282 of the Laws of 2007, codified as Labor Law 220-h took effect on July 18, 2008. The statute provides as follows:

The advertised specifications for every contract for public work of \$250,000.00 or more must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training “prior to the performing any work on the project.”

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.*)
- Training roster, attendance record of other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-485-5696.

WICKS Reform 2008

(For all contracts advertised or solicited for bid on or after 7/1/08)

- Raises the threshold for public work projects subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work. The total project's threshold would increase from \$50,000 to: \$3 million in Bronx, Kings, New York, Queens and Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.
- For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical work and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or use of a Project Labor Agreement (PLA), and must be open to public inspection.
- Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.
- The Commissioner of Labor shall have the power to enforce separate specification requirements on projects, and may issue stop-bid orders against public owners for non-compliance.
- Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.
- Reduces from 15 to 7 days the period in which contractors must pay subcontractors.

IMPORTANT INFORMATION

**Regarding Use of Form PW30.1
(Previously 30R)**

“Employer Registration for Use of 4 Day / 10 Hour Work Schedule”

To use the ‘4 Day / 10 Hour Work Schedule’:

There **MUST** be a *Dispensation of Hours (PW30)* in place on the project

AND

You **MUST** register your intent to work 4 / 10 hour days, by completing the PW30.1 Form.

REMEMBER...

The ‘4 Day / 10 Hour Work Schedule’ applies **ONLY** to Job Classifications and Counties listed on the PW30.1 Form.

Do not write in any additional Classifications or Counties.

(Please note : For each Job Classification check the individual wage schedule for specific details regarding their 4/10 hour day posting.)

Instructions for Completing Form PW30.1

(Previously 30R)

“Employer Registration for Use of 4 Day / 10 Hour Work Schedule”

Before completing Form PW30.1 check to be sure ...

- There is a *Dispensation of Hours* in place on the project.
- The 4 Day / 10 Hour Work Schedule applies to the Job Classifications you will be using.
- The 4 Day / 10 Hour Work Schedule applies to the County / Counties where the work will take place.

Instructions (Type or Print legibly):

Contractor Information:

- Enter the Legal Name of the business, FEIN, Street Address, City, State, Zip Code; the Company’s Phone and Fax numbers; and the Company’s email address (if applicable)
- Enter the Name of a Contact Person for the Company along with their Phone and Fax numbers, and the personal email address (if applicable)

Project Information:

- Enter the Prevailing Rate Case number (PRC#) assigned to this project
- Enter the Project Name / Type (i.e. Smithtown CSD – Replacement of HS Roof)
- Enter the Exact Location of Project (i.e. Smithtown HS, 143 County Route #2, Smithtown, NY; Bldgs. 1 & 2)
- If you are a Subcontractor, enter the name of the Prime Contractor for which you work
- On the Checklist of Job Classifications -
 - Go to pages 2 and 3 of the form
 - Place a checkmark in the box to the right of the Job Classification you are choosing
 - Mark all Job Classifications that apply

Do not write in any additional Classifications or Counties.

Requestor Information:

- Enter the name of the person submitting the registration, their title with the company , and the date the registration is filled out

Return Completed Form:

- **Mail** the completed PW30.1 form to: NYSDOL Bureau of Public Work, SOBC – Bldg.12 – Rm.130, Albany, NY 12240 **-OR-**
- **Fax** the completed PW30.1 form to: NYSDOL Bureau of Public Work at (518)485-1870



Bureau of Public Work Harriman
State Office Campus
Building 12, Room 130
Albany, New York 12240
Phone: (518) 457-5589 | Fax: (518) 485-1870
www.labor.ny.gov

Employer Registration for Use of 4 Day / 10 Hour Work Schedule

Before completing this form, make sure that:

- There is a **Dispensation of Hours** in place on the project.
- The 4 Day / 10 Hour Work Schedule applies to the Job Classifications you will be using.
- The 4 Day / 10 Hour Work Schedule applies to the County / Counties where the work will take place.

Please **type or print** the requested information and then **mail or fax** to the address above.

Contractor Information

Company Name: _____ FEIN: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone No: _____ Fax No: _____ Email: _____

Contact Person: _____

Phone No: _____ Fax No: _____ Email: _____

Project Information

Project PRC#: _____ Project Name/Type: _____

Exact Location
of Project: _____ County: _____

(If you are Subcontractor)

Prime Contractor Name: _____

Job Classification(s) to Work 4/10 Schedule: *(Choose all that apply on Job Classification Checklist - Pages 3-8)*
**** Do not write in any additional Classifications or Counties****

Requestor Information

Name: _____

Title: _____ Date: _____

Please use the list below with the number assigned to each county as a reference to the corresponding numbers listed in the following pages under **Entire Counties & Partial Counties**.

- | | | | |
|-----|-----------------------------|-----|---------------------------------|
| 1. | Albany County | 33. | Oneida County |
| 2. | Allegany County | 34. | Onondaga County |
| 3. | Bronx County | 35. | Ontario County |
| 4. | Broome County | 36. | Orange County |
| 5. | Cattaraugus County | 37. | Orleans County |
| 6. | Cayuga County | 38. | Oswego County |
| 7. | Chautauqua County | 39. | Otsego County |
| 8. | Chemung County | 40. | Putnam County |
| 9. | Chenango County | 41. | Queens County |
| 10. | Clinton County | 42. | Rensselaer County |
| 11. | Columbia County | 43. | Richmond County (Staten Island) |
| 12. | Cortland County | 44. | Rockland County |
| 13. | Delaware County | 45. | Saint Lawrence County |
| 14. | Dutchess County | 46. | Saratoga County |
| 15. | Erie County | 47. | Schenectady County |
| 16. | Essex County | 48. | Schoharie County |
| 17. | Franklin County | 49. | Schuyler County |
| 18. | Fulton County | 50. | Seneca County |
| 19. | Genesee County | 51. | Steuben County |
| 20. | Greene County | 52. | Suffolk County |
| 21. | Hamilton County | 53. | Sullivan County |
| 22. | Herkimer County | 54. | Tioga County |
| 23. | Jefferson County | 55. | Tompkins County |
| 24. | Kings County (Brooklyn) | 56. | Ulster County |
| 25. | Lewis County | 57. | Warren County |
| 26. | Livingston County | 58. | Washington County |
| 27. | Madison County | 59. | Wayne County |
| 28. | Monroe County | 60. | Westchester County |
| 29. | Montgomery County | 61. | Wyoming County |
| 30. | Nassau County | 62. | Yates County |
| 31. | New York County (Manhattan) | | |
| 32. | Niagara County | | |

Job Classification Checklist

(Place a checkmark by all classifications that will be using the 4/10 schedule)

**** Do not write in any additional Classifications or Counties****

Job Classification	Tag #	Entire Counties	Partial Counties	Check Box
Carpenter – Building	276B-All	7	2 ,5	
Carpenter – Building	276B-Cat	15	5	
Carpenter – Building	276-B-LIV	26, 28, 35, 59	61	
Carpenter – Building	276B-Gen	19, 32, 37	61	
Carpenter – Heavy & Highway	276HH-All	2, 5, 7		
Carpenter – Heavy & Highway	276HH-Erie	15		
Carpenter – Heavy & Highway	276HH- Gen	19, 32, 37, 61		
Carpenter – Heavy & Highway	276HH-Liv	26, 28, 35, 59		
Carpenter – Residential	276R-All	7	2, 5	
Carpenter – Building	277B-Bro	4, 54		
Carpenter – Building	277B-CAY	6, 50, 62		
Carpenter – Building	277B-CS	8, 12, 49, 51, 55	2	
Carpenter – Building	277 JLS	23, 25, 45		
Carpenter – Building	277 omh	22, 27, 33		
Carpenter – Building	277 On	34		
Carpenter – Building	277 Os	38		
Carpenter – Building	277CDO Bldg	9, 13, 39		
Carpenter – Heavy & Highway	277CDO HH	9, 13, 39		
Carpenter – Heavy & Highway	277HH-BRO	4, 6, 8, 12, ,22, 23, 25, 27, 33, 34, 38, 45, 49, 50, 51, 54, 55, 62		
Carpenter – Building	291B-Alb	1, 18, 20, 29, 42, 47, 48		
Carpenter – Building	291B-Cli	10, 16, 17		
Carpenter – Building	291B-Ham	21, 57, 58		
Carpenter – Building	291B-Sar	46		
Carpenter – Heavy & Highway	291HH-Alb	1, 10, 16, 17,18, 20, 21, 29, 42, 46, 47, 48, 57, 58		
Electrician	25m	30, 52		
Electrician – Teledata Cable Splicer	43	12, 22, 27, 33, 38	6, 9, 34, 39, 55, 59	

Job Classification Checklist

(Place a checkmark by all classifications that will be using the 4/10 schedule)

*** Do not write in any additional Classifications or Counties***

Job Classification	Tag #	Entire Counties	Partial Counties	Check Box
Electrician	86	26, 28	19, 35, 37, 59, 61	
Electrician	840 Teledata and 840 Z1	62	6, 34, 35, 50, 59	
Electrician	910	10, 16, 17, 23, 25, 45		
Electrical Lineman	1049Line/Gas	30, 41, 52		
Electrical Lineman	1249a	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 44, 46, 47, 48, 49, 50, 45, 51, 53, 54, 55, 56, 57, 58, 59, 61, 62		
Electrical Lineman	1249a West	60		
Electrical Lineman	1249a-LT	1, 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32, 33, 34, 35, 37, 38, 39, 42, 46, 47, 48, 49, 50, 45, 51, 53, 54, 55, 57, 58, 59, 61, 62		
Electrical Lineman	1249aREG8LT	11, 14, 36, 40, 44, 56		
Electrical Lineman	1249aWestLT	60		
Elevator Constructor	138	11, 14, 20, 36, 40, 53, 56	13, 44, 60	
Elevator Constructor	14	2, 5, 7, 15, 19, 32, 37, 61		
Elevator Constructor	27	8, 26, 28, 35, 49, 50, 51, 59, 62		
Elevator Constructor	35	1, 10, 16, 18, 21, 22, 29, 39, 42, 46, 47, 48, 57, 58		
Elevator Constructor	62.1	4, 6, 9, 12, 23, 25, 27, 33, 34, 38, 45, 54, 55	13	
Glazier	201	1, 10, 11, 16, 17, 18, 20, 21, 29, 42, 46, 47, 48, 57, 58		
Glazier	660r	2, 5, 7, 15, 19, 32, 37, 61		
Glazier	660	2, 5, 7, 15, 19, 32, 37, 61		
Glazier	677.1	23, 25, 26, 28, 35, 45, 50, 59, 62		
Glazier	677Z-2	6, 12, 22, 27, 33, 34, 38		
Glazier	677z3	4, 8, 9, 13, 39, 49, 51, 54, 55		
Glazier	677r.2	6, 12, 22, 27, 33, 34, 38		
Insulator – Heat & Frost	30-Syracuse	4, 6, 8, 9, 12, 22, 23, 25, 27, 33, 34, 38, 39, 49, 50, 45, 54, 55		
Laborer – Building	621b	2, 7	5	
Laborer – Building	633 bON	34		

Job Classification Checklist

(Place a checkmark by all classifications that will be using the 4/10 schedule)

*** Do not write in any additional Classifications or Counties***

Job Classification	Tag #	Entire Counties	Partial Counties	Check Box
Laborer – Building	633b Cay	6		
Laborer – Building	633bOS	38		
Laborer – Building	785(7)	4	9, 13, 54	
Laborer – Building	785B-CS	8, 51	49	
Laborer – Building	7-785b	12, 55	49, 54	
Laborers – Heavy & Highway	157h/h	47	18, 29, 46	
Laborers – Heavy & Highway	190 h/h	1, 42, 58	11, 20, 46	
Laborers – Heavy & Highway	35/2h	21, 22, 27, 33	18, 29	
Laborer – Residential	621r	2, 7	5	
Laborers – Tunnel	157	47	18, 29, 46	
Laborers – Tunnel	35T	21, 22, 27, 33	18, 29	
Laborers – Tunnel	190	1, 42, 58	11, 20, 46	
Mason – Building	2TS.1	1, 10,11, 16, 17, 18, 20, 21, 29, 42, 46, 47, 48, 57, 58		
Mason – Building	2TS.2	22, 23, 25, 33, 45	27	
Mason – Building	2TS.3	6, 34, 38	27	
Mason – Building	2b-on	34		
Mason – Building	2b.1	1, 11, 18, 20, 21, 29, 42, 46, 47, 48, 58	57	
Mason – Building	2b.2	22, 33	25	
Mason – Building	2b.3	6, 34	27	
Mason – Building	2b.4	38		
Mason – Building	2b.5	23	25	
Mason – Building	2b.6	45		
Mason – Building	2b.8	10, 16, 17	57	
Mason – Building	3b-Co-Z2	8, 49, 51	2	
Mason – Building	3B-Z1	19, 26, 28, 35, 50, 59, 61, 62		
Mason – Building – Residential	3B-Z1R	19, 26, 28, 35, 50, 59, 61, 62		
Mason – Building	3B-Bing-Z2	4, 9, 13, 39, 54		
Mason – Building	3B-lth-Z2	12, 55		

Job Classification Checklist

(Place a checkmark by all classifications that will be using the 4/10 schedule)

**** Do not write in any additional Classifications or Counties****

Job Classification	Tag #	Entire Counties	Partial Counties	Check Box
Mason – Building	3B-Jam-Z2	7	2, 5	
Mason – Building – Residential	3B-Jam-Z2R	2, 4, 8, 7, 9, 12, 39, 13, 49, 51, 54, 55	5	
Mason – Building	3B-Z3	15, 32	5	
Mason – Building	3B-Z3.Orleans	37		
Mason – Residential	3B-Z3R	15, 32	5	
Mason – Residential	3B-z3R.Orleans	37		
Mason - Heavy & Highway	3h	2, 4, 8, 7, 9, 12, 13, 19, 26, 28, 35, 37, 39, 49, 50, 51, 54, 55, 59, 61, 62	5, 15, 32	
Mason – Tile Finisher	3TF-Z1	19, 26, 28, 35, 50, 59, 61, 62		
Mason – Tile Finisher	3TF-Z2	2, 4, 8, 7, 9, 12, 13, 39, 49, 51, 54, 55	5	
Mason – Tile Finisher	3TF-Z3	15, 32, 37	5	
Mason – Tile Finisher	3TF-Z1R	19, 26, 28, 35, 50, 59, 61, 62		
Mason – Tile Finisher	3TF-Z2R	2, 4, 7, 9, 12, 13, 39, 49, 51, 54, 55	5	
Mason – Tile Finisher	3TF-Z3R	15, 32, 37	5	
Mason – Tile Setter	3TS-Z1	19, 26, 28, 35, 50, 59, 61, 62		
Mason – Tile Setter Residential	3TS-Z1R	19, 26, 28, 35, 50, 59, 61, 62		
Mason – Tile Setter	3TS-Z2	2, 4, 7, 8, 9, 12, 13, 39, 49, 51, 54, 55	5	
Mason – Tile Setter Residential	3TS-Z2R	2, 4, 7, 8, 9, 12, 13, 39, 49, 51, 54, 55	5	
Mason – Tile Setter	3TS-Z3	15, 32, 37	5	
Mason – Tile Setter Residential	3TS-Z3R	15, 32, 37	5	
Mason – Building/Heavy & Highway	780	3, 24, 30, 31, 41, 43, 52		
Operating Engineer - Heavy & Highway	137H/H	40, 60	14	
Operating Engineer – Heavy & Highway	158-832H	2, 8, 26, 28, 35, 49, 51, 59, 62	19	
Operating Engineer – Heavy & Highway	158-H/H	1, 4, 9, 10, 11, 14, 16, 17, 18, 20, 21, 22, 29, 39, 42, 46, 47, 48, 54, 57, 58		
Operating Engineer – Heavy & Highway	158-545h	6, 12, 23, 25, 27, 33, 38, 45, 50, 55		
Painter	1456-LS	1, 3, 10, 11, 14, 16, 17, 18, 20, 21, 24, 29, 30, 31, 36, 40, 41, 42, 43, 44, 46, 47, 48, 52, 53, 56, 57, 58, 60		
Painter	150	28, 59, 62	26, 35	

Job Classification Checklist

(Place a checkmark by all classifications that will be using the 4/10 schedule)

*** Do not write in any additional Classifications or Counties***

Job Classification	Tag #	Entire Counties	Partial Counties	Check Box
Painter	178 B	4, 9, 54		
Painter	178 E	8, 49	51	
Painter	178 I	12, 55		
Painter	178 O	13, 39		
Painter	31	6, 22, 27, 33, 34, 50	25, 35, 38	
Painter	38.O		38	
Painter	38.W	23, 45	25	
Painter	4- Buf,Nia,Olean	2, 15, 19, 32, 37, 61	5, 7, 26, 51	
Painter	4-Jamestown		5, 7	
Sheetmetal Worker	46	26, 28, 35, 50, 59, 62		
Sheetmetal Worker	46r	26, 28, 35, 50, 59, 62		
Teamsters – Heavy & Highway	294h/h	1, 11, 18, 20, 29, 42, 46, 47, 48, 58	57	
Teamsters – Heavy & Highway	317bhh	6, 12, 50, 51, 55, 62	2	
Teamsters - Building/Heavy & Highway	456	40, 60		

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. In most cases the payment or provision of supplements is for each hour worked (noted in the schedule as 'Per hour worked'). Some classifications require the payment or provision of supplements for each hour paid (noted in the schedule as 'Per hour paid'), which require supplements to be paid or provided at a premium rate for premium hours worked. Some classifications may also require the payment or provision of supplements for paid holidays on which no work is performed.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.state.ny.us) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3

Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12240

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Suffolk County General Construction

Asbestos Worker **06/01/2017**

JOB DESCRIPTION Asbestos Worker **DISTRICT 4**

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
Per Hour: 07/01/2016

Asbestos Worker \$ 44.00
Removal & Abatement Only*

NOTE: *On Mechanical Systems that are NOT to be SCRAPPED.

SUPPLEMENTAL BENEFITS

Per Hour:

Asbestos Worker \$ 8.70
Removal & Abatement Only

OVERTIME PAY
See (B, B2, *E, J) on OVERTIME PAGE
Hours worked on Saturdays are paid at time and one half only if forty hours have been worked during the week.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8) on HOLIDAY PAGE

REGISTERED APPRENTICES
Apprentice Removal & Abatement Only:
1000 hour terms at the following percentage of Journeyman's rates.

1st	2nd	3rd	4th
78%	80%	83%	89%

SUPPLEMENTAL BENEFIT
Per Hour:

Apprentice
Removal & Abatement \$ 8.70

4-12a - Removal Only

Boilermaker **06/01/2017**

JOB DESCRIPTION Boilermaker **DISTRICT 4**

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
Per Hour: 07/01/2016

Boilermaker \$ 51.56
Repairs & Renovations \$ 51.56

SUPPLEMENTAL BENEFITS
Per Hour: 07/01/2016

Boilermaker 32% of hourly
Repairs & Renovations Wage Paid
+ \$25.19

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY
OVERTIME PAY
See (D, O) on OVERTIME PAGE
HOLIDAY
Paid: See (8, 16, 23, 24) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 12, 15, 25) on HOLIDAY PAGE
 NOTE: *Employee must work in pay week to receive Holiday Pay.
 **Boilermaker gets 4 times the hourly wage rate for working on Labor Day.
 ***Repairs & Renovation see (B,E,Q) on HOLIDAY PAGE

HOLIDAY

REGISTERED APPRENTICES

Wage per hour:
 (1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

Apprentice(s)	07/01/2016 32% of Hourly Wage Paid Plus Amount Below
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1st Term	\$ 19.27
2nd Term	20.11
3rd Term	20.95
4th Term	21.80
5th Term	22.65
6th Term	23.49
7th Term	24.33

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Carpenter

06/01/2017

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2016

Piledriver	\$ 51.63
Dockbuilder	\$ 51.63

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyworker	\$ 48.62
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OVERTIME PAY

See (B, E2, O) on OVERTIME PAGE

HOLIDAY

Paid: See (1)on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour

(1)year terms:	1st	2nd	3rd	4th
	\$20.65	\$25.82	\$33.56	\$41.30

Supplemental benefits per hour:

Apprentices	\$ 32.49
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Carpenter

06/01/2017

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

PARTIAL COUNTIES

Orange: The area lying on Southern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing east to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Per hour: 07/01/2016

Carpet/Resilient

Floor Coverer \$ 50.50

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS

Per hour worked:

Floor Coverer \$ 45.85

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19)on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour is Percentage of Journeyworkers Wage

(1) year terms:

1st.	2nd.	3rd.	4th.
\$20.20	\$25.25	\$32.83	\$40.40

Supplemental benefits per hour:

\$ 31.11

8-2287

Carpenter

06/01/2017

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2016

Marine Construction:

Marine Diver \$ 65.38

Marine Tender 46.44

SUPPLEMENTAL BENEFITS

Per Hour Worked:

Journeyman \$ 48.62

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 13, 16, 18, 19) on HOLIDAY PAGE

8-1456MC

Carpenter

06/01/2017

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2016

Building

Millwright \$ 51.50

SUPPLEMENTAL BENEFITS

Per hour worked:

Millwright \$ 52.38

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18,19)* on HOLIDAY PAGE.

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

* must show up to work

REGISTERED APPRENTICES

Wages per hour is Percentage of Journeyworkers wage:

(1) year terms:

1st.	2nd.	3rd.	4th.
\$28.33	\$33.48	\$38.63	\$48.93

Supplemental benefits per hour paid:

(1) year terms:

1st.	2nd.	3rd.	4th.
\$34.25	\$37.85	\$42.10	\$48.66

8-740.1

Carpenter

06/01/2017

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2016

Timberman \$ 46.99

SUPPLEMENTAL BENEFITS

Per Hour Worked: 07/01/2016

\$ 48.23

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1) year terms:

1st	2nd	3rd	4th
\$18.80	\$23.50	\$30.54	\$37.59

Supplemental benefits per hour:

\$ 32.30

8-1556 Tm

Carpenter

06/01/2017

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES

Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.

Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.

Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour: 07/01/2016 10/17/2016

Core Drilling:
 Driller \$ 37.82 \$ 38.82

Driller Helper 30.17 30.96

Additional Helpers: One (1) year increments. This is not an apprenticeship for Driller:

Helper 1st year	\$ 21.12
Helper 2nd year	24.14
Helper 3rd year	27.15
Helper 4th year	30.17

Note: Hazardous Waste Pay Differential:

For Level C, an additional 10% above wage rate per hour

For Level B, an additional 10% above wage rate per hour

For Level A, an additional 10% above wage rate per hour

Note: When required to work on water: an additional \$ 0.50 per hour.

SUPPLEMENTAL BENEFITS

Per hour worked: 07/01/2016 10/17/2016

Driller and All Helpers \$ 24.00 \$ 24.66

OVERTIME PAY

OVERTIME: See (B,E,K*,P,R**) on OVERTIME PAGE.

HOLIDAY

Paid: See (5,6) on HOLIDAY PAGE.

Overtime: * See (5,6) on HOLIDAY PAGE.

** See (8,10,11,13) on HOLIDAY PAGE.

8-1536-CoreDriller

Carpenter - Building / Heavy&Highway

06/01/2017

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Suffolk

PARTIAL COUNTIES

Nassau: Work performed "North of Southern State Parkway and East of Seaford Creek"

WAGES

Per Hour: 07/01/2016

Carpenter (Building)	\$ 48.28
Carpenter (Heavy Highway)	\$ 48.28

"NOTE" ADD 15% to straight time hourly wage for NEW YORK STATE D.O.T. and other GOVERNMENTAL MANDATED Off-Shift Work.

SUPPLEMENTAL BENEFITS

Per Hour:

Both Carpenter Categories	\$ 31.21
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OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

One(1) Year Terms at the following:

Per Hour:

1st	2nd	3rd	4th
\$ 23.12	\$ 25.16	\$ 29.22	\$ 33.29

Supplemental Benefits

Per Hour:

All Terms:	\$ 17.65
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4-Reg.Council Nass/Suff

Electrician

06/01/2017

JOB DESCRIPTION Electrician

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016
Telephone and Intergrated Tele-Data System Electrician	\$ 36.78

This rate classification applies to ALL Voice, Data & Video work.: Excluding Fire Alarm Systems and Energy Managment Systems (HVAC Controls), in those cases the regular Electrician rate applies. To ensure proper use of this rate please call Nassau Offices at (516)228-3915 or Suffolk Offices at (631)687-4882.

SUPPLEMENTAL BENEFITS

Per Hour:

Tele-Data Electrician	16% of Hourly Wage Paid + \$17.33
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NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

4-25tela

Electrician

06/01/2017

JOB DESCRIPTION Electrician

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016
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Electrician
 Electrical Maintenance \$ 42.20

"PLEASE NOTE"

Applicable to "EXISTING ELECTRICAL SYSTEMS" including, but not limited to TRAFFIC SIGNALS & STREET LIGHTING. Not used for add-ons.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday, with one-half (1/2) hour allowed for a lunch period.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Electrician 12% of Hourly
 Wage Paid + \$ 16.83

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay

OVERTIME PAY

See (B, E2, K, P) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

One(1) Year Term(s) at the following Percentage of Journeyman(s) Wage:

1st	2nd	3rd	4th	5th	6th
40%	50%	60%	70%	80%	90%

Supplemental Benefits:

	Apprentices Hired Prior to 04/26/2014	Apprentices Hired After 04/26/2014
	07/01/2016	07/01/2016
1st	12% + \$9.90	3% + \$3.50
2nd	12% + \$10.79	8% + \$4.04
3rd	12% + \$11.70	9% + \$5.06
4th	12% + \$12.59	10% + \$6.81
5th	12% + \$13.48	11% + \$10.76
6th	12% + \$13.66	DNA

NOTE: Percentages are on "Hourly Wage Paid"

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay

4-25m

Electrician **06/01/2017**

JOB DESCRIPTION Electrician

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016	05/01/2017
Electrician		
Pump & Tank	\$ 40.45	\$ 41.05

SUPPLEMENTAL BENEFITS

Per Hour:

Electrician		
Pump & Tank	65.25% of *Wage	65.25% of *Wage

Paid Paid

*Wage Paid includes any and all Premiums

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

1 Year Terms at the Following:

Per Hour:

1st Term	\$ 12.02	\$ 12.32
2nd Term	\$ 16.02	\$ 14.37
3rd Term	\$ 20.02	\$ 16.42
4th Term	\$ 24.03	\$ 18.47
5th Term	\$ 28.04	\$ 24.63
6th Term	\$ 34.04	\$ 28.74

SUPPLEMENTAL BENEFITS

Per Hour:

All Terms	65.25% of *Wage Paid	65.25% of Wage Paid
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*Wage Paid includes any and all Premiums

4-25 Pump & Tank

Electrician

06/01/2017

JOB DESCRIPTION Electrician

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016	04/29/2017
Electrician/Wireman	\$ 51.00	\$ 51.50
HVAC Controls	51.00	51.50
Fire Alarms	51.00	51.50

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2016	04/29/2017
Electrician/Wireman (all categories)	16% of Hourly Wage Paid + \$24.09	16% of Hourly Wage Paid + \$24.96

NOTE: "Hourly Wage Paid" shall include any and all premium[s]

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

One(1) Year Terms at the following Percentage of Journeyman(s) Wage:

1st	2nd	3rd	4th	5th	6th
35%	35%	40%	45%	60%	75%

Supplemental Benefits Per Hour:

07/01/2016 04/29/2017

1st	3% + \$2.71	3% + \$2.87
2nd	8% + \$4.08	8% + \$4.84
3rd	9% + \$4.95	9% + \$6.04
4th	10% + \$ 6.99	10% + \$8.19
5th	13% + \$10.64	13% + \$11.03
6th	14% + \$17.05	14% + \$17.29

NOTE: Percentages are on "Hourly Wage Paid"
 NOTE: "Hourly Wage Paid" shall include any and all premium(s).

4-25

Electrician **06/01/2017**

JOB DESCRIPTION Electrician **DISTRICT 4**

ENTIRE COUNTIES
 Nassau, Suffolk

WAGES

Per Hour: 07/01/2016 04/02/2017

Tree Trimmer/Remover
 Line Clearance Specialist \$ 31.77 \$32.72

Ground Mean
 (Not to Exceed 20% of Work Force) \$19.06 \$19.63

These rates apply to all tree trimming/removal contracts including but not limited to "Electrical Line Clearance"/"Long Island Railroad Right of Ways".

All tree removal for heavy highway or building construction contracts MUST use Heavy Highway Laborer and Operating Engineer classifications.

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2016 04/04/2017

Tree Trimmer/Remover
 Line Clearance Specialist
 and Ground Man 19.50% of Hourly
 Wage Paid +
 \$9.41 19.75% of Hourly
 Wage Paid +
 \$9.82

NOTE: "Hourly Wage Paid" shall include any and all premium(s) paid

OVERTIME PAY

See (B, E, P, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 16, 23, 24, 25, 26) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 16, 23, 24, 25, 26) on HOLIDAY PAGE

4-1049/Tree

Electrician Lineman **06/01/2017**

JOB DESCRIPTION Electrician Lineman **DISTRICT 4**

ENTIRE COUNTIES
 Nassau, Queens, Suffolk

WAGES

For Utility Distribution & Transmission Line Construction:
 Per Hour: 07/01/2016 04/02/2017

Lineman/Splicer \$ 52.28 \$ 53.85
 Material Man 45.48 46.85
 Heavy Equip. Operator 41.82 43.08
 Groundman 31.37 32.31
 Flagman 23.53 24.23

For Natural Gasline Construction:
 Per Hour: 07/01/2016
 Journeyman U.G.Mech. \$ 44.08

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Utility Distribution & Transmission Line Construction:

	07/01/2016	04/02/2017
All Classifications	31.5% of Hourly Wage Paid + \$ 11.70	32.0% of Hourly Wage Paid + \$ 11.93

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay

Natural Gasline Construction:

Per Hour:

07/01/2016

Journeyman U.G.Mech.

26% of Hourly
Wage Paid +
\$11.96

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

OVERTIME for Natural Gas Mechanic:(B,G,P)

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 16, 23, 25, 26) on HOLIDAY PAGE

Same as Above for Natural Gas Mechanic.

REGISTERED APPRENTICES

1000 hour Terms at the following Percentage of Journeyman's Wage.

(Lineman Only)

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFIT:	07/01/2016	04/02/2017
All Terms	31% of Hourly Wage Paid + \$11.70	31% of Hourly Wage Paid + \$11.93

4-1049 Line/Gas

Elevator Constructor

06/01/2017

JOB DESCRIPTION Elevator Constructor

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES

Rockland: Entire County except for the Township of Stony Point

Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per hour:

	07/01/2016	03/17/2017
Elevator Constructor	\$ 60.96	\$ 62.64
Modernization & Service/Repair	47.91	49.14

SUPPLEMENTAL BENEFITS

Per Hour:

Elevator Constructor	\$ 36.86	\$ 38.57
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Modernization & Service/Repair 35.87 37.55

OVERTIME PAY

Constructor. See (D, M, T) on OVERTIME PAGE.

Modern./Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

*Note:1st Term is based on Average wage of Constructor & Modernization.
 Terms 2 thru 4 Based on Journeyman's wage of classification Working in.

1 YEAR TERMS:

1st Term*	2nd Term	3rd Term	4th Term
50%	55%	65%	75%

SUPPLEMENTAL BENEFITS

Elevator Constructor

1st Term	\$ 30.44	\$ 31.96
2nd Term	31.27	32.82
3rd Term	32.51	34.10
4th Term	33.75	35.37

Modernization & Service/Repair

1st Term	\$ 30.37	\$ 31.89
2nd Term	30.73	32.26
3rd Term	31.87	33.43
4th Term	33.02	34.61

4-1

Glazier

06/01/2017

JOB DESCRIPTION Glazier

DISTRICT 8

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per hour:	07/01/2016	11/01/2016
		+ additional \$.85
Glazier	\$ 53.55	
Scaffolding	\$ 54.55	

Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 24' or more, but not pipe scaffolding.

Repair & Maintenance \$ 26.88

Repair & Maintenance- All repair & maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$121,550

SUPPLEMENTAL BENEFITS

Per hour paid:	07/01/2016	11/01/2016
Journeyworker	\$ 28.94	\$ 28.94
Repair & Maintenance	17.26	17.26

OVERTIME PAY

OVERTIME: Premium is applied to the respective base wage only.
 See (C*,D* E2, O) on OVERTIME PAGE.

* If an optional 8th hour is required to complete the entire project, the same shall be paid at the regular rate of pay. If a 9th hour is worked, then both hours or more (8th & 9th or more) will be paid at double time rate of pay.

For Repair & Maintenance see (B,B2, F, P) on overtime page.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (4, 6, 16, 25) on HOLIDAY PAGE
 Paid for the Repair & Maintenance (5, 6, 16 & 25)

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage rates:

	07/01/2016	11/01/2016
1st term	\$ 18.20	\$ 18.20
2nd term	26.44	26.44
3rd term	31.89	31.89
4th term	42.69	42.69

Supplemental Benefits:

(Per hour worked)

	07/01/2016	11/01/2016
1st term	\$ 14.24	\$ 14.24
2nd term	19.67	19.67
3rd term	21.58	21.58
4th term	25.12	25.12

8-1281 (DC9 NYC)

Insulator - Heat & Frost

06/01/2017

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2016	12/26/2016 Additional
Insulators Heat & Frost	\$ 64.76	\$1.20/Hr.

SUPPLEMENTAL BENEFITS

Per Hour:

Insulators Heat & Frost	\$ 32.46
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OVERTIME PAY

See (A, D, O, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages:

1 year terms at the following percentage of Journeymans Wage.

1st	2nd	3rd	4th
40%	60%	70%	80%

Supplemental Benefits per hour:

Apprentice Insulator(s)

1st	\$ 12.98
2nd	19.48
3rd	22.72
4th	25.97

4-12

Ironworker

06/01/2017

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES

Per hour: 07/01/2016

Reinforcing & Metal Lathing \$ 54.53

SUPPLEMENTAL BENEFITS

Per hour paid:

Reinforcing & Metal Lathing \$ 33.05

OVERTIME PAY

See (B, B1, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 13, 18, 19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

Wages Per Hour:

1st term	2nd term	3rd term	4th Term
\$ 26.63	\$ 30.63	\$ 33.63	\$ 36.63

SUPPLEMENTAL BENEFITS

Per Hour:

1st term	2nd term	3rd term	4th Term
\$ 11.09	\$ 13.09	\$ 17.05	\$ 18.05

4-46Reinf

Ironworker

06/01/2017

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour: 07/01/2016 01/01/2017

IRONWORKER:

Ironworker Rigger \$ 58.34 An Additional \$ 1.36

Ironworker Stone Derrickman \$ 58.34 \$ 1.36

SUPPLEMENTAL BENEFITS

Ironworker: \$ 38.85

OVERTIME PAY

See (B, D1, *E, Q, **V) on OVERTIME PAGE

*Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.

** Benefits same premium as wages on Holidays only

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 25) on HOLIDAY PAGE

*Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES

Wage per hour:

1/2 year terms at the following hourly wage rate:

	1st	2nd	3rd	4th	5th	6th
07/01/2016	\$29.17	\$29.17	\$41.44	\$46.07	\$50.71	\$50.71

Supplemental benefits:

Per hour paid: \$19.43 \$19.43 \$29.15 \$29.15 \$29.15 \$29.15

9-197D/R

Ironworker **06/01/2017**

JOB DESCRIPTION Ironworker **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2016	01/01/2017	07/01/2017
Ornamental	\$ 43.65	\$ 43.90	Additional
Chain Link Fence	43.65	43.90	\$ 1.20/Hr.
Guide Rail Installation	43.65	43.90	To be allocated

SUPPLEMENTAL BENEFITS

Per hour paid:			
Journeyworker:	\$ 50.16	\$ 51.16	

OVERTIME PAY
 OVERTIME: See (A*,D1,E**,Q,V) on OVERTIME PAGE.

*Time and one-half shall be paid for all work in excess of seven (7) hours at the end of a work day to a maximum of two (2) hours on any regular work day (8th & 9th hours of work) and double time shall be paid for all work thereafter.
 **Time and one-half shall be paid for all work on Saturday up to seven (7) hours and double time shall be paid for all work thereafter.

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
 1st term represents first 1-10 months, thereafter (1/2) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th	5th
50%	55%	60%	70%	80%

Supplemental Benefits per hour paid:

1st Term	\$ 38.49	\$ 38.74
2nd Term	39.65	39.93
3rd Term	40.82	41.12
4th Term	43.16	43.51
5th Term	45.49	45.89

4-580-Or

Ironworker **06/01/2017**

JOB DESCRIPTION Ironworker **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

PER HOUR:	07/01/2016	01/01/2017	07/01/2017
Ironworker:			Additional
Structural	\$ 49.50	\$ 49.75	\$ 1.73/hr.
Bridges			to be allocated
Machinery			

SUPPLEMENTAL BENEFITS

PER HOUR:		
Journeyman	\$ 70.23	\$ 71.60

OVERTIME PAY
 See (B, B1, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

6 month terms at the following rate:

1st	\$ 25.85	\$ 25.97
2nd	26.45	26.57
3rd - 6th	27.05	27.17

Supplemental Benefits

PER HOUR:

All Terms	48.84	49.76
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4-40/361-Str

Laborer - Building

06/01/2017

JOB DESCRIPTION Laborer - Building

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

WAGES

Per Hour: 07/01/2016 07/01/2017

Building Laborer \$ 38.65 Additional \$ 1.40/Hr

Asbestos Abatement Workers 36.00
 (Re-Roofing Removal see Roofer)

SUPPLEMENTAL BENEFITS

Per Hour:

Building Laborer \$ 28.91
 Asbestos Abatement Worker 16.45

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

See also(H)for Fire Watch on OVERTIME PAGE

Asbestos Worker See (B, H)

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 25) on HOLIDAY PAGE

Asbestos Worker see (5,6,8 & 28)

REGISTERED APPRENTICES

Regular Hours Work Terms

Term #1	1 hr to 1000hrs
Term #2	1001hrs to 2000hrs
Term #3	2001hrs to 3000hrs
Term #4	3001hrs to 4000hrs

Wages per hour:

1st Term	\$ 17.40
2nd Term	20.35
3rd Term	24.83
4th Term	29.66

Benifits per hour

1st Term	\$ 19.15
2nd Term	21.69
3rd Term	21.94
4th Term	21.94

4-66

Laborer - Heavy&Highway

06/01/2017

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Laborer (Heavy/Highway):

GROUP # 1: Asphalt Rakers, Concrete Curb Formsetters.

GROUP # 2: Asphalt Shovelers, Roller Boys and Tampers.

GROUP # 3: Basic Laborer, Power Tool(Jackhammer), Landscape Construction, Traffic Control Personnel(flaggers)

WAGES PER HOUR:

	07/01/2016	06/01/2017
GROUP # 1		
Total Wage Paid	\$ 48.32	Additional
"Base Wage"	42.37	\$ 2.31
GROUP # 2		
Total Wage Paid	\$ 47.08	Additional
"Base Wage"	41.13	\$ 2.27
GROUP # 3		
Total Wage Paid	\$ 43.30	Additional
"Base Wage"	37.35	\$ 2.16

NOTE: "Base Wage" for Premium/Overtime calculation Only. \$5.95 is difference between "Base" and "Total"

SUPPLEMENTAL BENEFITS

Per Hour:

ALL GROUPS \$ 28.29

After Forty (40)paid hours in a work week

OVERTIME PAY \$ 17.66

OVERTIME PAY

OVERTIME PAY

See (B, E2, F) on OVERTIME PAGE

NOTES: Premium/Overtime Pay to be calculated on "Base Wage" only"

Example Group# 3: \$37.35 X Time and One Half = \$56.02 + \$5.95 = \$61.97

Premium Pay of 30% of base wage for all Straight time hours on all New York State, D.O.T. and other Government Mandated Off-Shift Work.

Hazardous Material Work add an Additional 10% of base wage

HOLIDAY

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (1) on HOLIDAY PAGE

REGISTERED APPRENTICES

1000 hour(s) Terms at the following Percentage of the Basic Wage except

4th Term calculate at Total Wage Paid.

1st 0-1000/Hrs.	60%
2nd 1001-2000/Hrs.	70%
3rd 2001-3000/Hrs.	80%
4th 3001-4000/Hrs.	90%

Supplemental Benefits per hour:

All APPRENTICES \$ 28.29

After Forty(40) paid hours in a work Week

\$ 17.66

4-1298

Mason

06/01/2017

JOB DESCRIPTION Mason

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2016

Brick/Blocklayer \$ 57.98

SUPPLEMENTAL BENEFITS

Per Hour:

Brick/Block Layer \$ 26.80

OVERTIME PAY

See (A, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(800 hour) Terms at the following Percentage of Journeyworkers Wage:

1st	2nd	3rd	4th	5th
50%	60%	70%	80%	90%

Supplemental Benefits per hour:

All Apprentices \$ 16.53

4-1Brk

Mason - Building

06/01/2017

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2016	12/05/2016
Building:		An Additional
Tile Finisher	\$ 42.89	\$ 0.82

SUPPLEMENTAL BENEFITS

Per Hour:

Journey worker \$ 20.22* per hour paid
 plus \$ 8.42 per hour worked

OVERTIME PAY

See (B, E, Q, *V) on OVERTIME PAGE

* This portion of Supplemental benefits subject to same premium rate as shown for overtime wages.
 Work beyond 10 hours on a Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88A-tf

Mason - Building

06/01/2017

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building:	07/01/2016	01/01/2017
Wages per hour:		
Mosaic & Terrazzo Mechanic	\$ 51.82	An additional \$1.15
Mosaic & Terrazzo Finisher	50.21	An additional \$1.15

SUPPLEMENTAL BENEFITS

Journeyworker:
 Per hour:

Mosaic & Terrazzo Mechanic \$ 23.35* per hour paid plus
 \$ 10.20 per hour worked

Mosaic & Terrazzo Finisher \$23.35* per hour paid plus
 \$10.19 per hour worked

OVERTIME PAY

See (A, *E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

Easter Sunday is an observed holiday. Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES

Wages per hour:
 (750 Hour) terms at the following wage rate.

	1st	2nd	3rd	4th	5th	6th	7th	8th
07/01/2016	\$ 25.91	\$ 28.50	\$ 31.09	\$ 33.68	\$ 36.27	\$ 38.87	\$ 44.05	\$ 49.23

* 01/01/2017 Apprentices will receive an increase per the Journeyman's increase.

Supplemental benefits per hour:

07/01/2016	\$ 11.68* plus \$ 5.11**
	\$ 12.84* plus \$ 5.62**
	\$ 14.01* plus \$ 6.12**
	\$ 15.18* plus \$ 6.64**
	\$ 16.35* plus \$ 7.15**
	\$ 17.51* plus \$ 7.66**
	\$ 19.85* plus \$ 8.68**
	\$ 22.18* plus \$ 9.70**

* Per Hour paid and subject to same premium as overtime wages.

** Per hour worked

9-7/3

Mason - Building

06/01/2017

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2016 01/01/2017

Building-Marble Restoration:

Marble, Stone & Terrazzo Polisher, etc \$ 40.04 \$ 40.33

SUPPLEMENTAL BENEFITS

Per Hour Paid:
 Journeyworker:

Building-Marble Restoration:

Marble, Stone & Polisher \$ 24.92 \$ 25.45

OVERTIME PAY

See (B, *E, Q, V) on OVERTIME PAGE

*ON SATURDAYS, 8TH HOUR AND SUCCESSIVE HOURS PAID AT DOUBLE HOURLY RATE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
 1ST TERM APPRENTICE GETS PAID FOR ALL OBSERVED HOLIDAYS.

REGISTERED APPRENTICES

WAGES per hour:

(900 hour) terms at the following per cent of journeyman's wages:

	1st 0-900	2nd 901-1800	3rd 1801-2700	4th over 2700
07/01/2016	70%	80%	90%	100%

Supplemental Benefits Per Hour:

07/01/2016	\$ 22.78	\$ 23.50	\$ 24.21	\$ 24.92
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9-7/24-MP

Mason - Building

06/01/2017

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Wages:	07/01/2016	01/01/2017
Marble Cutters & Setters	\$ 57.32	\$ 57.74

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker	\$ 33.08	\$ 34.11
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OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage Per Hour:

750 hour terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6751	6751-7500
07/01/2016 \$22.93	\$25.79	\$28.66	\$31.53	\$34.39	\$37.26	\$40.12	\$42.99	\$48.72	\$54.45

01/01/2017: Apprentices will receive an increase per the journeyman's wage increase.

Supplemental Benefits per hour paid at the following term:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2016									
\$23.52	\$24.27	\$25.08	\$25.84	\$26.60	\$27.37	\$28.13	\$28.91	\$30.43	\$31.96 9-7/4

Mason - Building

06/01/2017

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2016	01/01/2017
Marble, Stone, etc. Maintenance Finishers:	\$ 21.96	\$ 22.18

Note 1: An additional \$2.00 per hour for time spent grinding floor using "60 grit" and below.

Note 2: Flaming equipment operator shall be paid an additional \$25.00 per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Marble, Stone, etc Maintenance Finishers:	\$ 12.65	\$ 12.87
----------------------------------------------	----------	----------

OVERTIME PAY

See (B, *E, Q, V) on OVERTIME PAGE

*Double hourly rate after 8 hours on Saturday

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

1st term apprentice gets paid for all observed holidays.

REGISTERED APPRENTICES

WAGES per hour:
 (750 hour)terms at the following percentage of journeyman's wage rate:

1st term 0-750	70%
2nd term 750-1500	74%
3rd term 1501-2250	78%
4th term 2251-3000	82%
5th term 3001-3750	88%
6th term 3751-4500	96%

Supplemental Benefits:
 Per hour paid

1st term	\$ 12.55
2nd term	13.85
3rd term	13.93
4th term	13.98
5th term	14.07
6th term	14.19

9-7/24M-MF

Mason - Building

06/01/2017

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2016	12/05/2016 Additional
Building: Tile Setters	\$ 55.38	\$ 1.13

SUPPLEMENTAL BENEFITS

Per Hour:

Journey Worker \$23.34* per hour paid
 Plus \$8.57 per hour worked

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

* This portion of benefits subject to same premium rate as shown for overtime wages.

Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

Tile Setters:

(750 hour) term at the following wage rate:

Term:	1st	2nd	3rd	4th	5th	6th	7th	8th
	1-	751-	1501-	2251-	3001-	3751-	4501-	5251
	750	1500	2250	3000	3750	4500	5250	6000
	\$28.49	\$31.86	\$35.62	\$39.40	\$42.97	\$46.35	\$49.46	\$53.11

Supplemental Benefits per hour:

1st term	\$14.95* plus \$0.74	6th term	\$18.35* plus \$1.56
2nd term	\$15.95* plus \$0.79	7th term	\$15.60* plus \$5.61
3rd term	\$16.25* plus \$1.14	8th term	\$20.35* plus \$6.05
4th term	\$16.85* plus \$1.18		
5th term	\$17.35* plus \$1.52		

9-7/52A

Mason - Building / Heavy&Highway

06/01/2017

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

WAGES

NOTE: Shall include but not limited to Precast concrete slabs (London Walks)Marble and Granite pavers 2'x 2' or larger.

Per Hour:

07/01/2016

Stone Setter \$ 63.38

Stone Tender \$ 41.11

SUPPLEMENTAL BENEFITS

Per Hour:

Stone Setter \$ 29.10

Stone Tender \$ 18.37

OVERTIME PAY

See (*C, **E, Q) on OVERTIME PAGE

* On weekdays the eighth (8th) and ninth (9th) hours are time and one-half all work thereafter is paid at double the hourly rate.

** The first nine (9) hours on Saturday is paid at time and one-half all work thereafter is paid at double the hourly rate.

HOLIDAY

Paid: See (*18) on HOLIDAY PAGE

Overtime: See (5, 6, 10) on HOLIDAY PAGE

Paid: *Must work first 1/2.

REGISTERED APPRENTICES

Per Hour:

Stone Setter(800 hour) terms at the following Percentage of Stone Setters wage rate per hour:

1st	2nd	3rd	4th	5th	6th
-----	-----	-----	-----	-----	-----

50% 60% 70% 80% 90% 100%

Supplemental Benefits:
 All Apprentices \$ 18.81

4-1Stn

Mason - Building / Heavy&Highway **06/01/2017**

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
 Per hour: 07/01/2016 01/01/2017

Marble-Finisher \$ 45.66 \$ 1.08

SUPPLEMENTAL BENEFITS
 Journeyworker:
 per hour paid

Marble- Finisher \$ 31.80

OVERTIME PAY
 See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
 Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
 * Work beyond 8 hours on a Saturday shall be paid at double the rate.
 ** When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Building / Heavy&Highway **06/01/2017**

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT 4**

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
 Per Hour: 07/01/2016

Cement Mason \$ 47.72

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Friday. Any make-up day must be paid at the premium rate.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS
 Per Hour:

Cement Mason \$ 31.96
 Overtime Rate \$ 39.70

OVERTIME PAY
 See (*B1, E2, **Q, ***V) on OVERTIME PAGE
 * Applies to 9th and 10th hours on Saturday
 ** "Holidays" only for Building Construction
 *** Overtime Rate as Indicated

HOLIDAY
 Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
 (1) year terms at the following Percentage of Journeyworkers Wage.

1st Term 50%
 2nd Term 60%
 3rd Term 70%

Supplement Benefits per hour paid:

1st Term	\$ 15.98/OT Rate \$ 19.85
2nd Term	\$ 19.18/OT Rate \$ 23.82
3rd Term	\$ 22.37/OT Rate \$ 27.79

4-780

Mason - Heavy&Highway

06/01/2017

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2016

Pointer, Caulkers & Cleaners \$ 50.04

SUPPLEMENTAL BENEFITS

Per Hour:

Pointer, Cleaners & Caulkers \$ 26.35

OVERTIME PAY

See (B, E2, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$ 26.52	\$ 27.89	\$ 33.98	\$ 40.80

Apprentices Supplemental Benefits:
 (per hour paid)

\$ 12.10	\$ 16.00	\$ 18.75	\$ 19.60
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4-1PCC

Operating Engineer - Building

06/01/2017

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

BUILDING CATEGORIES:

CLASS "AA "CRANES:

Crane, Truck Crane, Derrick, Dragline, Dredge, Crawler Crane, Tower Crane & Pile Driver.

CLASS "A":

Asphalt Spreader, Backhoe Crawler/Hydraulic Excavator (360 upto & over 150,000lbs), Boiler, Boring Machine, Cherry Picker (over 70 tons), Concrete Pump, Gradall, Grader, Hoist, Loading Machine (10 yds. or more), Milling Machine, Power Winch-Stone Setting/Structural Steel & Truck Mounted, Powerhouse, Road Paver, Scoop-Carryall-Scraper in Tandem, Steam Shovel, Sideboom Tractor, Stone Spreader (selfpropelled), Tank Work, Tower Crane Engineer.

CLASS "B":

Backhoe (other than 360), Belt Screte, Boom Truck, Bulldozer, Boring Machine/Auger, Cherry Picker(under 70 Tons), Conveyor-Multi, Dinkey Locomotive, Fork Lift, Hoist (2 Drum), Loading Machine & Front Loader, Mulch Machine(Machine Fed), Power Wincher (Not Included in Class "A"), Asphalt Roller, Hydraulic Pump with Boring Machine, Scoop, Carryall/Scaper, Skid Loader/Skid Steer, Maintenance Man on Tower Crane, Trenching Machine, Vermeer Cutter, Work Boat, Inspection/Safety Boat.

CLASS "C":

Concrete Saw/Cutter/Breaker, Curb Machine(asphalt & Concrete), Maintenance Engineer (Small Equip. & Well Point), Field Mechanic, Milling Machine (Small), Pulvi Mixer, Pumps(all), Roller(dirt), Vac-All(Truck), Jet Pump(Truck), Interior Hoist, Concrete Finish Machine, Concrete Spreader, Hoist (one drum).

CLASS "D":

Breaker, Conveyor, Curing Machine, Fork Lift or Walk Behind (power operated), Generator, Hydra Hammer, Compactors (mechanical or hand operated), Pin Puller, Portable Heaters, Power Booms, Power Buggies, Pump (double action diaphragm), Ridge Cutter, Robotic Unit Operator, Shot Blaster.

CLASS "E":

Batching Plant, Generator, Grinder, Mixer, Mulching Machine, Oiler, Pump(gypsum), Pump (single action diaphragm), Stump Chipper, Track Tamper, Tractor(caterpillar or wheel), Vibrator, Deckhand on Work Boat, Inspection/Safety Boat, Trenching Machine (Hand).

	07/01/2016	06/01/2017
Class "AA"	\$ 72.62	Additional \$ 3.03/Hr
Cranes: Boom length over 100 feet add \$ 1.00 per hour		
" " " 150 " " \$ 1.50 " "		
" " " 250 " " \$ 2.00 " "		
" " " 350 " " \$ 3.00 " "		
Class "A"	\$ 60.43	Additional \$ 2.80/Hr
Add \$3.50 for Hazardous Waste Work		
Class "B"	\$ 57.35	\$ 2.68/Hr
Add \$2.50 for Hazardous Waste Work		
Class "C"	\$ 55.29	\$ 2.62/Hr
Add \$1.50 for Hazardous Waste Work		
Class "D"	\$ 46.28	\$ 0.00
Add \$1.00 for Hazardous Waste Work		
Class "E"	\$ 44.33	\$ 0.00

SUPPLEMENTAL BENEFITS

Per Hour:

All Classes	\$ 34.65
Overtime Rate	26.35

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

"NOTE" Employee must be Employed day before and day after Holiday to receive Holiday Pay.

REGISTERED APPRENTICES

One(1) Year Terms at the following Rate:

1st Term	\$ 20.84
2nd Term	21.67
3rd Term	22.33

Supplemental Benefits per hour:

All Apprentices	\$ 15.64
Overtime Rate	5.60

Operating Engineer - Building / Heavy&Highway

06/01/2017

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016	08/01/2016
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Well Driller	\$ 35.19	\$ 35.75
Well Driller Helper	\$ 30.80	\$ 31.22
Hazardous Waste Differential Added to Hourly Wage:		
Level A	\$ 3.00	
Level B	2.00	
Level C	1.00	

Monitoring Well Work Add to Hourly Wage:		
Level A	\$ 3.00	
Level B	2.00	

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2016

Well Driller & Helper	\$ 10% of straight time rate plus \$ 10.90
--------------------------	-----------------------------------------------

Additional \$ 3.50 for Premium Time

OVERTIME PAY

See (B, E, G, P) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 16, 23) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES

Apprentices at 12 Month Terms

Wages Per Hour:	07/01/2015
1st Term	\$ 20.84
2nd Term	\$ 21.67
3rd Term	\$ 22.33

SUPPLEMENTAL BENEFITS

Per Hour:

1st Term	10% of Wage + \$ 5.10
2nd Term	10% of Wage + \$ 5.60
3rd Term	10% of Wage + \$ 6.60

BENEFITS AT PREMIUM TIME

Per Hour:

1st Term	10% of Wage + \$ 5.85
2nd Term	10% of Wage + \$ 6.60
3rd Term	10% of Wage + \$ 8.10

4-138well

Operating Engineer - Heavy&Highway

06/01/2017

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Party Chief - One who directs a survey party
 Instrument Man - One who runs the instrument and assists Party Chief
 Rodman - One who holds the rod and in general, assists the survey party
 Categories cover GPS & Under Ground Surveying

Per Hour:	07/01/2016	07/01/2017
Heavy Highway/Building		Additional

Party Chief	\$ 65.67	\$ 2.73
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Instrument Man	50.00	2.30
Rodman	42.84	2.10

SUPPLEMENTAL BENEFITS

Per Hour:

Heavy Highway/Building \$ 33.59

Premium*:
Heavy Highway/Building \$ 50.38

Premium**:
Heavy Highway/Building \$ 67.18

* Applies to instances where 1-1/2 regular rate are paid

**Applies to instances where 2 times the rate are paid.

OVERTIME PAY

See (B, *E, Q) on OVERTIME PAGE

* Doubletime paid on the 9th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 8, 11, 12, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 12, 15, 25) on HOLIDAY PAGE

4-15D-N/S co.

Operating Engineer - Heavy&Highway

06/01/2017

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

HEAVY/HIGHWAY CATEGORIES:

CLASS "AA" CRANES:

Crane, Truck Crane, Derrick, Dragline, Dredge, Crawler Crane, Tower Crane, Pile Driver.

CLASS "A":

Asphalt Spreader, Backhoe Crawler/Hydraulic Excavator (360 up to & over 150,000lbs), Barrier Machine, Cherrypicker (over 70 tons), Concrete Pump, Grader, Gradall, Hoist, Loading Machine (bucket 10 yds. or more), Laser Screed, Milling Machine (Large), Power Winch-Stone Setting/Structural Steel or Truck Mounted, Powerhouse, Road Paver, Scoop-Carryall-Scaper in Tandem, Side Boom Tractor, Stone Spreader(self propelled), Striping Machine (long line/truck mounted), Tree Grapple, Tank Work, Track Alignment Machine.

CLASS "B":

Backhoe (other than 360), Boom Truck, Bulldozer, Boring Machine/Auger, Cherry Picker (under 70 tons), Conveyor-Multi, Post Hole-Auger, Fork Lift, Hoist (2 drum), Loading Machine & Front Loader, Mulch Machine (machine fed), Power Wincher (all others not included in class A), Asphalt Roller, Hydraulic Pump with Boring Machine, Scoop, Carryall/Scraper, Skid Loader/Skid Steer, Maintenance Man on Tower Crane, Trenching Machine, Vermeer Cutter, Work Boat, Inspection/Safety Boat.

CLASS "C":

Concrete Saw/Cutter/Breaker, Curb Machine (Asphalt & Concrete), Maintenance Engineer (Small Equip. & Well Point), Field Mechanic, Milling Machine (Small), Pulvi Mixer, Pumps (Hydraulic & 4in or over), Roller (Dirt), Vac-All (Truck), Jet Pump (Truck), Power Winch (Truck Mounted), Compressor (Structural Steel & 2 or more Batteries), Concrete Finish Machine, Concrete Spreader, Fireman, Hoist (One Drum), Welding Machine (Structural Steel & Pile Work).

CLASS "D":

Compressor (Pile, Crane, Stone Setting), Concrete Saw Cutter/ Breaker, Work Lift (Walk Behind, Power Operated), Generator (Pile Work), Hydra Hammer, Hand Operated Compactor, Pin Puller, Portable Heater, Powered Broom/Buggy/Grinder, Pump (Single) Action (1 to 3 Inches/Gypsum/Double Action Diaphragm), Welding Machine, Robotic Units, Hand Line Striper, Boiler (Thermoplastic), Ridge Cutter, Shot Blaster, Conveyor, Curing Machine.

CLASS "E":

Batching Plant (On Job Site), Compressor, Generator, Grinder, Mixer, Mulching Machine (Hand Feed), Oiler, Pumps (Single action up to 3 In.), Root Cutter, Stump Chipper, Oiler on Tower Crane, Trenching Machine (Hand, walk behind), Track Tamper, Tractor, Vibrator, Deckhand on Work Boat, Inspection/Safety Boat.

07/01/2016

06/01/2017

Additional

Class "AA"	\$ 71.93	\$3.03
Cranes: Boom Length over 100 feet add \$ 1.00 per hour		
" " " 150 " " \$ 1.50 " " "		
" " " 250 " " \$ 2.00 " " "		
" " " 350 " " \$ 3.00 " " "		
Class "A"	\$ 63.70*	Additional \$ 2.80
*Add \$3.50 for Hazardous Waste Work.		
Class "B"	\$ 59.54*	\$ 2.68
*Add \$2.50 for Hazardous Waste Work.		
Class "C"	\$ 57.43*	\$ 2.62
*Add \$1.50 for Hazardous Waste Work		
Class "D"	\$ 48.18	\$ 0.00
*Add \$1.00 for Hazardous Waste Work		
Class "E"	\$ 46.22	\$ 0.00

"NOTE": ADD 30% to straight time hourly wage for NEW YORK STATE D.O.T. and other GOVERNMENTAL MANDATED off-shift work.

SUPPLEMENTAL BENEFITS

Per Hour:

ALL CLASSES \$ 34.90

Note: OVERTIME AMOUNT \$ 26.35

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 7, 8) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 8) on HOLIDAY PAGE

"Note" Employee must be employed day before and day after a holiday to receive holiday pay.

REGISTERED APPRENTICES

Wage per hour:

REGISTERED APPRENTICES

One(1) Year Terms at the following Rate:

1st Term	\$ 20.84
2nd Term	21.67
3rd Term	22.33

SUPPLEMENTAL BENEFITS:

APPRENTICES	\$ 15.64
Note: Overtime Amount	\$ 5.60

Operating Engineer - Marine Dredging

06/01/2017

JOB DESCRIPTION Operating Engineer - Marine Dredging

DISTRICT 4

ENTIRE COUNTIES

Albany, Bronx, Cayuga, Chautauqua, Clinton, Columbia, Dutchess, Erie, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Niagara, Orange, Orleans, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES

These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for barge mounted cranes and other equipment are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour:

DREDGING OPERATIONS	07/01/2016
CLASS A	
Operator, Leverman,	\$ 35.63

Lead Dredgeman

CLASS A1 To conform to Operating Engineer
Dozer,Front Loader Prevailing Wage in locality where work
Operator is being performed including benefits.

CLASS B \$ 30.81
Spider/Spill Barge Operator,
Tug Operator(over1000hp),
OperatorII, Fill Placer,
Derrick Operator, Engineer,
Chief Mate, Electrician,
Chief Welder,
Maintenance Engineer

Certified Welder, \$ 29.01
Boat Operator(licensed)

CLASS C \$ 28.22
Drag Barge Operator,
Steward, Mate,
Assistant Fill Placer,

Welder (please add)\$ 0.06

Boat Operator \$ 27.30

CLASS D \$ 22.68
Shoreman, Deckhand,
Rodman, Scowman, Cook,
Messman, Porter/Janitor

Oiler(please add)\$ 0.09

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B 07/01/2016
\$ 9.99 plus 8%
of straight time
wage, Overtime hours
add \$ 0.63

All Class C \$ 9.69 plus 8%
of straight time
wage, Overtime hours
add \$ 0.48

All Class D \$ 9.39 plus 8%
of straight time
wage, Overtime hours
add \$ 0.33

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew - Consulting Engineer

06/01/2017

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Dutchess: That part in Dutchess County lying South of the North City line of Poughkeepsie.

WAGES

Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour: 07/01/2016
 Survey Classifications

Party Chief \$ 38.18
 Instrument Man 31.47
 Rodman 27.24

SUPPLEMENTAL BENEFITS

Per Hour:

All Crew Members: \$ 20.20

OVERTIME PAY

OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.

*Doubletime paid on the 9th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Operating Engineer - Trenchless Pipe Rehab

06/01/2017

JOB DESCRIPTION Operating Engineer - Trenchless Pipe Rehab

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

IMPORTANT NOTE: This Category & Classifications are now located in
 Operating Engineers/Heavy Highway & Laborers/ Heavy Highway.

Per Hour: 07/01/2016
 (SEE)

Robotic Unit Operator Operator(class D)
 Technician/Boiler, Generator Operator(classes C&D)
 AM Liner/Hydra Seal Laborer(Grp#3)
 Hobas Pipe, Polyethylene Pipe or
 Pull and Inflate Liner Laborer(Grp#3)

OVERTIME PAY

HOLIDAY

4-138TrchPReh

Painter

06/01/2017

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2016

Brush \$ 46.85

Abatement/Removal of lead based
 or lead containing paint on
 materials to be repainted. 46.85

Spray & Scaffold	49.85
Fire Escape	49.85
Decorator	49.85
Paperhanger/Wall Coverer	48.72

SUPPLEMENTAL BENEFITS

Per hour worked:	07/01/2016
Paperhanger	\$ 25.79
All others	22.47
Premium*	24.97*

*Applies only to "All others" category, not paperhanger journeyman.

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Indentured after 5/31/93 (1) year terms at the following wage rate.
 (per hour)

	07/01/2016
Appr 1st term...	\$ 17.85
Appr 2nd term...	23.26
Appr 3rd term...	28.14
Appr 4th term...	37.52

Supplemental benefits:

(per Hour worked)	
Appr 1st term...	\$ 11.73
Appr 2nd term...	14.42
Appr 3rd term...	16.70
Appr 4th term...	21.20

8-NYDC9-B/S

Painter

06/01/2017

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Putnam, Suffolk, Westchester

PARTIAL COUNTIES

Nassau: All of Nassau except the areas described below: Atlantic Beach, Ceadhurst, East Rockaway, Gibson, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on the South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave., Rockville Centre is the boundary line up to Lawson Blvd. turn right going west all the above territory. Starting at Union Turnpike and Lakeville Rd. going north to Northern Blvd. the west side of Lakeville road to Northern blvd. At Northern blvd. going east the district north of Northern blvd. to Port Washington Blvd. West of Port Washington blvd. to St. Francis Hospital then north of first traffic light to Port Washington and Sands Point, Manor HAven, Harbour Acres.

WAGES

Per hour:	07/01/2016
Drywall Taper	\$ 46.85

SUPPLEMENTAL BENEFITS

Per hour worked:	07/01/2016
Journeyman	\$ 22.47

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages(per Hour) 07/01/2016

1500 hour terms at the following wage rate:

1st term	\$ 17.85
2nd term	\$ 23.26
3rd term	\$ 28.14
4th term	\$ 37.52

Supplemental Benefits per hour:

One year term (1500 hours)at the following dollar amount.

1st year	\$ 11.73
2nd year	\$ 14.42
3rd year	\$ 16.70
4th year	\$ 21.20

8-NYDCT9-DWT

Painter - Bridge & Structural Steel

06/01/2017

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per Hour Worked:

STEEL:

Bridge Painting: 07/01/2016

From May 1st to Nov. 15th -

\$ 49.00
 + 6.13*

From Nov. 16th to April 30th -

\$ 49.00
 + 6.13*

*Not subject to overtime and limited to first 40 hours

NOTE: All premium wages are to be calculated on \$48.00 or \$49.00 per hour only.

EXCEPTION: During the period of May 1st to November 15th, for the first and last week of employment on the project, and for the weeks of Memorial Day, Independence Day and Labor Day, this rate shall be paid for the actual number of hours worked.

Power Tool/Spray is an additional \$6.00 per hour above hourly rate, whether straight time or overtime

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SUPPLEMENTAL BENEFITS

Per Hour Worked:

Journeyworker: 07/01/2016

From May 1st to Nov. 15th -

Hourly Rate up to 40 hours \$ 29.95
 Hourly Rate after 40 hours 7.50

From Nov. 16th to April 30th -

Hourly Rate up to 50 hours 29.70
 Hourly Rate after 50 hours 7.50

EXCEPTION: During the period of May 1st to November 15th, for the first and last week of employment on the project, and for the weeks of Memorial Day, Independence Day and Labor Day, this rate shall be paid for the actual number of hours worked.

OVERTIME PAY

See (A, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(Wage per hour Worked):

Apprentices: (1) year terms

	07/01/2016
1st 90 days	\$ 22.05
1st year after 90 days	22.05
2nd year	33.08
3rd year	44.10

Supplemental Benefits per hour worked:

	07/01/2016
1st 90 days	\$ 9.23
1st year after 90 days	11.98
2nd year	17.97
3rd year	23.96

8-DC-9/806/155-BrSS

Painter - Line Striping

06/01/2017

JOB DESCRIPTION Painter - Line Striping

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per hour:

Painter (Striping-Highway):	07/01/2016
Striping-Machine Operator*	\$ 27.11
Linerman Thermoplastic	\$ 32.37

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour paid:	07/01/2016
Journeyworker:	

Striping-Machine operator	\$ 14.18
Linerman Thermoplastic	\$ 14.55

OVERTIME PAY

See (B, E, E2, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 20) on HOLIDAY PAGE
 Overtime: See (5, 8, 11, 12, 15, 16, 17, 20, 21, 22) on HOLIDAY PAGE

8-1456-LS

Painter - Metal Polisher

06/01/2017

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuylar, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

07/01/2016	06/01/2017
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Metal Polisher	\$ 28.88	\$ 29.73
Metal Polisher**	29.83	30.68
Metal Polisher***	32.38	33.23

**Note: Applies on New Construction & complete renovation
 *** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2016	06/01/2017
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Journeyworker: All classification	\$ 9.26	\$ 9.41
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OVERTIME PAY

See (B, E, E2, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:
 One (1) year term at the following wage rates:

	07/01/2016
1st year	\$ 11.75
2nd year	13.00
3rd year	15.75

Supplemental benefits:
 Per hour paid:

1st year	\$ 6.26
2nd year	6.37
3rd year	6.51

8-8A/28A-MP

Plumber

06/01/2017

JOB DESCRIPTION Plumber

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016	05/10/2017
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Plumber/ PUMP & TANK	\$ 43.99	\$ 44.24
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SUPPLEMENTAL BENEFITS

Per Hour:		
Plumber	\$ 24.23	\$ 25.23

OVERTIME PAY

See (B, Q, *V) on OVERTIME PAGE
 (V) For Sundays & Holidays if Worked Only

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

One(1) Year Terms at the Following
 Percentage of Journeymans wage:

1st Term	30%
2nd Term	40%
3rd Term	50%
4th Term	60%

5th Term	70%
6th Term	85%

Supplemental Benefits Per Hour:

1st Term	\$12.72	\$13.31
2nd Term	\$13.36	\$13.95
3rd Term	\$13.77	\$14.77
4th Term	\$14.15	\$15.15
5th Term	\$17.38	\$18.38

4-200 Pump & Tank

Plumber **06/01/2017**

JOB DESCRIPTION Plumber

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016	11/01/2016
Plumber	\$ 50.48	\$ 50.98

SUPPLEMENTAL BENEFITS

Per Hour:		
Plumber	\$ 36.97	\$ 37.47

OVERTIME PAY

See (A, E, Q, *V) on OVERTIME PAGE
 CODE "V" is only for SUNDAYS and HOLIDAYS WORKED

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

One(1) Year Terms at the following percentage of Plumbers Rate:

1st Term	2nd Term	3rd Term	4th Term	5th Term
30%	40%	50%	60%	70%

Supplemental Benefits per hour:

	07/01/2016	11/01/2016
1st Term	\$ 23.45	\$ 23.95
2nd Term	25.76	26.26
3rd Term	27.13	27.63
4th Term	28.62	29.12
5th Term	30.20	30.70

4-200

Plumber **06/01/2017**

JOB DESCRIPTION Plumber

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:	07/01/2016
Plumber	
MAINTENANCE ONLY	\$ 30.30

Maintenance: Correction of problem(s)with the existing fixture or group of fixtures, preventive repairs or servicing of said fixtures

SUPPLEMENTAL BENEFITS

SUPPLEMENTAL BENEFITS

Per Hour:	
Plumber	
Maintenance	\$ 15.15

OVERTIME PAY

See (B, J) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

4-200 Maintance

Roofer

06/01/2017

JOB DESCRIPTION Roofer

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour 07/01/2016

ROOFER/Waterproofer

Total Wage \$ 43.75
 to be Paid

"Base" Wage 39.75**

SUPPLEMENTAL BENEFITS

Per Hour:

ROOFER/Waterproofer \$ 27.86

OVERTIME PAY

Per Hour:

NEW ROOF SEE (B,E,Q)

RE-ROOF SEE (B,E,E2,Q)

NOTE:** Overtime Pay to be calculated on "BASE" Wage then add \$4.00.

(Example: \$39.75 x time and one half = \$59.63 + \$4.00 = \$63.63)

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 13, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) Year terms at the following Percentage of Roofers/Waterproofers Wage.

1st	2nd	3rd	4th
40%	50%	70%	80%

Supplemental Benefits per hour:

07/01/2016

1st Term \$ 7.68

2nd Term 9.60

3rd Term 19.50

4th Term 22.29

4-154

Sheetmetal Worker

06/01/2017

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour: 07/01/2016

Sign Erector \$ 46.85

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2016

Sign Erector \$ 42.34

OVERTIME PAY

See (A, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:
 6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS

Per Hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$11.78	\$13.35	\$14.93	\$16.49	\$23.12	\$25.13	\$27.87	\$29.95	\$32.04	\$34.11

4-137-SE

Sheetmetal Worker

06/01/2017

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2016 08/01/2016

Sheetmetal Worker	\$ 51.85	\$ 53.22
Temporary Operation or Maintenance of Fans	42.46	42.58

SUPPLEMENTAL BENEFITS

Per Hour:

Sheetmetal Worker	\$ 43.54	45.04
Maintenance Worker	43.54	45.04

OVERTIME PAY

See (A, E, E2, Q, V) on OVERTIME PAGE
 For Maintenance See Codes B,E, Q & V

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:Wages

Six(6) Month Terms As Follows:

1st & 2nd Term	\$ 17.83	\$ 18.67
3rd & 4th Term	22.91	23.98
5th & 6th Term	28.00	29.29
7th Term	35.64	37.28
8th Term	38.18	39.83
9th Term	40.73	42.59

Per Hour: Supplemental Benefits

1st & 2nd Term	\$ 15.76	\$ 16.49
3rd & 4th Term	21.80	22.75
5th & 6th Term	25.58	26.79
7th Term	31.27	32.84
8th Term	33.17	34.88
9th Term	35.07	36.84

Steamfitter

06/01/2017

JOB DESCRIPTION Steamfitter

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2016 01/01/2017

AC Service/Heat Service	\$ 39.50	\$ 39.50
Steamfitter Maintenance		

Refrigeration, A/C, Oil Burner and Stoker Service and Repair.
 Refrigeration Compressor installation up to 5hp (combined).
 Air Condition / Heating Compressor installation up to 10hp (combined).

SUPPLEMENTAL BENEFITS

Per Hour

AC Service/Heat Service	\$ 12.00	\$ 12.75
Steamfitter Maintenance		

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 25, 26) on HOLIDAY PAGE

4-638B-StmFtrRef

Steamfitter

06/01/2017

JOB DESCRIPTION Steamfitter

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2016

Steam/Sprinkler Fitter	\$ 61.06
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Temporary Heat & AC	\$ 46.42
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NOTE: Add 30% to Hourly Wage for "Contracting Agency" Mandated Off Shift Work.

SUPPLEMENTAL BENEFITS

Per Hour:

Steam/Sprinkler Fitter	\$ 47.27
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Temporary Heat & AC	\$ 38.78
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OVERTIME PAY

See (C, *D, O, V) on OVERTIME PAGE

(*D) On all HVAC and Mechanical contracts that do not exceed \$15,000,000. and on all fire protection/sprinklet contracts that do not exceed \$1,500,000.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

1 year Terms at the Following:

WAGES per hour:

1st Term 2nd Term 3rd Term 4th Term 5th Term

\$ 24.46 \$ 30.56 \$ 39.71 \$ 48.86 \$ 51.91

SUPPLEMENTAL BENEFIT per hour:

1st Term 2nd Term 3rd Term 4th Term 5th Term
\$ 19.30 \$ 23.92 \$ 30.81 \$ 37.72 \$ 40.02

4-638A-StmSpFtr

Teamster - Asphalt Delivery

06/01/2017

JOB DESCRIPTION Teamster - Asphalt Delivery

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:

Heavy Construction Work:

Shall include the supply of Asphalt for construction, improvement and modification of all or any part of Streets, Highways, Bridges, Tunnels, Railroads, Canals, Dams, Airports, Schools, Power Generation Plants, where distance between project and asphalt plant is not more than 50 miles.

TRUCK DRIVER

07/01/2016

Asphalt Delivery

\$ 35.535

Light Construction Work:

Shall include the supply of Asphalt for construction of Single & Multi Family Homes, Town Houses, Apartment Buildings, including Driveways, Streets and Curbs within those projects. Parking Lots, Office Buildings, where distance between project and asphalt plant is not more than 50 miles.

TRUCK DRIVER

07/01/2016

Asphalt Delivery

\$ 29.94

SUPPLEMENTAL BENEFITS

Per Hour:

Heavy Construction Work

TRUCK DRIVER

07/01/2016

Asphalt Delivery

\$ 41.76

Light Construction Work

TRUCK DRIVER

07/01/2016

Asphalt Delivery

\$ 11.55

OVERTIME PAY

See (B, *B2, E, **I, P, ***R, ****U) on OVERTIME PAGE

(NOTE) PREMIUM PAY of 25% on straight time hours for New York State D.O.T. and or other GOVERNMENTAL MANDATED off shift work.

Note: (B,E,P,T&*U) Apply to Heavy Construction.

Note: (B2,I,T&*U) Apply to Light Construction.

Note: (*U) Only applies after 8 hours worked on holiday.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, *16, **25) on HOLIDAY PAGE

NOTE: (*16) Paid at Double if Worked; (**25) Paid at Double if Worked.

4-282

Teamster - Building

06/01/2017

JOB DESCRIPTION Teamster - Building

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:

Truck Driver (Building Demolition & Debris)

07/01/2016
Trailers \$ 32.13
Straight Jobs \$ 32.43

SUPPLEMENTAL BENEFITS

Per Hour:

All Classifications

07/01/2016
\$ 31.34

OVERTIME PAY

See (B, E, S1) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 12, 15, 25, 26) on HOLIDAY PAGE

4-282

Teamster - Delivery of Concrete 06/01/2017

JOB DESCRIPTION Teamster - Delivery of Concrete

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:

Heavy Construction Work:

Shall include the supply of Ready-Mix Concrete for construction, improvment and modification of all or any part of Streets, Highways, Bridges, Tunnels, Railroads, Canals, Dams, Airports, Schools & Power Generation Plants, where distance between project and asphalt plant is not more than 50 miles.

TRUCK DRIVER

Concrete Delivery 07/01/2016
\$ 37.895

Light Construction Work:

Shall include the supply of Ready-Mix Concrete for construction of Single & Multi Family Homes, Town Houses, Apartment Buildings, including Driveways, Streets and Curbs within those projects. Parking Lots and Office Buildings, where distance between project and asphalt plant is not more than 50 miles.

TRUCK DRIVER

Concrete Delivery 07/01/2016
\$ 34.945

SUPPLEMENTAL BENEFITS

Per Hour:

Heavy Construction Work 07/01/2016
Concrete Delivery \$ 38.275

Light Construction Work 07/01/2016
Concrete Delivery \$ 11.525

OVERTIME PAY

NOTE: Heavy Construction:B2,I
Light Construction:B,E,P

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, *16, **25) on HOLIDAY PAGE
NOTE:(*16) Paid at Double if Worked. (**25) Paid at Double if Worked.

4-282ns

Teamster - Heavy&Highway 06/01/2017

JOB DESCRIPTION Teamster - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Nassau, Suffolk

WAGES

Per Hour:

Heavy Construction Work:

Shall include the construction, improvement or modification of all or any part of Streets, Highways, Bridges, Tunnels, Railroads, Canals, Dams, Airports, Schools, Power Generation Plants.

Site Excavating (Chauffeurs) 07/01/2016 \$ 35.535

Light Construction Work:

Shall include the construction, improvement and modification of Single & Multi Family Homes, Town Houses, Apartment Buildings, including Driveways, Streets and Curbs within those projects. Parking Lots and Office Buildings.

Site Excavating (Chauffeurs) 07/01/2016 \$ 29.94

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2016

Heavy Construction Work Chauffeurs \$ 41.7625

Light Construction Work Chauffeurs \$ 11.55

OVERTIME PAY

See (B, *B2, E, **I, P, ***R, ****U) on OVERTIME PAGE

(NOTE) PREMIUM PAY of 25% on straight time hours for NEW YORK STATE D.O.T. and or other GOVERNMENTAL MANDATED off shift work.

Note: (B,E,P,T & *U) Apply to Heavy Construction.

Note: (B2,I,T & *U) Apply to Light Construction.

Note: (*U) Only applies after 8 hours work on holiday

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, *16, **25) on HOLIDAY PAGE

NOTE:(*16) Paid at Double if Worked. (**25) Paid at Double if Worked.

4-282

Welder

06/01/2017

JOB DESCRIPTION Welder

DISTRICT 1

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2016

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays
- (S) Two and one half times the hourly rate for Holidays, if worked

- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays, if worked
- (U) Four times the hourly rate for Holidays, if worked
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None
- (2) Labor Day
- (3) Memorial Day and Labor Day
- (4) Memorial Day and July 4th
- (5) Memorial Day, July 4th, and Labor Day
- (6) New Year's, Thanksgiving, and Christmas
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- (8) Good Friday
- (9) Lincoln's Birthday
- (10) Washington's Birthday
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 Day on Presidential Election Day
- (15) Veterans Day
- (16) Day after Thanksgiving
- (17) July 4th
- (18) 1/2 Day before Christmas
- (19) 1/2 Day before New Years
- (20) Thanksgiving
- (21) New Year's Day
- (22) Christmas
- (23) Day before Christmas
- (24) Day before New Year's
- (25) Presidents' Day
- (26) Martin Luther King, Jr. Day
- (27) Memorial Day

PART 1 - GENERAL**1.01 - BRIEF PURPOSE OF PROJECT / GENERAL**

- A. The purpose of the project is to provide, furnish and deliver one (1) Diesel Generator at Plant No. 16 and one (1) Dual-Fuel Natural Gas/Propane Generator at Plant No. 1.
- B. This Section provides an abbreviated summary of the work for the Construction Contract associated with the Owner's program to construct the project.

1.02 - NOMENCLATURE

- A. Where the terms "Engineer/Architect" or "Architect/Engineer" are used throughout these Contract Documents, they shall mean the firm of H2M architects + engineers as may be abbreviated by H2M.
- B. The terms "Contractor" and/or "Prime Contractor" where used shall refer to the individual or company who has entered into an agreement with the Owner to perform the work contained within these Contract Documents. The lack of word capitalization shall be incidental.

1.03 - ABBREVIATED SUMMARY OF WORK

- A. Furnish all labor, equipment, materials, tools, means, methods, and incidentals necessary to complete the Work as required by the Contract Documents for this Construction Contract.
- B. This following abbreviated summary is provided in order to briefly describe the work covered by the Contract Documents for this Construction Contract. It is not all inclusive of the work under the Contract.
- C. The work includes, but is not limited to, the following:
 - 1. Fabrication and delivery of one (1) 450 kW Diesel Generator Set including all conduit, wire, sound attenuated weather protective level II enclosure, sub-base fuel tank, fuel tank monitoring system, main circuit breaker, control panel, remote annunciator, exhaust silencer, batteries, battery charger, coolant heater, vibration isolators, concrete pad and foundation, and all other specified accessories.
 - 2. Fabrication and delivery of one (1) 200 kW Natural Gas/130 kW Propane Dual-Fuel Generator Set including all conduit, wire, sound attenuated weather protective level II enclosure, main circuit breaker, control panel, remote annunciator, exhaust silencer, batteries, battery charger, coolant heater, vibration isolators, concrete pad and foundation, and all other specified accessories.

3. Fabrication and installation of new natural gas service at Plant No. 1 in accordance with local utility requirements including header, regulator, piping, valves, and all other specified accessories. All coordination with local utility and associated fees are the responsibility of the Contractor.
 4. Fabrication and installation of new propane storage tank(s) at Plant No. 1 in accordance with requirements of local authority having jurisdiction including storage tank(s), piping, valves, and all other specified accessories.
 5. Site excavation, trenching, backfilling, etc. to allow for all site. Restoration of all surface and sub-surface materials to restore previous conditions.
 6. All final terminations of all power and control wiring and conduit as detailed on contract drawings and specifications.
 7. Provide start-up services as specified.
 8. Project closeout submittals.
- D. All other work shown and specified within the Contract Documents.

1.04 - PARTIAL LISTING OF OVERALL CONTRACT REQUIREMENTS

- A. The Contract Documents detail the work included in the Contract. Related requirements and conditions covered by the Contract Documents include, but is not limited to, the following:
1. Debris removal and daily and final cleaning up.
 2. Coordination with Owner and other contractors employed by the Owner as necessary to schedule delivery of services, and management of the installation.
 3. Site utilization and management so as not to disrupt the Owner's ability to operate the existing facilities in a safe and efficient manner.
 4. Maintain the Owner's ability to operate the facility at all times during the construction period.
 5. Facilities to be used during the contract period that are to be used by the Owner or his representatives and others involved with constructing the project.
 6. Product and equipment storage and handling requirements.

7. Starting and adjusting of the equipment and systems required under the project.
8. Site safety in accordance with all applicable federal, state, and local regulations.
9. Project submittals, meetings, testing services, work plans, schedules, shop drawings, closeout procedures and documents, manuals, as-built drawings, and final commissioning of the work shall be provided as required by the Contract.

1.05 - OWNER SUPPLIED PRODUCTS AND UTILITIES

- A. The Owner will not be supplying equipment, labor, or tools for the project.
- B. The Owner will pay for electricity usage. The restrictions on electrical usage shall be as follows:
 1. Power tool usage during specified working hours will only be permitted.
 2. Dewatering and trash pumps and portable heaters will not be permitted.
 3. Sump pumps, if less than 1/3 horsepower will be allowed. Only two (2) sump pumps will be permitted to operate at the same time.
 4. Power to the Owner/Engineer/Architect's trailer, if applicable.
 5. Power to help cure concrete or painting systems will not be permitted.
- C. The Owner reserves the right to stop paying for electrical usage at any time if, in the opinion of the Owner/Engineer/Architect, the Contractor causes excessive electrical charges or does not conserve electricity to the maximum extent possible in the opinion of the Engineer/Architect. The Contractors shall conserve electricity during the course of construction.

1.06 - EXISTING CONDITIONS

- A. The Drawings show certain information that has been obtained by the Owner regarding various pipelines, utilities, and structures that exist at the location of the project both below and at grade.
- B. The Owner and the Engineer/Architect expressly disclaims all responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing facilities.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Site access and control of areas outside of site.
- B. Contractor use of the premises.
- C. Contractor storage, parking and deliveries.
- D. Work hours, employee conduct and miscellaneous employee requirements.
- E. Contract requirements related to maintaining Owner's current operations and excess inspection required.

1.02 – SITE ACCESS AND CONTROL

- A. The Contractor shall use the designated entrance to the site.
- B. The Contractor shall maintain the entrance area clear of materials, vehicles and any other obstacle or debris. Failure to do so will result in a minimum back charge of \$750 per occurrence.
- C. The area around the site is a residential neighborhood. The Owner intends to be a good neighbor. The Contractor shall not close any road for any period in time. The Contractor shall take whatever measures are necessary to not cause any inconvenience to the area's residents.
- D. The Contractor is responsible to employ methods to prevent construction materials and/or debris from leaving the site. The Contractor is responsible to routinely monitor the areas surrounding the site during the day as well as at the end of the work-day and to immediately clean up any area to its previous condition.
- E. The Contractor shall employ methods to prevent the transmission of dirt from vehicles driving on exposed areas of the site from reaching the surrounding roadways. The Contractor will be responsible to immediately clean the roadway, should the measures being taken by the Contractor not satisfactorily control the transmission of any dirt to the roadway.
- F. Any damages to areas outside the site, spills of soil, liquid, or any other material shall immediately be repaired, cleaned and restored to its previous condition.
- G. The Contractor shall comply with all state and local requirements for allowable weight limits of vehicles on all roads.

- H. The Owner reserves the right to back charge the Contractor for all costs associated with maintaining the grounds as well as maintaining areas outside the site, which may be disturbed by the Contractor should the Contractor fail to maintain or repair the aforementioned in a condition acceptable to the Owner.

1.03 - CONTRACTOR USE OF THE PREMISES

- A. Premises, for the purpose of this Contract, shall mean the site, buildings and other structures located within the property line or in any temporary or permanent construction easements identified on the plans.
- B. The Contractor shall use and manage the premises and the associated construction activities as follows:
 - 1. To not hinder the Owner's ability to operate their facilities,
 - 2. To allow for stockpiling of construction material and debris without any significant hardship, as defined by the Owner's Construction Representative, on the Owner,
 - 3. To allow for the stockpiling of excavated soil and imported fill, when called for, without any significant hardship, as defined by the Owner's Construction Representative, on the Owner or other contractors,
 - 4. To allow utility companies to install their work,
 - 5. To allow for the delivery of equipment and materials by independent trucking companies by leaving enough space for backing in and out of areas,
 - 6. To allow for the safe, unimpeded travel way of the Owners vehicles, Owner's Construction Representative's vehicles, Architect's and Engineer's vehicles, construction vehicles and heavy construction equipment about the entire site.
- C. The Contractor shall maintain the premises in a safe condition throughout the construction period. Compliance with OSHA regulations and site safety shall be the responsibility of the Contractor as it relates to work of the Contract. The posting of all applicable OSHA safety signs shall be the responsibly of the Contractor.
- D. The Contractor shall provide temporary handrails, as required, for their work or for work put in place by their Contract that will require temporary handrails.
- E. Contractor shall be responsible for protecting Owners property. All existing buildings, structures, shrubs, trees, lawn fixtures, sculptures and misc. equipment shall be protected at all times. Any

removals or relocation of said objects, if allowed shall be as directed by Owner's Construction Representative.

- F. Contractor shall protect all of the physical structures, property and improvements upon the site from damage by their Work and shall immediately repair or replace damage caused by construction operations, employees or equipment employed by the Contractor. All labor, materials and equipment and outside contractors that are employed by the Owner to repair damage caused by the Contractor shall be billed to the Contractor directly or withheld from money due the Contractor for work already completed.
- G. Limit use of the site to the area(s) shown on the Contract Drawings. Confine operations to permit others working on the site easy access to all areas of Work.
- H. Keep all existing operations areas, driveways, roads, and parking areas free and clear of materials and equipment. Do not unreasonably encumber the site with materials and equipment. Confine stockpiling of excess excavated material, materials and equipment to areas selected by the Owner's construction representative. Locate storage sheds and trailers to areas designated in the plan or by the Owner's Construction Representative.
- I. Immediately remove excess excavated material or relocate to areas on the site requiring placement of fill. Do not stockpile excess material on the site.
- J. The construction site space is limited and it shall be the Contractor's responsibility to manage the site during the entire construction period with input from all concerned parties.
- K. Due to the limited site area available for construction, staging areas shall be relocated several times during the various stages of construction. Additional compensation for relocating staging areas, equipment and material storage, and trailers are not to be considered an extra cost to the Contractor as this is an anticipated expense that shall be considered at the time of the bid.
- L. The Contractor is responsible for cleaning up their own materials and debris. Failure to maintain a clean work site daily, will result in other performing the work and contractor(s) being back charged for the cleaning cost plus construction administration fees.
- M. Use of the existing building facilities during construction is prohibited.
- N. Should it become necessary to access the existing building during construction hours for measurements or other non-disruptive work, the contractor shall be escorted by an Owner's Representative.
- O. Do not discard or dispose of any waste on-site.

- P. Open fires will not be permitted on the site.
- Q. The Contractor shall employ erosion control measures to protect wetlands located adjacent to the work where shown on the Drawings and as required by regulatory agencies.
- R. Install erosion control measures as indicated in the Contract. The Contractor shall confine storm water runoff to the site.

1.04 - CONTRACTOR STORAGE, PARKING AND DELIVERIES

- A. Contractor must provide exterior storage containers when required. Final location of storage container shall be determined by the Owner.
- B. Do not unreasonably encumber the premises with materials and equipment. Do not store material in existing buildings. Store all equipment and materials to allow the Owner's employees to operate and conduct their business safely.
- C. Confine premise storage areas to locations designated by the Owner. Immediately repair or replace damaged facilities to the satisfaction of the Owner and to a condition that existed before the damage occurred as determined by preconstruction photographs, or if photographs are unavailable, to that deemed by the Owner.
- D. No storage materials will be permitted within the buildings at any time during construction.
- E. Storage of chemicals and painting shall be outside the existing or new structures and shall follow manufacturer's guidelines.
- F. Compressed gas containers shall be properly stored and secured per OSHA, to the satisfaction of the Owner. Failure to do so will result in a \$250 back charge, per occurrence.
- G. Contractor shall provide minimum of 48 hours advance written notice to the Owners Construction Representative for deliveries of materials, site visits by inspectors, manufacturers representatives or any other occasion that impacts the use of the site. Contractor shall be responsible for any costs that are incurred by the owner, for failure to meet previously agreed upon appointments or work schedules.
- H. Deliveries sent to the Owner will not be signed for or unloaded by the Owner. They will be directed to the construction site and if no employee is on site, the delivery will be rejected, at the contractor's expense.
- I. Night deliveries of equipment (past the designated quitting time) will not be permitted. Do not schedule trucking companies to deliver equipment or wait for the job site to open. Delivery trucks

shall not obstruct the site entrance, shall not sit within the neighborhood causing an obstruction or perceived nuisance, nor be left idling on or off the site for any period of time.

- J. Parking shall be in the designated areas of the site only. All automotive type vehicles are to be locked when parked or unattended to prevent unauthorized use. Do not leave vehicles or equipment unattended with the motor running or the ignition key in place. Any vehicles or trucks in non-designated areas may be towed at contractor's expense.

1.05 – WORK HOURS, EMPLOYEE CONDUCT AND EMPLOYEE REQUIREMENTS

- A. The Contractor will be permitted to schedule working days and hours as specified in the General Terms and Conditions, if no times are specified therein then the work hours shall be Monday – Friday 7:00 am -4:30 pm.
- B. Employees are to act in a professional manner. Any employee using inappropriate language or who is disruptive to the work environment will be banned from the site.
- C. Proper work attire is required. Shirts are to be worn at all times and no short pants are permitted.
- D. Employees shall not converse with local residents or Owner's employees.
- E. Any employee found under the influence of any drug or alcohol will be banned from the site.

1.06 - CONTRACT REQUIREMENTS RELATED TO MAINTAINING OWNER'S CURRENT OPERATIONS AND EXCESS INSPECTION REQUIRED

- A. The Contractor shall schedule working days and hours as specified. The Contractor shall pay all excess costs for inspection services provided by the Owner/Engineer/Architect for working beyond the times specified.
- B. The hourly rate paid for inspection services beyond normal working hours shall be at a maximum billing rate of \$180 per hour, which shall be used to compute the overtime hourly charge.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - DESCRIPTION**

- A. Work under this Section specifies the procedures used to process partial and final payments. It also includes the procedure for issuance of the Certificate of Substantial Completion and the Final Payment.
- B. If there are any discrepancies between this Section of the Contract Documents and the Contract, General Conditions, then the Contract and General Conditions shall govern.

1.02 - TIME FOR COMPLETION

- A. Inasmuch as the provisions of the Contract relating to the time for performance and completion of the Work are for the purposes of enabling the Owner to proceed with the construction of a public improvement in accordance with a predetermined program, and inasmuch as failure to complete the Work within the period herein specified may result in damage or loss to the Owner, time is of the essence of the Contract.
- B. Time for completion of the Work shall be in accordance with that stipulated in the Contract Documents.
- C. The date for completion will be calculated from the date shown in the Notice To Proceed. The Contractor shall prosecute the Work with diligence from day to day, and complete it at the time fixed.
- D. For the purpose of defining completion date, the Project will be considered complete when all work covered by the Contract has been performed and all installations and equipment have been tested and are ready for permanent use.
- E. Notwithstanding the foregoing, the Engineer will establish the date of substantial completion when the project is accepted and ready for operation, and no large or major items of work are as yet outstanding. At such time, the Engineer will issue a punch list, itemizing the items of work remaining. The punch list will include "minor" items only, as defined solely by the Engineer. Any prior punch lists, which include "major" or significant items, as defined by the Engineer, shall not be a criteria in establishing the date of substantial completion.

1.03 - PARTIAL COMPENSATION

- A. At the Owner's discretion, the Contractor may receive compensation for materials, equipment, and products delivered to the site yet not installed provided:

1. A cancelled check or paid bill from the supplier is submitted to the Engineer/Architect indicating that the Contractor has paid the supplier for the material or equipment.
 2. The material or piece of equipment is properly stored and protected from the elements and/or vandalism in accordance with the manufacturer's written requirements for long term storage.
 3. A certificate of insurance is provided specifically insuring the piece of equipment for full value in the event of loss, vandalism, fire, and act of God.
 4. A bill of material is delivered to the Engineer/Architect at the time of delivery itemizing the subject material or equipment.
 5. The Engineer/Architect has agreed to the pre-purchasing of the materials.
- B. Payment will be made for on-site material and/or equipment for 80% of the gross amount of the paid invoice, less the normal contract retainage.
- C. The Contractor will not receive compensation for materials, equipment, and products stored in the Contractor's yard or shop.
- D. The Contractor will not receive compensation for material, equipment, and products stored on site if it has not been stored in accordance with the manufacturer's requirements and the requirements specified elsewhere within these specifications.
- E. Payment(s) made under this paragraph do(es) not relieve the Contractor from his/her responsibilities under the terms of this Contract.

1.04 - APPLICATIONS FOR PAYMENT

- A. The Contractor shall review the percentage of work completed during the payment period with the Engineer, based on the bid items in the proposal. The Engineer shall make the final decision on the percentage of work completed.
- B. The form of application for payment shall be AIA Document G702, application and certificate for payment supported by AIA Document G703, Continuation Sheet.
- C. Submit one (1) copy of each payment application, completed, signed and notarized.
- D. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- E. The payment application shall include a Contractor Invoice and a Water District Claim Voucher.

- F. Provide completed Labor Affidavit Form for each pay period included in the certified payroll reports for each payment application for both the contractor and any subcontractor(s).
- G. Submit payment application to Engineer no later than the first day of each month. Payments received after the first day of each month shall be reviewed and processed after the first day of the following month. Only one application for payment will be reviewed and processed each month.
- H. Submit certified payroll receipts for all workers and subcontractors. Payroll receipts shall be submitted with every application for payment. All payroll receipts shall be certified correct and notarized by a Notary in the State of New York. Application for Payment will not be processed unless all payroll receipts are received.
- I. Contractor shall pay all workers and have all subcontractors pay all workers the prevailing New York State Wage Rates.
- J. Owner may conduct on-site interviews with all workers to verify payment of prevailing wage rates are enforced.
- K. The Engineer shall submit the documentation along with an Engineer's Payment Report to the Owner for payment.
- L. Retainage in the amount of 5% will be held from each partial payment. Retainage will only be released upon full completion of the project and will be included in the final payment.

1.05 - SUBSTANTIAL COMPLETION AND FINAL PAYMENT REQUEST

A. Substantial Completion:

1. Upon Substantial Completion of the Work as defined herein and acceptance thereof by the Engineer/Architect/Owner, and as soon thereafter as practicable, the Engineer/Architect will prepare a Certificate of Substantial Completion.
 - a. The Engineer/Architect will establish the date of Substantial Completion when the project is accepted and ready for operation for the intended purpose, and no large, major or important items of work are as yet outstanding; thus the Owner has gained *Beneficial Use* of the project.
 - b. The Certificate of Substantial Completion will indicate the value of work performed, materials and equipment furnished, and otherwise show the exact aggregate amount equal to one hundred percent (100%) of the total compensation to which the Contractor is entitled for the performance of the

Contract, less the amount of previous payments, less the sum as stipulated below for remaining Punchlist work.

- c. All documents as specified in Sections 017800, 017823, and 017839 shall be submitted and approved prior to Substantial Completion.
 - d. The Certificate of Substantial Completion will be submitted to the Owner and a copy furnished to the Contractor.
 - e. Upon approval of the Certificate of Substantial Completion by the Owner, and as soon as practicable thereafter, the Owner will pay the Contractor.
2. Attached to the Certificate of Substantial Completion will be a Punchlist itemizing the items of work remaining.
- a. The Punchlist will include "minor" items only, as so defined solely by the Engineer/Architect.
 - b. Any prior punchlists, which include "major" or significant items, as defined by the Engineer/Architect, shall not be criteria in establishing the date of Substantial Completion.
 - c. This Punchlist shall not be considered all-inclusive and any outstanding contract requirements discovered by the Owner or the Engineer/Architect shall be installed, repaired, replaced and corrected prior to the final inspection. The Engineer/Architect will provide written notice of such additional outstanding work items.
 - d. The Engineer/Architect will calculate and itemize, in the Certificate of Substantial Completion, the value of the Punchlist work as being the larger sum of either:
 - 1) Two times the sum of money which, in the Engineer/Architect's opinion, would be necessary to expend if the Owner were to contract with others for the final completion of the work and satisfaction of all Punchlist items,
or
 - 2) The sum of money represented in the Contractor's bid schedule or Schedule of Values for the Punchlist items.
3. The Certificate of Substantial Completion shall fix the time for the Contractor to finish all Punchlist work.

4. The Contractor shall prepare a Substantial Completion partial payment application as specified in paragraph 1.05 herein, which shall be made a part of the Certificate of Substantial Completion.
5. The warranties/guarantees for all equipment, products and services required by the Contract Documents shall commence on the date that the Owner accepted/executed the Certificate of Substantial Completion.
6. The warranties/guarantees for all equipment, products and services represented on the Substantial Completion Punchlist will begin on the date that the Owner accepted the Final Payment Request as hereinafter specified.
7. Removal of the Contractor's plant and equipment and other inconsequential adjustments which do not prevent *Beneficial Use* of the Project, will not be a factor in establishing the date of Substantial Completion.
8. Only the Final Payment Request will be processed after Substantial Completion has been reached.

B. Final Completion:

1. Upon receipt of written notice that the work of the Contract is ready for final inspection and upon receipt of a Final Payment Request, the Engineer/Architect will make a *formal inspection*.
2. An amount of **\$1,000.00 (ONE THOUSAND DOLLARS AND ZERO CENTS)** will be deducted from the Contractor's Final Payment for each *formal inspection* where uncompleted work of the Contract was found by the Engineer.
3. All spare parts shall have been delivered prior to a final inspection.
4. Upon Final Completion of the Work in accordance with the Contract and acceptance thereof by the Owner, and as soon thereafter as practicable, the Engineer/Architect will process the Contractor's Final Payment Request.
 - a. The Final Payment Request will indicate the value of the work performed, materials and equipment furnished, and otherwise the exact aggregate amount of compensation to which the Contractor will become entitled under the terms of the Contract.

- b. Upon approval of the Final Payment Request by the Owner, and as soon as practicable thereafter, the Owner will pay the Contractor an amount equal to one hundred percent (100%) of the total compensation to which the Contractor is entitled for the performance of the Contract, less the amount of all previous payments.
- 5. The issuance of the Final Payment Request and payment in full to the Contractor shall be contingent and conditioned upon submission by the Contractor of a *Maintenance Bond*.
 - a. The Bond shall be in a form approved by the Owner and issued by a surety acceptable to the Owner in its sole and absolute discretion.
 - b. The Bond shall remain in effect as specified elsewhere in the Contract Documents.

1.06 - ACCEPTANCE OF FINAL PAYMENT REQUEST

- A. The Contractor shall be conclusively deemed to have accepted the Final Payment Request as a correct statement of the total liability of the Owner and of the compensation paid and to be paid to the Contractor by the Owner unless within seven (7) days after delivery of his copy of the Final Payment Request to him/her, the Contractor shall return such copy to the Owner together with a statement of his/her objections to such payment request and of any claim for damages or compensation in excess of the amounts shown on the Final Payment Request.
- B. The acceptance by the Contractor of the Final Payment Request as approved by the Owner shall constitute a release and shall discharge the Owner and Engineer/Architect from all further claims by the Contractor arising out of or relating to the Contract, including but not limited to a release from all impact costs.

1.07 - RELEASE OF RETAINAGE & REINSPECTION OF WORK

- A. Retainage will be released as specified in the Contract Documents.
- B. During the last month of the *Maintenance Bond* period, the Owner may make, or cause to be made, a reinspection of the Work. If the Work is found satisfactory and in accordance with the Contract Documents, the Owner will approve the termination of the Contract.
- C. In the event the inspection discloses the existence of defects in the materials, equipment or workmanship or other noncompliance with the Contract Documents, the Contractor shall be required to immediately make good and rectify all defects.

1. Any item of equipment that has failed to maintain the performance or other salient requirements of these specifications, shows undue wear, or other deleterious defects, will be considered defective.
2. If the Contractor shall fail or neglect to satisfy the requirements of the Owner with respect to making the necessary corrections, then the Owner may proceed to have the work executed by others and the cost and expense thereof will be borne by the Contractor and his Sureties.
3. Correction of defects and noncompliance and payment for such by the Contractor or his Sureties shall terminate the Contract and release all parties hereunder.

1.08 - SCOPE OF PAYMENTS

- A. The Contractor shall receive and accept the compensation as herein provided, in full payment for furnishing all materials, labor, tools, and equipment and for performing all work contemplated and embraced under the Contract, also for all loss or damage arising out of the nature of the Work or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered during the prosecution of the Work, and for all risks of every description connected with the prosecution of the Work, until its final acceptance by the Owner, also for all expenses incurred by, or in consequence of, the suspension or discontinuance of the said prosecution of the Work as herein specified, and for all actual or alleged infringements of patent, trademark, or copyright, and for completing the Work and the whole hereof, in an acceptable manner, according to the Plans, Specifications, and other Contract Documents.
- B. The payment of any partial or final estimate shall in no way or in no degree prejudice or affect the obligation of the Contractor, at his own cost and expense, to renew or replace all defects and imperfections, or damages. The Engineer/Architect shall be the sole judge, and the Contractor shall be liable to the Owner for failure to do so.

1.09 - RIGHT TO WITHHOLD PAYMENTS

- A. The Owner may withhold from the Contractor the amount of any payments due him as may in the judgment of the Owner be necessary:
 1. To assure the payment of any lien, stop notice or claim filed with the Owner for work, labor or materials, done, performed, or delivered and used in the prosecution of the Work herein provided for (whether in strictly legal form or otherwise); or

2. To protect the Owner from loss due to defective work not remedied or through any improper or defective machinery, implements or appliances used by the Contractor or for failure of the Contractor to fully comply with all requirements of the Contract; or
 3. To protect the Owner from loss due to injury to persons or damage to the work or property of other contractors, subcontractors, or others, caused by the act or neglect of the Contractor or any of his subcontractors.
- B. The Owner shall have the right as agent for the Contractor to apply any amounts so withheld in such manner as it may deem proper to satisfy such claims or secure such protection. Such application of such money shall be deemed payments for the account of the Contractor.
- C. Before release to the Contractor of any funds retained under this provision, the Contractor shall furnish satisfactory written evidence to the Owner that the claim or claims have been fully paid or satisfied.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used

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STATE OF _____)
)
 COUNTY OF _____) ss.:

_____, being duly sworn, deposes and says that deponent is an Officer of _____ the corporation named in this action; that deponent has read the foregoing Statement and knows the contents thereof; and that the same is true to deponent's own knowledge, except as to the matters therein stated to be alleged upon information and belief and to those matters deponent believes it to be true. This verification is made by deponent because _____ is a corporation. Deponent is an officer of the company.

By: _____
 Officer

Sworn to before me this _____
 day of _____, 20____

 Notary Public

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Allowance pricing for the following items:
 - 1. Independent Laboratory Testing Allowance.
 - 2. Contingency Account.
 - 3. Utility Construction Charges.
- B. This Section covers the requirements for use of the cash allowances listed above contained in the proposal (Bid Forms, Price Schedule) and included in the Contract Price bid by the Contractor and defines and stipulates the charges that will be paid for out of the stipulated allowances.
- C. The Contractor shall include the cash allowances stipulated in this Section in the amount bid (Base Bid).
- D. Eligible costs described in this Section, and Sections referenced herein, will be the only costs paid for out of the stipulated allowances.
- E. All other costs associated with the project as specified and/or shown, including but not limited to the delivery, installation and all Contractor overhead and/or collateral expenses are to be distributed among the other portions of the work and shall be included in the lump sum base bid.

1.02 - SUBMITTALS

- A. Make all submissions under the provisions of **Section 013300**.
- B. For each type of product/material specified to be furnished under allowance pricing provide documentation of the unit pricing on manufacturer's letterhead certifying pricing of the product/material.
- C. Submit additional backup information to substantiate the invoiced amount(s) as the Engineer/Architect may require for review and approval, prior to order or payment of item.
- D. Provide written breakdowns for extra work as the Owner may require.

1.03 - CHANGES TO STIPULATED (CASH) ALLOWANCE

- A. If the actual cost of services differs from the cash allowance, then the Contract Price will be adjusted accordingly.

1.04 - PAYMENTS TO BE MADE OUT OF CONTINGENCY ACCOUNT

- A. Include the cash allowance of **\$40,000 (TWENTY THROUGHSAND DOLLARS AND ZERO CENTS)** in the amount bid for use upon the Owner's instructions.
- B. The Owner will draw funds from the contingency account only upon prior approval by the Owner's Construction Field Representative and Architect/Engineer.
- C. Funds remaining at project closeout shall be credited to the Owner.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 – GENERAL**1.01 – SECTION INCLUDES**

- A. This Section includes the requirements for substitution of specified products during construction.
- B. *The Engineer/Architect will consider requests for substitutions only within **ten (10)** days from the date of the Notice to Proceed with the exception of the generator, automatic transfer switch and generator enclosure where substitutions shall be in accordance with Section 2.02.*
- C. Only products not specifically named in the bid are eligible for substitution in accordance with the requirements contained herein these specifications.
- D. Products named by the Bidder, at the time of bid, shall be furnished and installed and substitutions will not be considered by the Owner/Engineer/Architect for those products named in the bid.

1.02 - CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard, select any product meeting that standard.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with the Specifications.
- C. Where products are not named, then submit products that meet the specifications.

PART 2 - PRODUCTS**2.01 - SUBSTITUTIONS**

- A. Name - The Drawings and Specifications list acceptable manufacturers, commercial names, trademarks, brands and other product, material and equipment designations. Such names are provided to establish the required type, quality and other salient requirements of procurement.
- B. Equals - An item equal to that named or described on the Drawings or in the Specifications may be provided by Contractor if accepted by the Engineer/Architect.
- C. A request for product substitution constitutes a representation that the Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Shall provide the same warranty for the Substitution as for the specified Product.

3. Shall coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner, including extra charges by other Prime Contractors, material suppliers, and vendors.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Shall reimburse the Owner and the Engineer/Architect for review or redesign services associated with re-approval by authorities.
 6. Shall reimburse the Owner for all additional engineering and/or architectural services claimed by the Engineer/Architect for extra services associated with the review of the Contractor's substituted item since it could not have been originally included in the Engineer/Architect's professional services agreement. Reimbursement shall be based on the man-hours expended, at current billing rates.
- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitution Submittal Procedure:
1. The Contractor shall submit three (3) copies of the Request for Substitution FORM for consideration including all required information.
 2. The Contractor shall use the form included within this Section.
 3. All forms shall be type written.
 4. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
- F. The burden to prove product equivalence rests on the Contractor.
- G. The Engineer/Architect will notify Contractor in writing of decision to accept or reject request and at that time the Contractor can make a formal submittal in accordance with the requirements contained in Section 013300.
- H. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

2.02 – SUBSTITUTIONS OF ENGINE GENERATOR, AUTOMATIC TRANSFER SWITCH AND GENERATOR ENCLOSURE

- A. Bidders considering substitute engine generator systems, transfer switches and generator enclosure manufacturers not listed in the specifications shall provide complete submittal data for review and acceptance, as indicated in the specifications, AS PART OF THE SEALED BID. No substitute equipment manufacturers will be considered accepted or reviewed after the bid date.
- B. If substitute equipment is submitted AS PART OF THE SEALED BID and additional product data is required to determine if the proposed equipment is equal, said additional product data shall be submitted no later than 10 days after it is requested. No further product data will be accepted after this date.
- C. All proposed substitutions shall be submitted by the bidder. Any proposed substitutions submitted directly by supplier and/or manufacturers will not be reviewed or returned.
- D. Failure to comply with the required submittal and substitution requirements as described in Section 2.01 will result in rejection of the substitution, without further review.
- E. Acceptance of Substitute Equipment: If accepted, the contractor shall be responsible for all additional costs to Contract E for generator concrete foundation, any necessary revisions to the plans and specifications, drawings and project documentation; and changes related to equipment spacing, pad sizes, mounts, electrical wiring, ventilation equipment, fuel, exhaust components, etc., as well as any engineering costs, resulting from said substitution. If a brand name other than that specified is proposed for use, the supplier must provide a locally available system for the Owner and Engineer to review and inspect, as well as witness testing to show compliance with the specifications. Also, the supplier must furnish a list of completed installations, including name, address and telephone number of at least five comparable installations which can prove the proposed products have operated satisfactorily for three years.

PART 3 - EXECUTION

Not Used

This space left intentionally blank.

REQUEST FOR SUBSTITUTION FORM

Project: _____ Substitution Request Number: _____

Contractor: _____

Address: _

To: _____ Date: _____

H2M Project Number: _____ Owner: _____

Contract Name: _____ Contract No. _____

Specification Title: _____

Section: _____ Page: _____ Article/Paragraph: _____

Drawing No(s): _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____

Trade Name: _____ Phone #: _____

Installer: _ Address: _____

Phone #: () _____

History: New product 2-5 years old 5-10 years old More than 10 years old

Differences between proposed substitution and specified product:

Point-by-point comparative data attached

Reason for not providing specified item (Attach separate sheet if necessary):

Typical Similar Installation:

Project: _____

Engineer/Architect: _____

Address: _

Owner: _____

Date Installed: _____

Submit complete installation list on separate sheets.

Proposed substitution affects other parts of Work: No Yes

Explain:

Gross Savings to Owner for accepting substitution: \$ _____

Proposed substitution changes Contract Time: No Yes

Add / deduct (circle): _____ days

Supporting data attached for evaluation of the proposed substitution:

Product Data Photos Drawings Tests Reports Samples

Other (explain): _____

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

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

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. Proposed Substitution has been fully checked and coordinated with Contract Documents.
2. Proposed Substitution does not affect dimensions shown on Drawings.
3. Proposed Substitution does not require revisions to any other Prime Contractor's work.
4. The undersigned will pay for changes to building design, including Architectural and Engineering design, detailing, and construction costs caused by requested Substitution.
5. Proposed Substitution will have no adverse affect on other trades, construction schedule, or specified warranty requirements.
6. Maintenance and service parts will be locally available for proposed substitution.
7. The undersigned further states that the function, appearance, and quality of proposed Substitution are equivalent or superior to specified item.

This request for product substitution also constitutes a representation that I, as the Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
2. Shall provide the same warranty for the Substitution as for the specified Product.
3. Shall coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner, including extra charges by other Prime Contractors, material suppliers, and vendors.
4. Waives claims for additional costs or time extension that may subsequently become apparent.
5. Shall reimburse the Owner and the Engineer/Architect for review or redesign services associated with re-approval by authorities.
6. Shall reimburse the Owner for all additional engineering/architectural services claimed by the Engineer/Architect for extra services associated with the review of the Contractor's substituted item since it could not have been originally included in the Engineer/Architect's professional services agreement. Reimbursement shall be based on the man-hours expended, at current billing rates.

Contractor's Authorized Representative (Typewritten): _____

Authorized Signature: _____

Date: _____

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Schedule of Values

1.02 – SCHEDULE OF VALUES

- A. Submit for approval prior to the start of the work a Schedule of Values that indicates a breakdown of the labor, materials and equipment and other costs used in the preparation of the bid. This schedule shall be in sufficient detail to indicate separate figures for such items as excavation, concrete, equipment and all other items making up the lump sum price. The cost breakdown shall be separately itemized for each lump sum bid item in the project.
- B. Where the cost breakdown includes items for bond payment, insurance payment, job set-up, or job mobilization, these items will be paid based on paid invoices and copies of cancelled checks.
- C. Submit a Schedule of Values to the Engineer/Architect for review and approval within fifteen (15) calendar days from the date shown on the Notice to Proceed.

1.03 - FORM OF SUBMITTAL

- A. Submit typewritten Contract Cost Breakdown on AIA Form G703 - Application and Certificate for Payment Continuation Sheet or EJCDC 1910-8-E. The Engineer/Architect reserves the right to revise the form or provide a form prepared by the Engineer/Architect.
- B. Use the Table of Contents of the Contract Specifications as a basis for format for listing costs of work for Sections under Divisions 1-48 as sections apply to work. Not all Sections need be assigned a breakout price as determined by the Engineer/Architect.
- C. Identify each line item with number and title as listed in Table of Contents.
- D. Provide dollar values for each line item for labor, overhead, profit, material, and equipment components for each category of work if requested by the Engineer/Architect.
- E. List quantities of materials specified under unit price allowances.
- F. The Schedule of Values, after approval by the Engineer/Architect, shall be the basis for the Contractor's Application for Payment.
- G. The first Application for Payment will not be reviewed prior to an approved breakdown.

1.04 - PREPARATION OF SCHEDULE OF VALUES

- A. In addition to the above, provide a separate line item cost for each of the following items which shall be supported by proof where specified below:
 - 1. Mobilization and Demobilization (Amounts shall be equal in value).
 - 2. Performance and payment bonds. (Submit proof of this amount.)
 - 3. Insurance. (Submit proof of this amount.)
 - 4. A total dollar amount for furnishing all the Operations and Maintenance Manuals specified throughout the specifications.
 - 5. Final cleaning.
- B. Show total costs *including* overhead and profit.
- C. Provide additional details and data to substantiate the cost breakdown as requested by the Engineer/Architect.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Work of this Section includes:
 - 1. Requests for Interpretation or for information
 - 2. Administration of subcontracts
 - 3. Coordination of work with utility companies, Owner and the Engineer/Architect
 - 4. Communication and coordination requirements
 - 5. Qualifications of Contractor's job site superintendent
- B. Site staffing requirements for the Contractor's superintendent is also specified herein, the costs for which shall be included in the Contract price.

1.02 - REQUEST FOR INTERPRETATION OR INFORMATION

- A. The Contractor shall use the Request for Interpretation/Information Form included within this Section when the Contractor feels that additional information is needed to perform the work of the Contract.
- B. The Engineer/Architect may not respond to any requests unless the form is used.
- C. The Engineer/Architect's verbal response(s) to the Contractor's formal requests, if provided, shall not constitute an official response and if acted upon by the Contractor are done so at the Contractor's own risk and liability and shall not be subject to claims for additional compensation.
- D. A signed facsimile of the form will be accepted. The original of the form must be signed and provided to the Engineer/Architect's project manager.
- E. The Engineer/Architect will respond in writing to the request as soon as possible.

1.03 - SUBCONTRACTOR ADMINISTRATION AND COORDINATION

- A. Terms and conditions of the Contract shall be binding upon each subcontractor.
- B. Furnish each subcontractor and major equipment vendor at least one (1) copy of the Plans and Technical Specifications.

- C. Provide at least one (1) copy of each approved shop drawing to each subcontractor whose work may depend upon the contents of the shop drawing submittal. The Owner reserves the right to stop all work, without claims for delay, until such time as appropriate subcontractors are furnished with appropriate shop drawings.
- D. Each Contractor shall sequence and schedule the work of subcontractors. Coordinate construction and administration activities of subcontractors. The Engineer/Architect and Owner will not accept telephone calls, facsimiles or office visits from any subcontractors on the project. Subcontractor and vendor questions and clarifications shall be directed to the Engineer/Architect by the Contractor.
- E. The Contractor's on-site project superintendent shall inspect all the work of all of his/her subcontractors, as it is being constructed. The Contractor's subcontractor shall not be permitted to do any work on the site without the Contractor's job site superintendent also being there to inspect the work as it is being performed.

1.04 - UTILITY COORDINATION

- A. Comply with the requirements of 16 NYCRR Part 753 – Protection of Underground Facilities. Submit a letter stating the case number.
- B. Comply with the utility coordination requirements contained in the General Conditions.

1.05 – PUBLIC AND PRIVATE UTILITIES

- A. Notify all public and private utilities in accordance with Article 20, Section 322-a of the New York State General Business Law for location and markout of existing utilities in the vicinity of the work.
- B. Repair all utilities damaged during the Work to the standards and approval of the respective utility at no cost to the Owner.

1.06 - SPECIFIC COORDINATION REQUIREMENTS

- A. Sequence and schedule work so as not to interfere with the work by others. Coordinate the work of this Contract with the work by others. In case of conflicts due to improper coordination by the Contractor, the Owner/Engineer/Architect's resolution will be final. No compensation will be awarded for extra work required to resolve conflicts.
- B. Coordinate space requirements, supports, and installation of mechanical, electrical and plumbing work which may be indicated diagrammatically on the Drawings. Follow routing shown for pipes,

ducts, and conduit as closely as practicable. Place runs parallel with building lines. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and to facilitate repairs.

- C. In finished areas, except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of all fixtures and outlets with finish elements and work by all other trades.

1.07 - CONTRACTORS JOB SITE SUPERINTENDENT

- A. Employ an on-site superintendent as specified herein below. He/She shall be a full-time employee of the Contractor.
- B. Name the job site superintendent within five (5) days of the Notice to Proceed. A letter to the Engineer/Architect shall be provided that names the superintendent.
- C. He/She shall have the authority to sequence and schedule the work, and to staff the project, so as not to interfere with the work by others and to complete the work daily within the time so required.
- D. Each Superintendent shall have a minimum of five (5) years of experience as a job site superintendent for projects of equal size and complexity.
- E. The superintendent may be a foreman or crew supervisor.
- F. The superintendent shall be qualified to perform the duties so required to successfully complete the work in accordance with the Contract Documents.

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REQUEST FOR INTERPRETATION/INFORMATION (RFI)

OWNER'S NAME
PROJECT NAME & CONTRACT DESIGNATION
CONSTRUCTION CONTRACT NO.

Product, Item, or System:			
Request Date:		RFI No.:	
Specification Section:		Paragraph Reference:	
Contract Drawing Reference(s):			
Describe Request:			
Signed:	<input type="checkbox"/> See Contractor's Attachments for Additional Description for Information		
Owner/Engineer/Architect Response:			
Engineer/Architect (Printed):	<input type="checkbox"/> See Engineer/Architect's Attachments for Additional Information		
<i>Engineer/Architect's Signature & Date</i>		<i>Response Accepted By Contractor Contractor's Signature & Date</i>	
<p>The Work shall be carried out in accordance with these supplemental instructions without change in Contract amount or Contract time for completion. Prior to proceeding with these instructions, indicate your acceptance of these instructions by signing where indicated and returning this form to the Engineer/Architect.</p>			

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. This Section specifies the requirements for making submissions for the project. Electronic submissions will be required unless expressly noted otherwise.

1.02 - IDENTIFICATION OF SUBMITTALS

- A. Each and every submission shall be provided by the Contractor.
- B. Each individual submittal shall be identified with a submission log number designated by the contractor.
- C. It is incumbent on the Contractor to initially assign the submission log number designation to each submission. Submissions not containing a log number will be returned to the Contractor unreviewed by the Engineer/Architect.

1.03 - COORDINATION OF SUBMITTALS

- A. Prior to submitting to the Engineer/Architect, fully coordinate all interrelated work. As a minimum, do the following:
 - 1. Determine and verify all field dimensions and conditions by field measuring existing conditions and the installed work of this Contract and work by others.
 - 2. Coordinate with all trades, subcontractors, vendors, system and equipment suppliers and manufacturers, public agencies, and utility companies and secure all necessary approvals, in writing.
- B. Make submittals in groups containing all associated items that in some way depend upon each other.
 - 1. This also applies to color charts, as one color may not be able to be selected without the selection of other colors so as to form a color-coordinated group.
 - 2. The Engineer/Architect may elect not to review partial or incomplete submissions, whereupon he will notify the Contractor of the additional submissions that are required before a review can be made.

1.04 - TIMING OF SUBMITTALS

- A. Make submittals far enough in advance of scheduled dates of installation to provide time for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery. The Engineer/Architect will review submittals in a manner as expedient as possible, and will generally send a written response to the Contractor within ten (10) calendar days of receipt of submittals.
- B. Submissions may be returned reviewed, unreviewed, rejected, returned conditioned upon submission of related items, or for other reasons set forth in the Contract Documents.
- C. Make submissions well in advance as the returning, rejecting or disapproval of submissions or other similar circumstances are possible and are deemed "avoidable delays". Costs for these delays or those attributed to Contractor's tardiness in making submittals shall be borne by the Contractor.
- D. All submittals requiring Engineer/Architect's review as required under the technical specifications of these documents shall be submitted within **FIFTEEN (15)** consecutive calendar days after the date of the Notice to Proceed. An amount of **\$250** per calendar day shall be deducted from payment due the Contractor for each day that an outstanding submittal exists, said amount being the cost associated with the Engineer/Architect's review.
- E. If material or equipment is installed before it has been deemed to be in general compliance with the Contract Documents, as determined by the Engineer/Architect, the Contractor shall be liable for its removal and replacement in its entirety at no extra charge and without an increase in contract time.

1.05 - DESTINATION OF SUBMITTALS

- A. Each submission of documents shall be accompanied by a transmittal form containing the name of the project, the contract name, the Engineer/Architect's project manager, a submittal ID number, and a description of content for the submitted items.
- B. Electronic submittals shall be transmitted through the Newforma® Project Center website or by email, pending instruction by the Engineer. H2M architects + engineers is using a project information application called Newforma® Project Center. One of its components is Newforma Info Exchange, a web application that facilitates sending and sharing transmittals, and file sharing.

As an external team member on this project the Contractor will be required to access the H2M architects + engineers/Newforma Info Exchange website for information related to the project,

including file transfers, RFI, Submittals, Action Items, and project Calendar information. You will have access to this website using any internet-capable computer running Internet Explorer or Firefox. All data transmitted through the H2M architects + engineers/Newforma Info Exchange website is encrypted and logged. Further instructions will be provided to the Contractor after the contract is awarded.

- C. Other submissions, such as material samples or other items as instructed by the Engineer, shall be sent to the Engineer/Architect's office as follows:

H2M architects + engineers
538 Broad Hollow Road, 4th Floor East
Melville, New York 11747 - 5076
Attention: H2M Project Manager

1.06 - CLARITY OF SUBMITTALS

- A. All printed materials shall be neat, clean, professionally drafted by computer, clear, legible, and of such quality that they can be easily reproduced by normal photocopying machines.
- B. All electronic submittals shall be produced with a minimum resolution of 300 dpi.
- C. Binders of information shall be separated into groups, subsystems, or similar equipment/function. Copies not conforming to this paragraph will be returned to the Contractor without the Engineer/Architect's review.

1.07 - CONTRACTOR'S REPRESENTATION

- A. By making a submission, the Contractor represents that he has determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving equipment into an enclosed space, materials, catalog and model numbers and similar data and that he has checked and coordinated each submission with other work at or adjacent to the project site.
- B. Every SUBMISSION TRANSMITTAL FORM shall contain the Contractor's approval stamp and date showing that the submittal has been approved by the Contractor. The Engineer/Architect will not review submittals that have not yet been reviewed and approved by the Contractor.

1.08 - ENGINEER/ARCHITECT'S REVIEW

- A. Engineer/Architect will review and comment on each submission conforming to the requirements of this Section.

1. Engineer/Architect's review will be for conformance with the design concept of the project and will be confined to general arrangement and compliance with the Contract Documents only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, laying lengths, tolerances, interference's, for coordinating the work by others or subcontractors.
 2. The Engineer/Architect's review of a separate item, or portion of a system, does not represent a review of an assembly or system in which the item functions.
- B. The Engineer/Architect will mark submittals as follows:
1. NO EXCEPTION TAKEN (A) - No corrections, no marks. The content of this submittal has been reviewed by the Engineer/Architect and been found to be in general compliance with the Contract Documents. No further submission of this submittal is required and the information contained in the submittal may be built into the work in accordance with the Contract Documents.
 2. MAKE CORRECTIONS NOTED (B) - Minor amount of corrections. The content of this submittal has been reviewed by the Engineer/Architect and has been found in general to be in compliance with the Contract Documents. The notations made on the submittal by the Engineer/Architect shall be incorporated into the work in accordance with the terms and conditions of the Contract Documents. No further submission of this submittal is required.
 3. AMEND AND RESUBMIT (C) - The content of this submittal has been reviewed by the Engineer/Architect and this review has determined that additional data and/or modification to the submitted data or other changes are required to bring the work represented in this submittal into compliance with the Contract Documents. This submittal shall be reviewed and revised in accordance with the Engineer/Architect's comments and resubmitted to the Engineer/Architect for review. The information contained on the resubmittal shall not be incorporated into the work until the submittal is returned to the Contractor marked "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED".
 4. REJECTED (D) - The content of this submittal has been reviewed by the Engineer/Architect and has been determined not to be in accordance with the requirements contained in the Contract Document and requires too many corrections or other justifiable reason. The submittal shall be corrected and resubmitted or a submittal of an alternate shall be provided. No items are to be fabricated under this mark.

5. SUBMIT SPECIFIED ITEM (E)- The content of this submittal has been reviewed by the Engineer/Architect and this review has indicated that the work displayed in the submittal is not in compliance with the Contract Documents. The Contractor shall submit another submittal for this portion of the work, which complies with the Contract Documents.
 6. RECEIVED (R) - This submittal is accepted on the project and filed for record purposes only, in accordance with the terms and conditions of the Contract Documents. Documents marked "RECEIVED" will not be returned.
- C. No payment will be made on any item for which a submission is required if such submission:
1. has not been made,
 2. has been made but was not stamped "No Exceptions Taken" by Engineer/Architect,
 3. has been made and stamped "Make Corrections Noted", but contractor has not complied with Engineer/Architect's notes marked on the submittal,
 4. has been made and stamped "No Exceptions Taken", but item provided does not conform to the shop drawing nor to the Contract Documents.
- D. Submittals not required by these specifications will not be recognized or processed.
- E. Provide an 8-inch by 10-inch space for the Engineer/Architect's review stamp.

1.09 - RESUBMISSIONS

- A. Prepare new and additional submissions, make required corrections, and resubmit corrected copies until found in compliance with the Contract Documents.
- B. On, or with, re-submittals, clearly describe revisions and changes made, other than the corrections requested by Engineer/Architect, which did not appear on the previous submissions.
- C. Resubmissions of shop drawings shall be performed within **SEVEN (7)** consecutive calendar days upon receipt of shop drawing with the Engineer's comments. An amount of **\$250** per calendar day shall be deducted from payment due the Contractor for each day that an outstanding submittal exists, said amount being the cost associated with the Engineer/Architect's review.

1.10 - CONTRACTOR'S RESPONSIBILITIES

- A. Engineer/Architect's review of submittals shall not relieve the Contractor of his/her responsibility for any deviation from the requirements of the Contract Documents nor relieve the Contractor from responsibility for errors or omissions in the submittals.
- B. No portion of the work requiring a submission shall be commenced until the Engineer/Architect has found the submission in general compliance with the Contract Documents.
- C. The Contractor shall provide written notification of any specification or drawing deviation.

1.11 - EXCESS COSTS FOR ENGINEERING/ARCHITECTURAL SERVICES

- A. The Owner will charge to the Contractor, and will deduct from the partial and final payments due the Contractor, all excess engineering and architectural expenses incurred by the Owner for extra services (work) conducted or undertaken by the Engineer/Architect as stipulated below:
 - 1. Services and other similar charges because of the Contractor's errors, omissions, or failures to conform to the requirements of the Contract Documents as related to administrative charges associated with non-compliance with the requirements for making project submissions.
 - 2. Services and other similar charges required to examine and evaluate any changes or alternates proposed by the Contractor and which may vary from the Contract Documents.
 - 3. Services and other similar charges as a result of the Contractor's proposed substitution of materials, equipment or products which require a redesign of any portion of the project, as contained in the Contract Documents at the time of bid.
 - 4. Services and other similar charges as a result of the Contractor's proposed substitution of products which require an engineering and/or architectural evaluation, beyond the time stipulated in Section 012500, to determine if the substituted product is equal to that specified.
 - 5. Services and other similar charges as a result of changes by the Contractor to dimensions, weights, sizes, voltages, phase, horsepower, materials of construction, and similar physical or operating characteristics of the product furnished which require redesign of the project in any way.
 - 6. Services and other similar charges for the review of resubmissions of shop drawings that have been marked as "No Exceptions Taken" or "Make Corrections Noted".

7. Services and other similar charges for the review of shop drawings submitted more than two (2) times for the same product or portion of the work.

1.12 - MISCELLANEOUS SUBMITTALS

- A. Provide a Submittal Schedule within seven (7) calendar days from the date of the Notice to Proceed. The Submittal Schedule shall list all submittals for the project referenced by draft log number. Provide the estimated date that the submittal will be transmitted to the Engineer/Architect for review.

1.13 - SUBCONTRACTOR LIST

- A. The Contractor shall submit, on AIA Form G805, within FIFTEEN (15) calendar days after the date of the Notice to Proceed, a list of all subcontractors, including the names of the major subcontractors that were submitted at the time of the bid.

1.14 - MATERIAL SAFETY DATA SHEETS (MSDS)

- A. Comply with "Right to Know" requirements of Chapter 551 of Laws of New York, 1980, concerning notification of the use of toxic substances.
- B. Any product or substance used by the Contractor or its subcontractors which is listed in Subpart Z of OSHA Part 1910 Title 29 of the Code of Federal Regulations entitled "Toxic and Hazardous Substances" shall be identified to the Owner/Engineer/Architect by the Contractor's submission of a standard Material Safety Data Sheet (MSDS) in accordance with "Right To Know" requirements.
- C. Products will not be permitted to be kept on site without a MSDS.

1.15 - SHOP DRAWINGS

- A. Submit shop drawings for all fabricated work, for all manufactured items and for items specifically required by the specifications.
- B. Submit each shop and layout drawing to Engineer/Architect.
- C. Submit one (1) electronic copy of each standard drawing, catalog cut, or other material. All shop drawings or submittals that are not in the standard 8-1/2" x 11" format shall be submitted both electronically and in paper. Samples shall be delivered directly to the office of the Engineer/Architect. The Engineer/Architect will return an electronic copy of each submittal once reviewed.

- D. Subcontractors shall submit shop drawings directly to the Contractor for checking. Thoroughly check subcontractors' shop drawings for measurements, sizes of members, details, materials, and conformance with the Contract Documents.
 - 1. Return submittals which are found to be inaccurate or in error.
 - 2. Do not submit to the Engineer/Architect until all corrections have been made.
- E. Clearly show the relationship of the various parts of the project and where the information provided on the submission depends upon field measurements and existing conditions.
- F. The Contractor shall make all measurements, confirm existing conditions, and include them on the shop drawings before making a submission to the Engineer/Architect.
- G. Submissions for a single item, or group of related items shall be complete.
- H. When submitting manufacturers' catalogs, pamphlets or other data sheets, in lieu of prepared shop drawings, clearly mark the items being submitted for review.
- I. If the shop drawings contain any departures from the contract requirements, specifically describe them in the letter of transmittal.
 - 1. Where such departures require revisions to layouts, structural, architectural, electrical, HVAC or any other changes to the work as shown, Contractor shall, at his own expense, prepare and submit revised drawings accordingly.
 - 2. Make drawings the same size as the Contract Drawings and to the same scale.

1.16 - SAMPLES

- A. Where required, or where requested by the Engineer/Architect, submit sample or test specimens of materials to be used or offered for use.
 - 1. Samples shall be representative, in all respects, of the material offered or intended, shall be supplied in such quantities and sizes as may be required for proper examination and tests, and shall be delivered to Engineer/Architect, prepaid, along with identification as to their sources and types of grades.
 - 2. Submit samples well in advance of anticipated use to permit the making of tests or examinations.

- B. Samples will be checked for conformance with the design and for compliance with the Contract Documents.
- C. Work shall be in accordance with the approved sample. The use of materials or equipment for which samples are requested or required to be submitted is not permitted until such time that the Engineer/Architect has completed his review.

1.17 - MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer/Architect.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation. Provide manufacturer's instructions with shop drawings.

1.18 - CERTIFICATIONS

- A. Submit certifications of compliance indicated in the Contract Documents.
- B. Certifications shall be complete and exact, they shall be properly authenticated by the written signature, in ink, of an owner, officer or duly authorized representative of the person, firm or organization issuing such certification and they shall guarantee that the materials or equipment are in complete conformance with the requirements of these specifications.

1.19 - COLORS AND PATTERNS

- C. Unless the precise color and pattern are specified, whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts for Engineer/Architect's and Owner's review and selection.

1.20 - MANUFACTURER'S SERVICE CENTER

- D. The product of a manufacturer who does not maintain an adequate nearby service center and a sufficient stock of spare parts are subject to rejection by Engineer/Architect solely on that basis.
- E. With each submission, submit information on manufacturer's facilities and give complete details of his service policies and capabilities, and a general idea of the stock of spare parts available. Submit this information in the form of a certification. Also include names, addresses and telephone numbers of at least three of the service center's present customers who are in the area of the project.

1.21 - TEST RESULTS AND INSTALLATION

- A. Whenever field startup services are specified, the Contractor shall obtain from the manufacturer and submit to the Engineer/Architect Manufacturer Startup Reports (MSR's). The report shall detail the results of the field visit and all special conditions resulting from the startup.
- B. Whenever field or factory tests are required on materials, equipment and systems, such tests shall be performed and the test results submitted to Engineer/Architect in the form of a MSR.
- C. Do not deliver to the project or incorporate into the work any materials or equipment for which Engineer/Architect has not completed his review and found same to be in general conformance with the Contract Documents.
- D. Submit MSR's within thirty (30) calendar days after the date of the startup or factory test.

1.22 - SPARE PARTS LIST

- E. Prepare a list of all spare parts specified to be provided in other Sections. Compile the total list for the purposes of reviewing actual spare parts delivered versus spare parts specified to be provided. The list shall reference the Section, model number, and quantity to be provided.

1.23 - WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS

- A. Unless otherwise specified, the requirement to submit data and samples for products specified for approval will be waived for products specified by brand name if the specifically named products are furnished for the work. In such cases, the Contractor shall submit Product Data directly to the Engineer/Architect's field representative for information and verification during its incorporation into the work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Codes
- B. Governing agencies
- C. Permits

1.02 - CODES

- A. Comply with the requirements of the various codes referred to in these Specifications. Such codes shall be the date of the latest revision in effect at the time of receiving bids.
- B. If there is a conflict between local, state, and/or Federal regulatory requirements, seek a consultation with the State Department of Labor. Resolve conflicts to the satisfaction of the State Department of Labor prior to commencing work.
- C. Electrical Work: Conform to the requirements of the National Electrical Code (NEC) unless otherwise shown or specified. The Owner will be the sole judge of the interpretation of these rules and requirements.

1.03 - GOVERNING AGENCIES

- A. All work shall conform to and be performed in strict accordance with all governing agencies such as, but not limited to:
 - 1. Occupational Safety and Health Act - OSHA
 - 2. State Department of Environmental Conservation
 - 3. State Building Code
 - 4. State Fire Code
 - 5. National Fire Protection Association - NFPA
 - 6. National Electrical Code
 - 7. State Plumbing Code
 - 8. State Energy Code
 - 9. County Department of Health

10. Town Codes, Rules, Laws and Ordinances
11. Sewer District Sewer Use Code
12. Local Water District
13. Electric utility
14. Gas Utility

1.04 – PERMITS AND INSPECTIONS

- A. Representatives of the Owner shall have access to the work for inspection purposes. The Contractor shall provide facilities suitable to the Owner to facilitate inspections of the installed work.
- B. Obtain and pay for all permits, fees, licenses, certificates, inspections and other use charges required in connection with the work.
 - A. Such permits include, but are not limited to:
 1. Transportation and disposal of debris.
 2. Electrical Service.
 3. Telephone Service.
 4. Building Permits.
 5. Electrical Inspector's Incorporated, Certificate for Electrical Installation or preapproved electrical inspection agency.
 6. Road opening permits.
 7. Suffolk County Department of Health Services:
 - a. The Contractor shall submit to the Suffolk County Department of Health Services all necessary drawings and equipment specifications required for a complete approved system of the generator fuel tank.
 - b. The Contractor shall employ the services of a specialty Contractor to prepare all drawings and complete all applications. Approved Contractor shall be James

Woerner, Inc., Farmingdale, New York, telephone (631) 454-9330, or specifically approved equal.

- c. The Contractor shall have a licensed New York State Professional Engineer stamp all drawings and complete all applications, and pay for all fees to obtain permits and approvals.

1.05 - NOISE CONTROL

- A. Control noise in accordance with Town and OSHA requirements
- B. Operations which may generate objectionable noise shall be limited to between the hours of 8:00 a.m. to 4:30 p.m. on weekdays.

1.06 - PERFORMANCE BONDS

- A. The Contractor shall obtain, pay for and submit all bonds required in connection with the work.

1.05 – LISTINGS

- A. Equipment and materials for which Underwriters' Laboratories, Inc. (UL) provides product listing service, shall be listed and bear the listing mark. Alternately, ETL Testing Laboratories, Inc. Product Safety Testing Listing is acceptable if the listed product has been tested to the applicable UL Standard.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Requirements for monitoring the quality of the constructed project.
- B. Work of this Section also includes services of an independent testing laboratory for quality assurance testing.
- C. The services of the testing laboratory will be paid for out of the cash allowance included by the Contractor in the price as bid in accordance with the requirements contained herein and in Section 012100 – Allowances.

1.02 - REFERENCES

- A. ASTM C1077 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
- B. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- C. ASTM D4561 - Practice for Quality Control Systems for an Inspection and Testing Agency for Bituminous Paving Materials.
- D. ASTM E548 - Practice for Preparation of Criteria for Use in the Evaluation of Testing Laboratories and Inspection Bodies.
- E. ASTM E699 - Practice for Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee E6.

1.03 - QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or workmanship that is more precise.
- C. Perform work by persons qualified to produce workmanship of specified quality.

- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
- E. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

1.04 - QUALITY ASSURANCE - TESTING LABORATORY

- A. In order to establish compliance with the Contract Documents, materials shall be tested, examined and evaluated before they are incorporated into the work. During and after installations, additional tests, examinations, and evaluations shall be made to determine continued compliance throughout the course of the work.
- B. Testing laboratory shall be a reputable, experienced firm that is capable of performing all of the required testing and authorized to operate in the state in which the project is located.
- C. Perform all sampling and testing in accordance with specified procedures and use the materials, instruments, apparatus, and equipment required by the codes, regulations and standards. Where specific testing requirements or procedures are not described, perform the testing in accordance with all pertinent codes and regulations and with recognized standards for testing.
- D. In the event that samples and test specimens are not properly taken, handled, stored or delivered or if other requirements of this Section are not complied with, Engineer/Architect reserves the right to delegate any or all of this work to others, or to take whatever action deemed necessary to ensure that sampling and testing are properly accomplished, for which all costs shall be borne by Contractor.
- E. Engineer/Architect reserves the right to disapprove the use of a specific testing laboratory, even after prior approval, if the laboratory fails to meet or comply with the requirements of this Section. If this should occur, immediately discharge the testing laboratory and retain the services of a different laboratory acceptable to Engineer/Architect.
- F. The testing laboratory shall meet the following criteria:
 - 1. Be capable of performing all of the required tests.
 - 2. Be regularly engaged in performing the types of services required.
 - 3. Have adequate facilities, materials, equipment, and personnel to perform the services.
 - 4. Have an adequately trained, experienced and qualified staff.

5. Have at least one registered professional engineer licensed in the state in which the project is located who shall be capable of performing field tests, supervising laboratory testing and interpreting test results. The professional engineer shall be thoroughly knowledgeable in materials, soils, asphalt paving and concrete.
6. Shall be able to be on the Project site within two hours after being notified.
7. Comply with the requirements of ASTM C1077, ASTM D3740, ASTM D4561, ASTM E548 and ASTM E699.
8. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.05 – REFERENCE STANDARDS

- A. Conform to reference standards by date that the project was last bid.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 - SUBMITTALS

- A. Within fifteen (15) calendar days from the date of the Notice to Proceed, submit documentation from three (3) testing laboratories that clearly indicates experience, location, qualifications of staff, and descriptions of any limitations or restrictions of the firm.
 1. Include a price schedule for standard tests and a billing rate schedule for technician classifications.
 2. Based upon this information, the Engineer/Architect will select one firm to be the primary testing laboratory and one firm to act as a standby.
- B. Certified copies of each test report shall be mailed directly to the Engineer/Architect. The Contractor shall arrange with the laboratory to secure copies.

- C. Each report shall be in writing and shall include the testing method used, the test results, the specified results, the exact location of where the test specimens were taken, the date taken, Project identification, Contractor's name and other pertinent information required for a complete and meaningful test report.
- D. Each report shall be signed and certified by a responsible officer of the testing laboratory.
- E. Mail reports directly to Engineer/Architect within 24 hours after the sample is taken, except in those instances when tests cannot be immediately performed because of required curing, incubation periods, or lengthy testing procedures.
- F. The laboratory shall verbally communicate test results when requested by the Engineer/Architect. This does not eliminate nor replace the requirements for a written report.

1.07 - SCHEDULING - LABORATORY SERVICES

- A. Except where otherwise specified, the Engineer/Architect will determine the number of samples to be taken, the date and time samples will be taken and tests made, the number and type of tests to be performed, who will collect the samples, how they will be handled and stored and when laboratory personnel are required on site.
- B. Engineer/Architect will notify Contractor of his decision to take samples and/or have tests made and provide him with the pertinent information. Contractor is responsible for notifying the testing laboratory and for having the testing performed, on schedule.
- C. In addition to the above, Contractor shall make his own arrangements for the sampling and testing of materials he proposes to incorporate into the work. This shall not be paid for out of the cash allowance.
- D. Notify Engineer/Architect at least 72 hours in advance of the times at which scheduled samples or tests will be conducted.
- E. If samples and/or tests cannot be taken or performed when required, delay the work until such time that they can be accomplished. Where possible, any work that has been installed but has not been sampled or tested as required, shall be tested by other means. Upon Engineer/Architect's request, uncover any work, which has been buried or covered, and perform special tests designated by Engineer/Architect. If the work cannot be tested by other means, Engineer/Architect may declare the work unacceptable. All costs associated with noncompliance and for special testing shall be borne by the Contractor and not be paid for out of the cash allowance.

- F. Should the testing laboratory be scheduled to take or collect samples or to perform tests, and finds that it is unable to do so as a result of delays in construction, inclement weather, or any other reason, reschedule the tasks for a date acceptable to Engineer/Architect. Costs associated with times testing laboratory is unable to perform scheduled services shall be borne by the Contractor and will not be paid for under the allowance.
- G. Plan all work and operations to allow for the taking and collection of samples and allow adequate time for the performance of tests. Delay the progress of questionable work until the receipt of the certified test reports.

1.08 - TESTING REQUIREMENTS

A. Compaction Testing - Soil:

1. Perform compaction testing in accordance with ASTM D2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) or ASTM D1556 Density and Unit Weight of Soil In Place by the Sand Cone Method.
2. Perform tests and analysis of fill material in accordance with ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb. Rammer and 12-inch Drop.

B. Compaction Testing - Asphaltic Concrete Pavement:

1. Perform asphaltic concrete compaction testing in accordance with ASTM D2950 - Standard Test Method of Density of Bituminous Concrete in Place by Nuclear Methods.
2. Calibrate nuclear density measurement equipment based on theoretical maximum specific gravity of asphaltic concrete pavement material.
3. Perform test to determine theoretical maximum specific gravity in accordance with ASTM D2041 Theoretical Maximum Specific Gravity of Bituminous Pavement Mixtures. Perform test on mix at plant prior to delivery. Collect sample at plant in accordance with ASTM D979 - Sampling Bituminous Paving Mixtures and perform test in approved laboratory if plant does not have necessary equipment.

C. Concrete Testing:

1. Collect samples in accordance with ASTM C172, Practice for Sampling Freshly Mixed Concrete.

2. Make test cylinders in accordance with ASTM C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
3. Test concrete cylinders in accordance with ASTM C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
4. Test slump and air entrainment.

D. Asphalt Testing:

1. Collect samples at point of delivery in accordance with ASTM D979, Standard Practice for Sampling Bituminous Paving Mixtures.
2. Perform extraction test in accordance with ASTM D2172, Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures.
3. Perform gradation test in accordance with ASTM C136, Method for Sieve Analysis of Fine and Coarse Aggregates.

1.09 - TESTING SCHEDULE

A. Compaction Testing of Soil:

1. Pipe Installation: As directed by the Engineer/Architect.
2. Concrete flatwork: As directed by the Engineer/Architect.
3. Pavement subgrade: As directed by the Engineer/Architect.

B. Concrete Testing: Make six (6) concrete test cylinders for each 50 c.y. or fraction thereof.

1. Test two (2) cylinders at 7 days.
2. Test two (2) cylinders at 28 days.
3. The remaining cylinders shall be tested at a time to be determined by the Engineer/Architect. This requirement shall be subject to change as required by the Engineer/Architect.

C. Asphalt Testing: As directed by the Engineer/Architect.

D. Compaction Testing of Pavement: As directed by the Engineer/Architect.

1.10 - FIELD OBSERVATION OF CONTRACTOR'S WORK

- A. The Engineer/Architect will provide periodic observation of the Contractor's work in accordance with the General Conditions of the Contract.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION**3.01 - EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions. Verify that the existing substrate is capable of structural support or attachment of new Work being applied or attached. Examine and verify specific conditions described in individual specification sections. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.02 - PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance. Seal cracks or openings of substrate prior to applying next material or substance.
- B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 - FIELD QUALITY CONTROL

- A. Allow representatives of the testing laboratory access to the work at all time. Provide all equipment, labor, materials, and facilities required by the laboratory to properly perform its functions. Cooperate with and assist laboratory personnel during the performance of their work.
- B. Test specimens and samples shall be taken by the person(s) designated in other Sections, or as directed by Engineer/Architect. Conduct field sampling and testing in the presence of Engineer/Architect. Provide all materials, equipment, facilities and labor for securing samples and test specimens and for performing all field-testing.

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. This Section includes the general requirements for products that are to be furnished, installed, or otherwise incorporated into the project.

1.02 - QUALITY ASSURANCE APPLIES TO ALL PRODUCTS

- A. In addition to the Contractor's warranties and guarantees on materials and equipment required under the General Conditions of the Contract and the Technical Specifications contained hereinafter, the Contractor shall also be responsible for all materials, equipment, and products that have or is planned to be incorporated into the work.
 - 1. The Contractor shall be responsible for the finished work and that it accurately and completely complies with these Contract Documents.
 - 2. The Contractor shall be responsible for work performed by subcontractors, equipment suppliers, and material vendors.
 - 3. The Contractor shall be satisfied as to the product's performance before it is ordered for installation. At the Contractor's option, he/she shall have tested each product to determine compliance with these specifications.
- B. The Engineer/Architect may check all or any portion of the work and the Contractor shall afford all necessary assistance to the Engineer/Architect in carrying out such checks.
 - 1. Such checking by the Engineer/Architect shall not relieve the Contractor of any responsibilities for the accuracy or completeness of the work.
 - 2. Such checking is a courtesy service being provided by the Owner and does not relieve the Contractor of his/her responsibilities under this Construction Contract.
- C. If witnessed shop tests or inspections are required at the point of manufacture, the Contractor shall keep the Engineer/Architect advised as to the progress of the work to allow inspection at the proper time and place. Provide at least two (2) weeks advance notice before scheduled shop tests.
- D. Should a dispute arise as to the quality of workmanship, equipment or material performance, then the final decision regarding acceptability with these Contract Documents shall be that of the Owner.

- E. At the request of the Engineer/Architect, the Contractor shall promptly provide the services of a competent representative of the manufacturer at the project site, fully equipped and prepared to answer questions, perform tests, make adjustments and to prove compliance with the Contract Documents free of all additional charges. Proof of compliance shall be the responsibility of the Contractor, and such special visits to the project site by the manufacturer shall not be eligible under any cash allowances or stipulated man-hours necessary to startup the system and/or train the Owner as may be specified in the Technical Specifications.

1.03 - QUALITY ASSURANCE - EQUIPMENT

- A. Erect and install products under the supervision of a competent and experienced superintendent. The method of installation, including anchorage, clearances, and tolerances for rotating assemblies, methods of support for equipment and adjacent piping, shall be as recommended by the equipment manufacturer unless detailed on the Drawings or specified.
- B. All material furnished shall be new, and guaranteed free from defects in workmanship, installation, and design.
- C. Design and fabricate equipment in conformance with ANSI, ASTM, ASME, ASHRAE, IEEE, NEC and NEMA Standards.
 - 1. Equipment shall withstand the stresses that may occur during fabrication, testing, transportation, installation and conditions of operation.
 - 2. Equipment shall comply with the latest OSHA regulations and the ANSI Safety Standards.
- D. Equipment shall be products of manufacturers who produce evidence of their ability to promptly furnish any and all interchangeable replacement parts as may be needed at any time within the expected life of the equipment.
- E. Manufacturers shall also have readily available access to suitable and accurate testing facilities for performing the required shop tests.

PART 2 - PRODUCTS

2.01 - MATERIALS AND EQUIPMENT

- A. Equipment shall have been in successful regular operation under comparable conditions for a period of at least five (5) years.

1. This time requirement does not apply when the manufacturer posts an Owner/Engineer/Architect acceptable Performance Bond or Letter of Credit for the duration of the time period that will guarantee replacement of the equipment in the event of failure.
 2. The bond shall be in a form that is acceptable to the Owner's legal council.
- B. The Owner reserves the right to reject any material or equipment manufacturer who, although he appears to be qualified and meets the technical requirements, does not provide satisfactory evidence indicating adequate and prompt post-installation repair and maintenance service, as required to suit the operational requirements of the Owner.
- C. Whenever it is required that the Contractor furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable on the market from firms of established good reputation, or, if not ordinarily carried in stock, shall conform to the usual standards for first-class materials or articles of the kind required.
- D. Perform work in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.
- E. Items of any one type of material or equipment shall be the product of a single manufacturer.
1. For ease of the Owner in maintaining and obtaining service for equipment and for obtaining spare parts from as few places as possible, to the maximum extent possible, use equipment of a single manufacturer.
 2. The Engineer/Architect reserves the right to reject any equipment from various manufacturers if suitable equipment can be secured from fewer manufacturers and to require that source of materials be unified to the maximum extent possible.
- F. Substitute equipment shall not be fabricated nor installed until after written decision to accept request is received from the Engineer/Architect.

2.02 - NAMEPLATES

- A. Each unit of equipment shall have the manufacturer's name or trademark on a stainless steel nameplate securely affixed in a conspicuous place.
- B. The manufacturer's name or trademark may be cast integrally with stamp, or otherwise permanently marked upon the item of equipment.

- C. Such other information as the manufacturer may consider necessary for complete identification shall be shown on the nameplate.

2.03 - FABRICATIONS

- A. Insofar as possible, shop prefabricate all items complete and ready for installation.
- B. Accurately fabricate all items to the details shown on the Drawings and on the shop drawings found in compliance with the Contract Documents.

PART 3 - EXECUTION

3.01 - PREPARATION

- A. Prior to work under any Section, carefully inspect the work of all other prime trades and verify that all such work is in conformance with the Contract Documents and is complete to the point where the work under that Section may properly commence.
- B. Avoid the need to remove and replace work and to avoid unnecessary cutting and patching.
- C. Inspect all surfaces to be sure that they have been properly prepared before applying new work to such surfaces.
- D. Verify that all work can be installed in strict accordance with the drawings and the approved shop drawings. Immediately report discrepancies to Engineer/Architect.
- E. Do not proceed with the work under any Section until these conditions are obtained.

3.02 - INSTALLATION

- A. Furnish and install materials and equipment in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise provided in the Contract Documents.
- B. All work shall be done in a workmanlike manner and set to proper lines and grades. The work shall be square, plumb and/or level as the case may be.
- C. Where performance criteria are specified, do all work necessary to attain the required end results.

3.03 - FIELD QUALITY CONTROL

- A. Neither observations by Engineer/Architect nor inspections, tests or approvals by other persons shall relieve the Contractor from his obligations to perform the work in accordance with the requirements of the Contract Documents.
- B. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested or approved by some public body, the Contractor shall assume full responsibility therefore, pay all costs in connection therewith, and furnish the Engineer/Architect with the required certificates of inspection, testing or approval.
- C. The Owner reserves the right to independently perform laboratory tests on random samples of material or performance tests on equipment delivered to the site.
 - 1. These tests, if made, will be conducted in accordance with the appropriate referenced standards or specification requirements.
 - 2. The entire shipment represented by a given sample, samples or piece of equipment may be rejected on the basis of the failure of samples or pieces of equipment to meet specified test requirements.
 - 3. All rejected materials or equipment shall be removed from the site, whether stored or installed in the work, and the required replacements shall be made, all at no additional cost to Owner.

3.04 - ADJUST AND CLEAN

- A. Upon the completion of installations, and as a condition of its acceptance, visually inspect all work, adjust all components for proper alignment and touch-up abrasions and scratches to make them completely invisible.
- B. Thoroughly examine all materials and equipment with protective or decorative finishes for defects and damage prior to being covered.
 - 1. In the case of buried items of work, restore protective surface covers so as to conform to the Contract Documents prior to being backfilled, buried or embedded, as the case may be.
 - 2. In the case of exposed items of work, for which a decorative finish is required, all scratches, discoloration's, unmatched colors, disfigurements and damages shall be repaired and touched-up so as to provide a neat, clean finish, and be uniform in color.

3.05 - DEFECTIVE WORK

- A. The repair, removal, replacement and correction of defective work is a part of this Contract and shall be promptly performed in accordance with the requirements set forth in the General Conditions or other portions of the Contract Documents. All costs in connection with the correction of defective work shall be borne by the Contractor.

- B. Products that fail to maintain the performance or other salient requirements of the Contract Documents, shows undue wear, or other deleterious effects during the maintenance period, shall be considered defective.

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. The Section includes the transportation, handling, storage and protection of products that are to be incorporated into the work.
- B. The procedures for turning equipment over to the Owner for installation by others is also included herein.

1.02 - GENERAL

- A. Items shall be delivered as complete assemblies direct from the manufacturer with all internal wiring, piping, valving, and control devices intact except where partial disassembly is required by transportation regulations, protection of components, or where physical constraints may exist or be created for the setting of the item.
- B. Coordinate the disassembly and reassembly requirements with the manufacturer. Determine the need and extent of reassembly prior to bid.
 - 1. All labor, material and equipment costs associated with the disassembly and reassembly of the product shall be included in the Contract Price.
 - 2. Where reassembly of equipment is necessary, then the manufacturer shall provide reassembly instruction at the project site.
 - 3. A technician shall be present during the entire reassembly procedure and the manufacturer shall certify, in writing, that the unit was reassembled properly in accordance with instructions provided by the manufacturer and that all as-specified warranties remain in effect.
 - 4. The manufacturer's reassembly inspection time shall be in addition to the field service time specified and shall be included in the Contract Price. This time shall not be eligible for payment under any cash allowance item.
- C. In the case where equipment is to be installed by others, then the supplying contractor shall be responsible for it's reassembly. If reassembly is necessary and the unit(s) are to be set inside an enclosure or building, reassemble the equipment inside said enclosure. The equipment once reassembled shall be turned over to the installing contractor as specified below.

1.03 - PACKING

- A. Transport products in containers, crates, boxes or similar means such that the products are protected against damage that may occur during transportation.
- B. All parts shall be packaged separately or in container where parts of similar systems are grouped.
- C. Part numbers shall be indicated on the individual part. Use indelible ink to mark part numbers.
- D. All equipment shipments shall be included with a parts list showing a description (name) of the part and the manufacturer's part number.
 - 1. The parts list shall be shipped in a plastic zippered envelope with the words "Parts List" lettered on it in indelible ink.
 - 2. The parts list shall be placed inside the shipping container so that it is on the top of the contents.
- E. Equipment shall be shipped with storage, handling and installation instructions.
 - 1. The Engineer/Architect reserves the right to withhold payment for equipment delivered to the site until such time as the storage, handling and installation instructions are supplied by the manufacturer.
 - 2. In the case where operation and maintenance manuals have been provided by the manufacturer, which includes the installation instructions, then the installation instructions shall also be included with the equipment shipment.
- F. Delicate instruments and devices, reagents, chemicals, and glassware shall be shipped in packaging normally provided by the manufacturer.
- G. The Contractor shall require the manufacturer to be responsible for the proper packing of all products.

1.04 - SHIPPING AND DELIVERY

- A. Product deliveries shall be accompanied with a bill of lading indicating the place of origination and the Contractor's purchase order number.
- B. Inspect shipments immediately upon delivery, to assure compliance with requirements of the Contract Documents and those products are undamaged.

- C. Promptly remove damaged material and unsuitable items from the job site.
- D. Provide equipment and personnel to handle products by methods to prevent soiling; disfigurement or damage.

1.05 - STORAGE

- A. Store sensitive products and all spare parts in weather tight, climate controlled enclosures in an environment favorable to product.
- B. Store and protect products in accordance with the manufacturer's instructions.
- C. All other products that are to be installed underground or products such as pipe, valves, and fittings shall be stored outdoors but shall be blocked off the ground and covered with impervious sheet coverings.
- D. Store fabricated products above the ground on blocking or skids.
- E. Store loose granular materials in well-drained areas on solid surfaces to prevent mixing with foreign matter.
- F. Provide adequate ventilation to avoid condensation.
- G. In accordance with manufacturer's instructions protect bearings, couplings, shafts, rotating components, and assemblies. Protection of said equipment shall be continuous until the time the equipment is placed into permanent service.
- H. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.
- I. Do not store volatile liquids in any building on site.
- J. Storage of products shall be the responsibility of the supplying contractor. The installing contractor shall take all necessary precautions to protect the equipment being furnished by others.
- K. Store with seals and labels intact and legible.

1.06 - EQUIPMENT INSTALLED BY OTHERS

- A. All products, except products noted on the Drawings or specified, shall be furnished and installed under this Contract.
 - 1. Only noted or specified products shall be furnished under this Contract for installation by others.
 - 2. If it is not noted on the Drawings or specified, then the product shall be furnished and installed under the Contract.
- B. The Contractor shall furnish these products to the Owner. These products shall be stored as specified above.
- C. The Owner will then advise the installing contractor that the product(s) are ready for installation.
 - 1. In the case where the product is stored in a proper enclosure, but not stored inside the building to be constructed under this project, then the installing contractor shall move the product into the building to a location adjacent to the final location shown on the Drawings.
 - 2. In all cases, the installing contractor shall be responsible for moving from storage, uncrating, anchoring, mounting and installing the product as required by the Contract Documents.
- D. The Contractor and installing contractor(s) shall be present at the time the equipment is turned over to the Owner. Immediately thereafter, the Owner will turn the product over to the installing contractor for installation.
- E. The Owner, Contractor, Engineer/Architect and the installing contractor shall inspect the condition of the product at this time.
 - 1. Any defects in the product will be noted and the Contractor will be advised to make all repairs immediately.
 - 2. The installing contractor shall still be required to install the product if the damage is deemed cosmetic by the Engineer/Architect.
 - 3. The manufacturer's installation instructions or wiring diagram shall be turned over to the installing contractor at this time by the Contractor.
 - 4. Any damage occurring to the product during moving, setting and mounting the unit(s) shall be the responsibility of the installing contractor.

5. The Contractor is advised to take photographs to document the condition prior to it being turned over to the installing contractor.
 6. The installing contractor is advised to take photographs to document the condition prior to its acceptance.
- F. The supplied unit(s) remain the property of the Contractor until final acceptance of the work.
- G. Any damage caused to the unit(s) due to improper installation, workmanship, and non-compliance with the manufacturer's written installation instructions shall be the responsibility of the contractor who caused said damage. The burden of proof shall rest with the supplying Contractor.
- H. In the event the Contractor discovers misuse, abuse or improper installation of the unit(s) by the installing contractor, then he shall immediately notify the Engineer/Architect in writing. The Engineer/Architect will investigate the accusations and make a determination. The Engineer/Architect's determination shall be binding and agreed to by both parties.
- I. If the Engineer/Architect's determination substantiates the accusations of the Contractor, then the Contractor shall install the unit(s), the costs for which will be paid for as extra work. All costs associated with the extra work change order, including engineering/architectural and attorney fees of the Owner and Contractor will be deducted from money due the installing contractor.

1.07 - PROTECTION OF WORK

- A. The Contractor shall protect the installed work. All costs for protection shall be borne by the Contractor. Provide coverings as necessary to protect installed products from damage, from traffic and subsequent construction operations. Remove when no longer needed.
- B. Cover and protect equipment from dust, moisture or physical damage. Protect finished floor surfaces prior to allowing equipment or materials to be moved over such surfaces. Maintain finished surfaces clean, unmarred and suitably protected until accepted by the Owner.
- C. Additional time required to secure replacements and to make repairs will not be considered by the Engineer/Architect to justify any extension in the Contract Time of Completion. In the event of the damage, promptly make replacement and repairs to the approval of the Engineer/Architect at no additional costs.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

|

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Work of this Section includes the following:
 - 1. Starting systems
 - 2. Testing, adjusting, and balancing
 - 3. Updating of manufacturer's operations and maintenance manuals and wiring diagrams

1.02 - STARTING SYSTEMS

- A. The Contractor shall coordinate, schedule, and sequence the start-up of various equipment and systems.
- B. Where the start-up of a system or piece of equipment is dependent upon the start-up of other system(s) or equipment, then the Contractor shall schedule and sequence the start-ups to coincide.
- C. Notify the Engineer/Architect/Architect at least 14 calendar days prior to the start-up of each item or system so that he can schedule the startup with the Owner, utilities, and other Prime Contractors.
- D. Verify that each piece of equipment or system has been checked for proper:
 - 1. lubrication,
 - 2. drive rotation,
 - 3. motor starter heater size,
 - 4. fuse size,
 - 5. terminal connections,
 - 6. For conditions which may cause damage or delay the start-up procedure.
- E. Verify that the equipment has been installed in accordance with the manufacturer's requirements.
- F. Complete all pre-startup checklists that may be required by the system vendor.

1. In the event that start-up activities are delayed as a result of the Contractor's failure to properly check the completed installation and a manufacturer's representative is on the job site waiting for corrections to be made, then the Engineer/Architect/Architect may, at his/her sole discretion, postpone start-up until such time as the corrections have been made without any extra costs.
 2. The Owner may deduct from money due the Contractor the excess cost of Engineer/Architecting and/or architectural services associated with having the Engineer/Architect/Architect present during the start-up.
 3. The deduction shall be equal to the Engineer/Architect/Architect's effective billing rate times the total number of hours delayed during the start-up activities.
- G. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- H. Verify that wiring and support components for equipment are complete and tested.
- I. Execute start-up under supervision of applicable Contractor's personnel in accordance with manufacturer's instructions.
- J. The Contractor shall have the job site superintendent present during all start-up activities.
- K. Provide manufacturer's authorized technician at the site when specified and in accordance with the requirements contained in Section 014500 - Quality Control.
- L. Submit manufacturer's start-up reports (MSR's) in accordance with Section 013300.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SUBMITTALS**

- A. Submit the following documents to the Engineer/Architect before Substantial Completion:
1. Operations and Maintenance Manuals prepared in accordance with Section 017823 and be updated as a result of start-up activities.
 2. Manufacturer's Start-up Reports (MSR's) for all equipment and systems where manufacturer field time is specified.
 - a. Each MSR shall be signed by the field technician(s) who attended the start-up.
 - b. If the manufacturer is taking exception to the installation or if the warranty is voided, he shall provide a statement to that effect and provide reasons and justification to explain the company's position.
 3. One binder containing original counterparts of all warranties, guarantees, bonds, or affidavits as specified in the Technical Specification Sections. These documents shall contain the original signatures and be placed in a plastic sheet protector, one document per protector.
- B. Submit the following items to the Engineer/Architect with the final application for payment:
1. Final Payment approved by the Engineer/Architect for Contractor's execution showing final amount of Contract including change orders.
 2. Maintenance Bond prepared in accordance with the Contract or General Conditions.
- C. All documents shall be complete, signed, dated, and notarized (where applicable) and be subject to the Engineer/Architect's acknowledgment of receipt or approval.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. This Section specifies the requirements for Operations and Maintenance Manuals required to be prepared by system suppliers and equipment manufacturers.
- B. The Contractor shall submit Operations and Maintenance Manuals for all equipment.
- C. Where the technical specifications call for the submission of manuals, said manuals shall be prepared in accordance with the requirements contained herein. Manuals shall be submitted for all equipment even if it is not specifically called out in the specifications.

1.02 - MANUAL CONTENTS AND FORMAT

- A. All Operations and Maintenance Manuals shall be as specified hereinafter.
- B. The binder shall be 8 1/2" x 11", metal hinge, vinyl, large capacity. It shall show the name of the manufacturer or supplier and project name on the spine of the binder.
- C. A cover shall be provided showing the names of the Owner, Engineer/Architect, Contractor, and Manufacturer.
 - 1. It shall show the Contractor's order number and manufacturer's project number.
 - 2. The address of the manufacturer, service station telephone number, project title, contract number, and year shall also be shown.
- D. Provide tabbed color dividers for each separate product and system.
 - 1. The name of the product shall be typed on the tab.
 - 2. A separate tab shall also be provided for information such as troubleshooting instructions, spare parts list, etc.
- E. An index shall be provided in the back of the binder, with a separate tab, providing a quick way for the operator to find key and important topics contained in the manual.
- F. A separate listing for all charts, graphs, tables, figures and shop drawings shall be provided directly following the table of contents.
- G. Each manual shall contain one (1) copy of all shop drawings deemed in compliance with the Contract Documents by the Engineer/Architect submitted for the equipment or system for which the manual is prepared.

1. Only these shop drawings shall be included in the manual.
 2. All shop drawings larger than 8 1/2" x 11" shall be folded and placed in a heavy duty, top loading plastic sheet protector with the title of the drawing showing; one (1) drawing per protector page.
- H. For systems being furnished with control panels or motor control center, each manual shall contain a catalog cut for every electrical device installed inside the control panel or motor control center.
- I. Where manuals are prepared for treatment systems for water or wastewater, a process chapter, written in plain language for the operators, shall be prepared by the manufacturer providing the following:
1. A general discussion regarding the theory of the process.
 2. A specific discussion relating the theory to the project as designed and constructed. Provide capacities, sizes, loading rates, application criteria, design values, and design assumptions.
 3. Provide model numbers for equipment comprising the system.
 4. Provide figures, tables, and graphs to assist the operator in understanding the operation of the treatment system.
 5. Where operator interfaces are provided, provide step-by-step instructions for changing a process control variable such as set points.
 - a. The instructions shall be numbered and written such as "press", "hold" "scroll", etc.
 - b. Each operator interface instruction sheet shall be laminated and placed in the binder.
 - c. Another laminated sheet shall be provided and placed inside the control panel.
- J. Each manual shall contain the following as a minimum:
1. Table of contents
 2. Final version of the warranty statement approved by the Engineer/Architect
 3. Nameplate data of each component, year of installation, contract number and specification number
 4. Name, address and telephone number of the manufacturer and the manufacturer's local representative(s)

5. Installation instructions
 6. Operation instructions including adjustments, the interrelation of components and the control sequence describing break-in, start-up, operation and shutdown
 7. Emergency operating instructions and capabilities
 8. Maintenance requirements include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair and reassembly instructions; and alignment, adjusting, balancing, and checking instructions
 9. Troubleshooting guide and corrective maintenance (repair) procedures for all electrical and mechanical equipment. These guides shall list the most frequent and common problems, together with the symptoms, possible causes of the trouble, and remedies
 10. Drawings (pictures or exploded views) which clearly depict and identify each part, suitable for assembly and disassembly of entire system and each component
 11. Wiring and control diagrams, if applicable
 12. Panelboard circuit directories including electrical service characteristics, if applicable
 13. Part list with current prices; ordering information; and recommended quantities of spare parts to be maintained in storage
 14. Charts of valve tag numbers, with location and function of each valve, keyed to the process and instrumentation diagram prepared as part of the Contract Documents
 15. Name, address, and telephone number of nearest parts supply house and nearest authorized repair service center.
 16. List of recommended spare parts and the recommended number of each per unit and per group of units.
- K. Submit one electronic copy of a preliminary draft manual at least fourteen (14) calendar days prior to the date set for start-up.
1. The Engineer/Architect will review the manual for content and compliance with these specifications.
 2. Written comments will be provided, but the manual will not be returned.
 3. Manual will be used at start-up, to record changes that should be made to the final manual.
- L. Two (2) weeks after the date the unit was placed into service and the Owner has gained beneficial use, submit two (2) hard copies and one electronic copy of the final updated

Operations and Maintenance Manual. Refer to Section 017500 - Starting and Adjusting for requirements related to updating the manual(s).

- M. Where installation instructions are not included with the manual, they shall be shipped at least ten (10) days prior to the date the equipment is scheduled for installation.

1.03 - RETAINAGE

- A. The Engineer/Architect will retain from payment due the Contractor, for failure to submit manuals as specified, an amount equal to 5% of the scheduled value for the equipment or system for which the manual applies. This Contract requirement only applies when a manual is specified to be provided in the Technical Specifications for a particular system or piece of equipment.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Maintenance of Documents
- B. Recording of Record Information
- C. Submittal of Record Documents

1.02 - PLANS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR

- A. One (1) complete set of Contract Documents shall be kept on site at all times.
- B. One (1) complete set of Contract Documents in AutoCad 2008, or newer, digital format shall be provided for the Contractor's use to create as-built drawings.

1.03 - MAINTENANCE OF DOCUMENTS

- A. Maintain, at job site, one (1) copy of:
 - 1. Contract Plans.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Approved Submittals.
 - 5. Change Orders.
 - 6. Field Test Records.
 - 7. Correspondence File.
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

- G. At close of project, turn over field office file to Engineer.

1.04 - RECORDING OF RECORD INFORMATION

- A. The contractor shall be required to keep accurate record drawings, in hard copy format, as well as Autocad 2008 or newer digital format, of the work actually performed which is in accordance with the contract documents and that which deviates from them.
- B. As work progresses, the contractor shall maintain an on the field set of hard copy drawings, a complete and accurate set of field notes clearly delineating all work as it is actually installed. This set of drawings shall be available at all times for the engineer to review and shall be examined at all jobsite meetings.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Concurrent with each submission of a contractor partial payment requisition, the contractor shall submit a paper copy of up to date record drawings, including the latest corrections. Incomplete or inaccurate record drawings will be sufficient grounds for refusal to process payment requisition.
- E. Final record drawings shall be hard copy format and AutoCad 2008 or newer digital format, 24" x 36", completed by a competent draftsman or CAD operator with the following information as a minimum:
 - 1. Complete and accurate listing of all imbedded and underground conduits. Drawings shall accurately show all exact locations of conduits including horizontal and vertical dimensions and explicitly list all conduits and fix their location off of building structures or monuments. Imbedded conduits shall include those below the floor slab and those installed in building walls.
 - 2. Complete and accurate listing of all exposed conduits.
 - 3. In a neatly logically organized table, a complete listing of all conduits with each individual conduit being given its own number and each junction or pullbox being given its own designation. This table shall list the starting and ending point of all major home runs along with all branch conduits and conduits main function.
 - 4. In a neatly logically organized table a complete listing of all conductors within the conduits listed above. Each conductor table shall individually list the conductors installed within each conduit and for each conductor shall designate the starting point or termination, complete path through all conduits and junction boxes, final point or

termination, conductor color or marking and circuit function. This shall be done for each conductor installed through the project.

5. An accurate frontal elevation drawing of all motor control centers, control centers other major equipment installed. Drawings shall show all devices as installed in door or faces of equipment.
 6. A dimensioned drawing of all equipment installed including generator sets, load banks, transformers and all major equipment.
 7. Field changes of dimension and detail.
 8. Changes made by Change Order.
 9. Clarification plans not on original contract.
- F. At final contract closeout engineer will review preliminary set of final record drawings. After approval of this submission, the contractor will be required to submit one (1) set of hard copy, 24" x 36" drawings and one (1) digital CD-ROM disc including all as-built drawings in AutoCad 2008 or newer format as detailed above. No portion of the line item bid amount in the proposal for the record drawings will be released until final record drawings have been submitted and approved. No exceptions.

1.05 - SUBMITTAL OF RECORD DOCUMENTS

- A. At completion of project prior to the final project close-out meeting, deliver marked-up record documents to the Engineer.
- B. Accompany submittal with transmittal letter, containing:
 1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. Title and number of each record document.
 5. Certification that each document as submitted is complete and accurate.
 6. Signature of Contractor or its authorized representative.

- C. Upon completion of the work, Contractor shall prepare and furnish the Engineer a set of marked up prints of the as-built drawings for review, with all changes conspicuously circled or otherwise emphasized.
- D. Prior to final payment, Contractor shall conform the drawings to the comments made by the Engineer and then provide the Owner a complete reproducible set of as-built drawings on 24" x 36" paper and a set in digital CD-ROM AutoCad 2008 or newer format.
- E. As-built drawings shall be the same size as the contract drawings, with 1/2 inch margins space on three sides and a 2 inch margin on the left side for binding. Each drawing shall bear the legend "AS-BUILT" and the name of the Contractor in heavy black lettering 1/2 inch high and be certified as complete and accurate.
- F. As a convenience, Engineer will make available to the Contractor electronic media of the contract drawings for the sole purpose of the Contractor preparing as-built drawings. Electronic media made available is without guarantee of compatibility with the Contractor's software or hardware. If the Contractor wishes to take advantage of this offer, the Contractor will be required to execute an indemnification and hold harmless agreement with the Engineer and pay the Engineer \$20.00 per contract set to cover the cost of providing electronic media. Payment shall be by check, payable to Holzmacher, McLendon & Murrell, P.C., in advance of picking up the requested materials. Electronic media shall be returned to the Engineer upon acceptance of the as-built drawings by the Owner.

1.06 - WARRANTIES

- A. Provide notarized copies.
- B. Execute and assemble documents from subcontractors, supplier and manufacturers.
- C. Provide Table of Contents and assemble in binder.
- D. Submit for all items specified standard manufacturer/fabricator/supplier warranties unless otherwise noted.
- E. Submit prior to final application for payment.
- G. For items of work delayed beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.07 - SURETIES, BONDS AND RELATED DOCUMENTS

- A. Provide to the Engineer a maintenance bond in the amount of 100 percent of the final contract amount effective for one (1) year from date of substantial completion, unless noted otherwise in these specifications.
- B. Provide to the Engineer a labor, material and payment bond in the amount of 100 percent of the final contract amount effective for one (1) year from date of substantial completion, unless noted otherwise in these specifications.
- C. Provide Underwriter Certificate approving electrical work and associated equipment provided under this contract.
- D. Provide certificate of release of liens.
- E. Provide certificate for payment of debts and claims.

1.08 - SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.
- B. Deliver to project site and place in location as directed by Owner; obtain receipt prior to final payment.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Work of this Section includes the requirements for demonstrating and training of installed systems, equipment, and products.
- B. Manufacturer field services and the credit for unused service time is also included herein.

1.02 - MANUFACTURER'S FIELD SERVICES

- A. When field services are required as specified in individual specification sections, said services shall be provided by qualified, authorized and factory trained representative(s) of the manufacturer (supplier).
- B. Field services shall generally consist of:
 - 1. installation supervision,
 - 2. verify terms of the manufacturer's warranty,
 - 3. equipment and system calibration,
 - 4. startup supervision,
 - 5. and operation and maintenance instructions to the Owner's employees.
- C. Such services do not include service time to correct a factory fault, correct problems resulting from a factory wiring or control logic error, or errors caused by poor or improper installation by the Contractor.
- D. Sale representatives are not acceptable.
- E. The time specified to be provided under the specification sections shall be exclusive of travel time to and from the facility or site. For the purposes of this Contract, one (1) day shall be defined as eight (8) hours exclusive of breaks or mealtime.
- F. The times specified to be provided by the manufacturer does not relieve the manufacturer from providing sufficient service time to place the equipment or systems into satisfactory operation and to obtain the specified performance. The manufacturer shall provide, as a minimum, the times specified in the Specification Sections.
- G. If for any reason, the specified service days are not used, then the Owner shall receive a credit equal to **\$500.00 (FIVE HUNDRED DOLLARS AND ZERO CENTS)** for each unused field

service day specified. The Contractor shall include, as a minimum, **\$2,000 (TWO THOUSAND DOLLARS AND ZERO CENTS)** in the amount bid for manufacturer supplied field service for equipment furnished and installed under Contract V.

- H. A change order to the Contract reducing the Contract Price, by the dollar amount equivalent to the unused field service days, will be issued.
- I. Submit manufacturers' startup reports (MSR's) in accordance with the requirements contained in Section 013300 - Submittals.

1.03 - SUBMITTALS

- A. The Contractor shall prepare a list of all manufacturer specified field time required by the technical specifications. Compile this summary listing and submit it to the Engineer/Architect for review in accordance with the requirements contained in Section 013300.
- B. Manufacturer's Startup Reports

1.04 - QUALITY CONTROL

- A. The Contractor shall adhere to all instructions provided by the manufacturer's authorized representative.
- B. All verbal instructions necessary to satisfy performance of the equipment or the system shall be immediately provided by the Contractor. The manufacturer shall document all verbal orders in writing at a time suitable to the Contractor.
- C. All written instructions provided in operation, maintenance, and installation guides and manuals, provided by the manufacturer of such equipment and or system, shall be complied with by the Contractor.
- D. The Contractor shall comply with all manufacturer requirements such that written or implied warranties remain in full force during the time period so specified elsewhere in the technical specifications.
- E. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.
- F. Actions and/or non performance by the Contractor that may void manufacturer warranties shall not constitute a release of the specified warranty, and all warranty claims made by the Owner shall be paid for by the Contractor as if the manufacturer's warranty was still in effect.

1.05 - SCHEDULING - FIELD SERVICES

- A. The Contractor shall arrange field service on dates acceptable to the Owner and Engineer/Architect.
- B. The service visits shall be scheduled at least two (2) weeks in advance so that the Owner and Engineer/Architect can adequately staff the date.
- C. Operator training will not be allowed until such time as the Manufacturer's Operation and Maintenance Manuals have been supplied and approved by the Engineer/Architect.
 - 1. The field service technician shall review the contents of the manual with designated employees of the Owner.
 - 2. Field services will not be deemed provided until the MSR is provided.

1.06 - DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel prior to date of Substantial Completion.
- B. Utilize manufacturer's and vendor's Operation and Maintenance Manuals as basis for instruction. Review contents of the manual with the Owner's personnel in detail to explain all aspects of operation and maintenance.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of the equipment or of the system.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- E. The Contractor shall arrange to have the manufacturer's Operation and Maintenance Manuals updated with information that has been added during start-up activities.
- F. The final manual shall contain the most recent information and reflect all operational and maintenance aspects of the final installed and functioning system or equipment component of the system.
- G. Any changes to control panel wiring diagrams or interconnection wiring schematics shall be made and new prints provided as an update to previously approved manuals.
- H. Manufacturer field time shall be as specified in individual Sections of the Technical Specifications.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 030000 - CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Formwork, shoring, bracing and anchorage.
- B. Concrete reinforcement and accessories.
- C. Cast-in-place concrete, equipment pads.
- D. Concrete curing and finishing.
- E. Grout.

1.02 REFERENCES

- A. ACI 301 - Specifications of Structural Concrete for Buildings.
- B. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- C. ACI 305 - Hot Weather Concreting.
- D. ACI 308 - Standard Practice for Curing Concrete.
- E. ACI 318 - Building Code Requirements for Reinforced Concrete.
- F. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A615 - Deformed and Plain Billet-Steel for Concrete Reinforcement.
- H. ASTM A775 - Epoxy-coated reinforcing steel bars.
- I. ASTM C33 - Concrete Aggregates.
- J. ASTM C94 - Ready-Mixed Concrete.
- K. ASTM C150 - Portland Cement.
- L. ASTM C260 - Air Entraining Admixtures for Concrete.
- M. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- N. ASTM C494 - Chemical Admixtures for Concrete.
- O. ASTM C618 - Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
- P. ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.
- Q. ASTM D2103 - Polyethylene Film and Sheeting.
- R. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.

1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate reinforcement sizes, spacings, and locations of reinforcing steel and wire fabric, bending and cutting schedules, splicing, and supporting and spacing devices. Indicate formwork dimensioning, materials, arrangement of joints and ties.
- C. Design Data: Provide a concrete mix design for each type of concrete to be utilized on the project prior to commencement of work. The Contractor's testing laboratory shall develop concrete mix designs and test all materials and mixes for conformance with these specifications. The costs associated with development of the design mix and testing of samples shall not be paid out stipulated cash allowance and shall be included in the bid price.
- D. Furnish the Engineer's field representative with transit-mix delivery slips.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Maintain one copy of document on site.
- C. Concrete Testing Service: Engage a testing laboratory acceptable to the Architect/Engineer to perform material evaluation tests and to design concrete mixes under provisions of Section 014500.
- D. For each mix proposed, make and cure four (4) standard 6 inch concrete test specimens in the lab in accordance with ASTM C192. Furnish compression test results made in accordance with ASTM C39. Break two (2) cylinders at seven (7) days and two (2) at twenty-eight (28) days.

1.05 QUALIFICATIONS

- A. Prepare shop drawings under seal of professional structural engineer licensed in the state in which the project is located.

1.06 REGULATORY REQUIREMENTS

- A. Conform to ACI 304 and all applicable codes for placement of concrete and related work.

1.07 COORDINATION

- A. Coordinate work prior to commencement of work.
- B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors and other inserts.
- C. Notify Engineer minimum 72 hours prior to commencement of concreting operations.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Conform to ACI 301.

- B. Plywood Forms: Douglas Fir species; solid one side grade; sound undamaged sheets. Thickness of wood shall be as required to support weight of concrete with minimal deflection.
- C. Steel Forms: Minimum 16 gage (1.5 mm) thick, stiffened to support weight of concrete with minimum deflection.
- D. Tubular Column Type Forms: Round, spirally wound laminated fiber material; inside surface treated with release agent.
- E. Form Ties: Snap-off metal, of fixed length, cone ends.
- F. Reinforcing: ASTM A615, 60 ksi (414 MPa) yield grade billet steel deformed bars; uncoated; size and dimensions as indicated on the plans.
- G. Welded Steel Wire Fabric: Plain type, ANSI/ASTM A185; in flat sheets; size and dimensions as indicated on the plans.
- H. Cement: ASTM C150, Type I - Normal.
- I. Fine and Coarse Aggregates: ASTM C33.
- J. Water: Clean and not detrimental to concrete.

2.02 ACCESSORIES

- A. Air Entraining Admixture: ASTM C260.
- B. Chemical Admixture: ASTM C494, Type as required.
- C. Bonding Agent: Polymer resin emulsion manufactured by SPECCO INDUSTRIES, INC., or specifically approved equal.
- D. Vapor Barrier: ASTM D2103, 6 mil (0.15 mm) thick clear polyethylene film.
- E. Non-Shrink Grout: Premixed compound with non-metallic aggregate, cement, water reducing and plasticizing agents; capable of minimum compressive strength of 2400 psi (16.5 MPa) at 48 hours and 7000 psi (48.3 MPa) at 28 days.
- F. Expansion Joints: ASTM D1751; 1/2 inch (13 mm) thick asphalt impregnated fiberboard or felt.
- G. Form Release Agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete; manufactured by SPECCO INDUSTRIES, INC. or specifically approved equal. Agent shall not be detrimental to the environment.
- H. Sealant: ASTM D1190; hot applied rubber compound manufactured by THE BURKE COMPANY or specifically approved equal.
- I. Absorptive Mat: Burlap-polyethylene, 8 oz/sq yd (270 g/sq m), bonded to prevent separation during use.
- J. Membrane Curing Compound: ASTM C309, Type 2, Class A.
- K. Clear Sealer: Siloxane type; manufactured by THE BURKE COMPANY or specifically approved equal.

2.03 MIXES

- A. Mix concrete in accordance with ASTM C94, Alternative No. 2, to achieve the following:
 - 1. Compressive Strength (28 day): 4,000 psi
 - 2. Slump:
 - a. 3 +/-1 inches (initial/conventional mix)
 - b. 7 +/-1 inches (final/pump mix)
 - 3. Air Entrainment: 5 ½ +/-1 percent
 - 4. Water/Cement Ratio: 0.50 maximum
 - 5. Large Aggregate: ¾" crushed stone, ASTM C33, No. 67
- B. Use admixtures only when approved by the Engineer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions prior to commencement of work.
- B. Verify lines, levels, and measurement before proceeding with formwork. Ensure that dimensions agree with the plans.

3.02 PREPARATION

- A. Hand trim sides and bottom of earth forms; remove loose dirt.
- B. Align form joints.
- C. Do not apply form release agent where concrete surfaces are to receive special finishes or applied coatings which may be affected by the agent.
- D. Where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrinking grout.
- E. Prepare previously placed concrete by cleaning with steel brush and apply bonding agent in accordance with manufacturer's instructions.

3.03 INSTALLATION

- A. Place, support, and secure reinforcement against displacement at the locations and to the dimensions as indicated on the plans.
- B. Use reinforcing splices at a minimum of locations and only at locations of minimum stress. Review locations of splices with Engineer.
- C. Splice overlap shall be a minimum length of 40 diameters.
- D. Ensure reinforcement, inserts, embedded parts, formed joint fillers, joint devices and waterstops are not disturbed during concrete placement.
- E. Install joint fillers in accordance with manufacturer's instructions.
- F. Extend joint filler from bottom of slab to within 1/2 inch (13 mm) of finished slab surface.
- G. Install joint devices in accordance with manufacturer's instructions.

- H. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.
- I. Place concrete continuously between predetermined expansion, control and construction joints.
- J. Do not interrupt successive placement; do not permit cold joints to occur.

3.04 INSTALLATION - SLABS

- A. Place slabs in checkerboard pattern.
- B. Saw cut control joints at an optimum time after finishing. Cut slabs with 3/16 inch (4.8 mm) thick blade, cutting 1/4 of depth of slab thickness.
- C. Separate slabs on grade from vertical surfaces with joint filler. Extend joint filler from bottom of slab to within 1/4 inch (6 mm) of finished slab surface.
- D. Steel trowel all surfaces except as noted.
- E. Cure floor surfaces in accordance with ACI 308.
- F. Apply curing compound in accordance with manufacturer's instructions in 2 coats with second coat at right angles to the first.

3.05 TOLERANCES

- A. Equipment Pads: Provide Class B tolerance to floor slabs according to ACI 301.

3.06 FIELD QUALITY CONTROL

- A. Field inspection and testing of concrete will be performed under provisions of Section 014500.
- B. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301.
- C. Four concrete test cylinders will be taken for every 50 cu yds, or fraction thereof, for each class of concrete placed each day.
- D. One additional test cylinder will be taken during cold weather and be cured on site under same conditions as concrete it represents.
- E. One slump test will be taken for each set of test cylinders taken.

3.07 PROTECTION

- A. Protect finished work until completion of project.
- B. Protect concrete from damage and deformation until project is accepted by the Owner.

3.08 SCHEDULE: CONCRETE FINISHES

- A. Equipment Pads: Broom finish, trim edge.

B. All Other Finishes: Steel trowel surface, unless otherwise noted.

END OF SECTION

SECTION 104416 - FIRE EXTINGUISHERS AND CABINETS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.

1.02 REFERENCES

- A. ANSI/NFPA 10 - Portable Fire Extinguishers.
- B. UL 299 - Dry Chemical Fire Extinguishers.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.

1.04 OPERATION AND MAINTENANCE DATA

- A. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable code.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. ANSUL, SENTRY 10 model: AA10S1
- B. Or approved equal.

2.02 EXTINGUISHERS

- A. Extinguisher: Class A, B, C carbon dioxide, Sentinel, 10 lbs.
- B. Quantity: Refer to Contract Drawings.
- C. Provide wall bracket for interior applications. Provide lockable weatherproof enclosure for exterior applications.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install brackets/enclosures plumb and level.

C. Secure rigidly in place.

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Basic Mechanical requirements specifically applicable to Division 22 Sections, in addition to the General Requirements.
- B. Furnish all tools, machinery, equipment, scaffolding, appurtenances and appliances necessary for the satisfactory handling and execution of the work.
- C. Keep the premises free from accumulations of waste material and rubbish caused by machines, material, employees or work. Place waste and rubbish in neat piles or in containers outside of the building as directed. Cooperate with all the other trades appurtenant to this work. At the completion of his work, remove all tools, scaffolding and surplus material.

1.02 - REFERENCES

- A. ASME American Society of Mechanical Engineers
- B. ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineers.
- C. AGA American Gas Association.
- D. ANSI American National Standards Institute.
- E. ARI American Refrigeration Institute.
- F. ASTM American Society for Testing and Materials.
- G. AWWA American Water Works Association.
- H. MSS Manufacturer's Standardization Society of the Valve and Fitting Industry.
- I. NEMA National Electrical Manufacturers' Association.
- J. NFPA National Fire Protection Association.
- K. SMACNA Sheet Metal and Air Conditioning Contractors' National Association.
- L. UL Underwriters' Laboratories, Inc.

1.03 - SUBMITTALS

- A. Approval by the Architect/Engineer of the layouts and shop drawings for any material, apparatus, devices and layouts shall not relieve Contractor from the responsibility of furnishing same of proper dimensions, size, quantity, quality and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Such approval shall not relieve Contractor from the responsibility for errors of any sort on the shop drawings. If the shop drawings deviate from the Contract Documents, the Contractor shall advise the Architect/Engineer of the deviations in writing accompanying the initial submission shop drawings, and including the reasons for the deviations.
- B. Submit under provisions of the General Requirements.
- C. Submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal.

1.04 - RECORD DRAWINGS

- A. Keep master set of prints on job site for recording deviations from the Drawings as specified in the General Requirements.

1.05 - WARRANTY AND SERVICE

- A. Provide manufacturer warranties.
- B. Provide warranty services for all installed equipment.

1.06 - REGULATORY REQUIREMENTS

- A. Applicable Building Code, including Mechanical and Plumbing Codes.
- B. Obtain permit and request inspections from Authority Having Jurisdiction.
- C. Equipment shall bear the U.L or National Board label.

1.07 - PROJECT/SITE CONDITIONS

- A. Mechanical layouts indicated on the Drawings are diagrammatical. Coordinate mechanical work with other trades prior to installation. Install work in locations shown on the Drawings, unless prevented by project conditions.
- B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other sections.

- C. Cause as little interference or interruption of existing utilities and services as possible. Schedule work which will cause interference or interruption in advance with Owner and Architect/Engineer, Authorities Having Jurisdiction, and all affected trades.
- D. Determine sizes and verify locations of existing utilities on or near site.
- E. Visit site and be informed of conditions under which work must be performed.
- F. Install equipment in accordance with manufacturer's recommendations.

1.08 - INTENT OF SPECIFICATIONS AND DRAWINGS

- A. It is the intent of the Specifications and the Drawings to describe the nature and extent of the work to be performed and the character of the material to be used to include all material, equipment, apparatus and devices, even if not specifically described in the specifications or shown on the Drawings, which can be reasonably inferred to be necessary for the control and operation of the work installed and/or for which the necessity is established by any governmental and/or insurance rules and regulations in effect at the time of bid opening.
- B. The Drawings showing the layouts of piping, heating, ventilating and air conditioning work, apparatus, accessories and duct systems are diagrammatic, except where specifically located by dimensions. All apparatus shall be located and all pipes and ducts run in the manner and locations shown thereon as closely as conditions of construction of the building will permit. Deviations shall be made only with the consent of the Architect/Engineer and/or Owner and without additional charge.
- C. Accessibility: Install equipments and materials in order to provide the required access for servicing and maintenance. Coordinate the final location of concealed equipment and devices requiring access with final location of required access panels and doors. Allow ample space for removal of all parts that require replacement or servicing.
- D. Rough-In: Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- E. Refer to the architectural drawings and those of other trades for items such as space conditions and locations of work under separate contracts.

1.09 - DAMAGE TO OTHER WORK

- A. This Contractor shall be responsible for, and be required to make good at his own expense, any and all damage done to the Owner's property and/or to any work or material in place in the premises, which is caused by his work or workers.

1.10 - COORDINATION WITH OTHER WORK

- A. Coordinate work with the other contractors in order to insure installation of equipment and materials without conflict.
- B. Scaled and figured dimension with respect to the items are approximate only, sizes of equipment have been taken from typical equipment items of the class indicated. Before proceeding with the work, carefully check all dimension and sizes and assume full responsibility for the fitting in of equipment and material to the building and to meet Architectural and Structural conditions.
- C. Wherever field conditions or the proper execution of the work required reasonable changes in piping, supports, breeching, ducts and equipment as shown on drawings, make all such changes as directed or approved without extra cost. This includes horizontal or vertical offsets of piping, breeching and ductwork necessary to avoid conflicts or to maintain ceiling heights.
- D. Should any discrepancy, conflict, error or omission appear, or should any doubt arise as to the true intent and meaning of the Drawings and Specifications, or should any portion of same be obscure or capable of more than one interpretation, the Contractor shall bring such items to the attention of the Architect/Engineer before performing this work, for the correction or explanation of same. In all cases the interpretation of the Architect/Engineer and/or Owner shall be considered final and work shall be done accordingly. The Architect/Engineer will decide whether, and in what amount, a change to the contract price is necessitated by such corrective work.

1.11 - TESTS

- A. The Contractor shall be responsible for the work of other trades disturbed or damaged by tests, repair or replacement of work. Work so disturbed or damaged shall be restored to its original condition at no additional expense to the Owner.
- B. All equipment shall be tested in service and the Contractor shall demonstrate that it complies with the requirements of the Specification.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL**1.01 - SECTION INCLUDES**

- A. Pipe and equipment hangers and supports.
- B. Sleeves and seals.

1.02 - RELATED SECTIONS

- A. Section 078100 – Applied Fireproofing: Joint seals for piping and duct penetration of fire rated assemblies.
- B. Section 090190 – Painting and Coating.
- C. Section 220719 – Plumbing Piping Insulation.
- D. Section 221000 – Plumbing Piping.

1.03 - REFERENCES

- A. ASME B31.1 - Power Piping
- B. ASME B31.2 - Fuel Gas Piping
- C. ASME B31.9 - Building Services Piping

1.04 - SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- C. Product Data: Provide manufacturers catalog data including load capacity.
- D. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers.
- E. Manufacturer's Installation Instructions: Indicate special procedures and assembly of components.

1.05 - REGULATORY REQUIREMENTS

- A. Conform to applicable code for support of plumbing piping.

PART 2 - PRODUCTS**2.01 - PIPE HANGERS AND SUPPORTS**

- A. Manufacturers:
 - 1. B-Line.
 - 2. Other acceptable manufacturers offering equivalent products.
 - a. Grinnell Corporation.
 - b. Carpenter & Patterson Inc.
 - c. Fee & Mason Mfg. Co.

2.02 - HANGERS AND SUPPORTS

- A. C-Clamps: Malleable iron clamp, hardened steel cup point set screw with retaining clip.
- B. Hangers and Supports:
 - 1. Conform to ASME B31.9.
 - 2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Carbon steel, adjustable swivel, split ring.
 - 3. Hangers for Cold Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.
 - 4. Hangers for Hot Pipe Sizes 2 to 3 inches: Carbon steel, adjustable, clevis.
 - 5. Hangers for Hot Pipe Sizes 3 1/2 inches and Over: Adjustable steel yoke, cast iron roll, double hanger.
 - 6. Multiple or trapeze Hangers: Steel channels with welded spacers and hanger rods.
 - 7. Floor Support for Hot Pipe Sizes to 4 inches: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
 - 8. Copper Pipe Support: Carbon steel ring, adjustable, plastic coated.
- C. Thrust bracing of horizontal no-hub cast iron pipe, fitting and couplings over 4" in size meet the intent of CISPI Designation 310-04, CISPI Designation 301-09 and the CISPI Cast Iron Soil Pipe Handbook, regarding auxiliary support for ho-hub cast iron pipe and fitting joints subjected to

excessive thrust forces. Use manufactured assemblies with appropriate thrust pressure ratings, rather than field assembled miscellaneous materials. HOLDRITE #117 Series fitting restraints, or approved equal.

2.03 - ACCESSORIES

- A. Corrosion resistant factory finish, Unistrut No. 1000. Equal product by B-Line may be furnished at the Contractor's option.
- B. Copper Pipe Support: Carbon steel ring, adjustable, plastic coated.
- C. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

2.04 - SLEEVES

- A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.
- B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.
- C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.
- D. Firestopping Insulation: Glass fiber type, non-combustible.

PART 3 - EXECUTION

3.01 - INSTALLATION

- A. Install in accordance with manufacturer's instructions.

3.02 - PIPE HANGERS AND SUPPORTS

- A. Support horizontal piping as scheduled.
- B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
- C. Place hangers within 12 inches of each horizontal elbow.
- D. Use hangers with 1-1/2 inch minimum vertical adjustment.

- E. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.
- F. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.
- G. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- H. Support riser piping independently of connected horizontal piping.
- I. Provide copper plated hangers and supports for copper piping.
- J. Design hangers for pipe movement without disengagement of supported pipe.
- K. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
- L. Do not make offsets in hangers.
- M. Horizontal piping over 4" shall be braced to prevent joint separation in compliance with CISPI Designation 310-04, CISPI Designation 301-09 and the CISPI Cast Iron Soil Pipe Handbook, regarding auxiliary support for ho-hub cast iron pipe and fitting joints subjected to excessive thrust forces. Use manufactured assemblies with appropriate thrust pressure ratings, rather than field assembled miscellaneous materials. HOLDRITE #117 Series fitting restraints, or approved equal.

3.03 - SLEEVES

- A. Set sleeves in position in formwork. Provide reinforcing around sleeves.
- B. Size sleeves large enough to allow for movement due to expansion and contraction, and for continuous insulation wrapping.
- C. Where piping penetrates floor, suspended ceiling, or wall, close off space between pipe or duct and adjacent work with fire stopping insulation and caulk. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

3.04 - SCHEDULES

- A. Refer to New York State code for the appropriate hanger diameter and spacing as per the material of the piping.

END OF SECTION

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X:\RDFD (RIVERHEAD FIRE DISTRICT)\RDFD 1701 (GENERATOR REPLACEMENT AT STATION 2)\02 - DOC_SPECS\DIVISION 22\220529 - SUPPORTS AND ANCHORS.DOC | SECTION 220529 - SUPPORTS AND ANCHORS | RDFD 17-01 |

PART 1 – GENERAL**1.01 - DESCRIPTION OF WORK**

- A. This section describes piping and ductwork sleeves and seals required where piping passes through non fire rated floor slabs, interior walls, and exterior wall applications.

1.02 – RELATED WORK

- A. Section 078100 – Applied Fireproofing.
- B. Section 221000 – Plumbing Piping.

1.03 – QUALITY ASSURANCE

- A. Modular Seal components and systems shall be domestically manufactured at a plant with a current ISO-9001:2000 registration. Copy of ISO-9001:2000 registrations shall be a submittal item.

1.04 – SUBMITTALS

- A. Submit manufacturer's data sheets on all products. Data sheets shall include dimensions, material, temperature rating, and installation instructions.

PART 2 – PRODUCTS**2.01 – INTERIOR WALL PIPE PENETRATIONS**

- A. For Concrete or Masonry Interior Walls:
 - 1. Split Wall Acoustical Seals consist of two bolted pipe halves with minimum 3/4" thick neoprene sponge bonded to the inner faces. The seal shall be tightened around the pipe to eliminate clearance between the inner sponge face and the piping. Concrete may be packed around the seal to make it integral with the floor, wall or ceiling if the seal is not already in place around the pipe prior to the construction of the building member. Seals shall project a minimum of 1" past either face of the wall. Where temperatures exceed 240 degrees F, 10# density fiberglass may be used in lieu of the sponge. Seals shall be type SWS as manufactured by Mason Industries, Inc.
 - 2. Spool Type Acoustical Pipe Seals shall consist of a closed cell neoprene sponge interior surrounded by a welded steel sleeve and flange. Concrete shall be packed around the seal to make it integral with the surface if the seal is not already in place around the pipe prior to the construction of the building member. Caulk any residual cracks. Seals shall be type SPS as manufactured by Mason Industries Inc.

3. Provide a minimum 10 gauge pipe
- B. For gypsum board walls:
1. Box in round sleeve openings for pipe with No. 20 gauge galvanized sheet metal.
 2. Flange out edges of sheet metal a minimum of 1 ½ inches to secure sleeve to wall.
 3. Pack annular space between pipe and sleeve completely with mineral fiber. Recess fibrous material into sleeve 0.5 inches.
 4. Caulk openings from wall surface to pipe with nonhardening acoustical sealant both sides of wall.
 5. Seal metal sleeve to gypsum board wall.

2.02 – INTERIOR WALL DUCT SLEEVES AND SEALS

- A. Box in rectangular or round sleeve openings for ductwork with No. 20 gauge galvanized sheet metal. Metal sleeve to be 0.5 to 0.75 inches larger than outside dimensions of duct.
- B. Flange out edges of sheet metal a minimum of 1 ½ inches to secure sleeve to wall.
- C. Pack annular space between ductwork and sleeve completely with mineral fiber. Recess fibrous material into sleeve 0.5 inches.
- D. Caulk openings from wall surface to duct with nonhardening acoustical sealant both sides of wall.
- E. Grout metal sleeve into concrete or cmu wall or seal metal sleeve to gypsum board wall.

2.03 - EXTERIOR WALL AND FLOOR PENETRATIONS

- A. Furnish and install a complete Link-Seal modular seal assembly, manufactured by PSI-Thunderline/Link-Seal. For clarification, complete assembly is defined as a combined:
 1. Wall opening (i.e. steel sleeve, Thermoplastic (HDPE) sleeve, cored hole or formed hole). The wall opening size and/or type shall be selected according to recommendations found in the most recent Link-Seal modular seal catalog.
 2. Sufficient quantity and type of Link-Seal modular seals required to effectively provide a hydrostatic and/or fire-rated seal.
 3. Each individual link shall be conspicuously and permanently identified with the name of the manufacturer and model number.

- B. Modular Seal Rubber Links: Shall be modular, mechanical type, consisting of inter-locking synthetic rubber links shaped to continuously fill the annular space between the pipe and the wall opening. The elastomeric element shall be sized and selected per manufacturer's recommendations and have the following properties as designated by ASTM. Coloration shall be throughout elastomer for positive field inspection. Each link shall have a permanent identification of the size and manufacturer's name molded into it.
1. For Standard Service Applications = Model C -40 to +250°F (-40 to +121°C) EPDM = ATSM D2000 M3 BA510 Color = Black
 2. For Thin Walled Pipe Applications = Model L -40 to +250°F (-40 to +121°C) EPDM = ATSM D2000 M3 BA510 Color = Blue
 3. For Hydrocarbon Service Applications = Model O -40 to +210°F (-40 to +99°C) Nitrile = ASTM D2000 M1BF510 Color = Green
 4. For High Temperature or Fire Seal Applications = Model T -67 to +400°F (-55 to +204°C) Silicone = ASTM D2000 M1GE505 Color = Gray Reference shall always be made to the latest published Link-Seal modular seal selection guide for the service intended.
- C. Pressure Plates:
1. Link-Seal modular seal pressure plates shall be molded of glass reinforced Nylon Polymer with the following properties:

Izod Impact - Notched = 2.05ft-lb/in. per ASTM D-256

Flexural Strength @ Yield = 30,750 psi per ASTM D-790

Flexural Modulus = 1,124,000 psi per ASTM D-790

Elongation Break = 11.07% per ASTM D-638

Specific Gravity = 1.38 per ASTM D-792
 2. Models LS200-275-300-315 shall incorporate the most current Link-Seal Modular Seal design modifications and shall include an integrally molded compression assist boss on the top (bolt entry side) of the pressure plate, which permits increased compressive loading of the rubber sealing element. Models 315-325-340-360-400-410-425-475-500-525-575-600 shall incorporate an integral recess known as a "Hex Nut Interlock" designed to accommodate commercially available fasteners to insure proper thread engagement for the class and service of metal hardware. All pressure plates shall have a permanent identification of the manufacturer's name molded into it.

3. For fire and Hi-Temp service, pressure plates shall be steel with 2-part Zinc Dichromate Coating.
- D. Seal Hardware: All fasteners shall be sized according to latest Link-Seal modular seal technical data. Bolts, flange hex nuts shall be either:
1. Mild Steel with a 60,000 psi minimum tensile strength and 2-part Zinc Dichromate coating per ASTM B-633 and Organic Coating, tested in accordance with ASTM B-117 to pass a 1,470 hour salt spray test.
 2. 316 Stainless Steel per ASTM F593-95, with a 85,000 psi average tensile strength.
- E. Wall Opening:
1. Century-Line Sleeves - for openings to 24.81" diameter. Where pipes must pass through exterior walls of new structures, unless otherwise shown or specified, install molded non-metallic high density polyethylene Model CS Century-Line sleeves as manufactured by PSI-Thunderline/Link-Seal. Model CS sleeves shall have integrally formed hollow water stop sized having a minimum of four inches larger than the outside diameter of the sleeve itself and allowing 1/2" movement between wall forms to resist pour forces. Each sleeve assembly shall have end caps manufactured of the same material as the sleeve itself and installed at each end of the sleeve so as to prevent deformation during the initial concrete pour, and to facilitate attaching the sleeve to the wall forms. End caps shall remain in place to protect the opening from residual debris and rodent entry prior to pipe insertion.
 2. Cell-Cast Disks - for openings from 29.25" to 64.74" diameter. The contractor shall install Cell-Cast disks, providing a round hole in conformance with Link-Seal modular seal sizing data. Cell-Cast disks shall consist of 3" and/or 4" lightweight interlocking polyethylene cells stacked to form the thickness of the poured concrete wall. Molded into each cell shall be a cavity to accept a 2" x 4" nailer.

2.04 – ACOUSTICAL SEALANTS

- A. Acoustical sealants shall be non-hardening type.
- B. Acoustical sealants shall be one of the following products:
 1. Acoustical Sealant – Tremco
 2. Approved Equal

PART 3 – EXECUTION

- A. In general the contractor shall provide sleeves at all penetrations.
- B. After installation of the sleeve, completely seal around sleeve to the wall or floor material.
- C. Install pipe sleeves and seals as per the manufacturers instructions.
- D. Pipe sleeves shall not support weight of the pipe. Provide pipe supports on both sides of the seal.
- E. Provide escutcheon plates for all exposed penetrations.

END OF SECTION

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X:\RDFD (RIVERHEAD FIRE DISTRICT)\RDFD 1701 (GENERATOR REPLACEMENT AT STATION 2)\02 - DOC_SPECS\DIVISION 22\220530 - NON FIRE RATED SLEEVES AND SEALS.DOC | SECTION 220530 - NON FIRE RATED SLEEVES AND SEALS | RDFD 17-01 |

PART 1 - GENERAL**1.01- SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Stencils.
- D. Pipe Markers.

1.02 - REFERENCES

- A. Section 014500 - Quality Control: Requirements for references and standards.
- B. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.03 - SUBMITTALS FOR REVIEW

- A. Section 013300 - Submittal Procedures.
- B. Submit list of wording, symbols, letter size, and color coding for mechanical identification.
- C. Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- D. Product Data: Provide manufacturers catalog literature for each product required.

1.04 - SUBMITTALS FOR INFORMATION

- A. Section 013300 - Submittal Procedures.
- B. Manufacturer's Instructions: Indicate installation instructions, special procedures, and installation.

1.05 - SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 017800 – Closeout Submittals: Procedures for submittals.
- B. Project Record Documents: Record actual locations of tagged valves; include valve tag numbers.
- C. Valve Tag Chart.

1.06 - REGULATORY REQUIREMENTS

- A. Colors shall conform to ASME A13.1.

PART 2 - PRODUCTS**2.01 - NAMEPLATES**

- A. Manufacturer: SETON NAMEPLATE COMPANY.
- B. Other acceptable manufacturers offering equivalent products.
 - 1. BUNTING.
 - 2. BRADY
- C. Description: Laminated three-layer plastic with engraved white letters on dark contrasting background color.

2.02 - TAGS

- A. Plastic Tags:
 - 1. Manufacturers:
 - a. SETON NAMEPLATE COMPANY.
 - b. BUNTING.
 - c. BRADY.
 - 2. Laminated three-layer plastic with engraved white letters on dark contrasting background color. Tag size minimum 1-1/2 inches diameter, brass S hook.
- B. Metal Tags:
 - 1. Manufacturers:
 - a. SETON NAMEPLATE COMPANY Model M4506.
 - b. BUNTING.
 - c. BRADY.

2. Brass with stamped letters and service designation tag size minimum 1-1/2 inches diameter with smooth edges, brass S hooks.
- C. Tag Chart: Typewritten letter size list in anodized aluminum frame with plastic window .

2.03 - STENCILS

- A. Manufacturer: SETON NAMEPLATE COMPANY Model SPS.
- B. Other acceptable manufacturers offering equivalent products.
1. BUNTING.
 2. BRADY.
- C. Stencils: With clean cut symbols and letters of following size:
1. Up to 2 inch Outside Diameter of Insulation or Pipe: 1/2 inch high letters.
 2. 2-1/2 to 6 inches Outside Diameter of Insulation or Pipe: 1 inch high letters.
 3. Over 6 inches Outside Diameter of Insulation or Pipe: 1-3/4 inches high letters.
- D. Stencil Paint: Semi-gloss enamel, colors and lettering size conforming to ASME A13.1.

2.04 - PIPE MARKERS

- A. Color and Lettering: Conform to ASME A13.1.
- B. Plastic Pipe Markers:
1. Manufacturers:
 - a. SETON NAMEPLATE COMPANY Model SETMARK.
 - b. BUNTING
 - c. BRADY
 2. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.
- C. Plastic Tape Pipe Markers:

1. Manufacturers:
 - a. SETON NAMEPLATE COMPANY.
 - b. BUNTING.
 - c. BRADY.
 - d. Substitutions: Refer to Section 012500 – Substitution Procedures.
2. Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

PART 3 - EXECUTION

3.01 - PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces for stencil painting.

3.02 - INSTALLATION

- A. Section 014500 - Quality Control: Manufacturer's instructions.
- B. Install identifying devices after completion of coverings and painting.
- C. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.
- D. Install labels with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.
- E. Install tags using corrosion resistant chain. Number tags consecutively by location.
- F. Identify pumps and tanks with stencil painting. Small devices, such as in-line pumps, may be identified with tags.
- G. Identify control panels and major control components outside panels with plastic nameplates.
- H. Identify valves in main and branch piping with tags.
- I. Tag automatic controls, instruments, and relays. Key to control schematic.
- J. Identify piping, concealed or exposed, with plastic pipe markers. Use tags on piping 3/4 inch (20 mm) diameter and smaller. Identify service, flow direction, and pressure. Install in clear view and

align with axis of piping. Locate identification not to exceed 20 feet (6 m) on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.

3.03 - SCHEDULES

A. Pipe Markers:

Outside Diameter of Insulation or Pipe Inches	Letter Height Inches	Color Field Inches
3/4 to 1-1/4	1/2	8
1-1/2 to 2	3/4	8
2-1/2 to 6	1	12
8 to 10	2	24
Over 10	2	24
Equipment	2	24

END OF SECTION

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X:\RDFD (RIVERHEAD FIRE DISTRICT)\RDFD 1701 (GENERATOR REPLACEMENT AT STATION 2)\02 - DOC_SPECS\DIVISION 22\220553 - PLUMBING IDENTIFICATION.DOC | SECTION 220553 - PLUMBING IDENTIFICATION | RDFD 17-01 |

PART 1 – GENERAL**1.01 - SECTION INCLUDES**

- A. Pipe, pipe fittings, valves, and connections for piping systems.
 - 1. Natural gas.
 - 2. Propane gas.

1.02 - RELATED SECTIONS

- A. Section 220529 - Supports and Anchors
- B. Section 220553 - Plumbing Identification

1.03 - REFERENCES

- A. ASME B16.3 - Malleable Iron Threaded Fittings.
- B. ASME B31.2 - Fuel Gas Piping.
- C. ASME B31.3 - Process Piping.
- D. ASME SEC IV - Construction of Heating Boilers.
- E. ASME SEC IX – Boiler and Pressure Vessel Code
- F. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
- G. ASTM D2321 – Underground Installation of Thermoplastic Pipe (non-pressure applications)
- H. ASTM F1668 – Procedures for Buried Plastic Pipe
- I. NFPA 54 - National Fuel Gas Code.
- J. NFPA 58 – Liquid Petroleum Gas Code.
- K. NSF/ANSI Standard 14 – Plastic Piping Components and Related Materials.
- L. International Plumbing Code.

1.04 - SUBMITTALS FOR REVIEW

- A. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- B. Shop Drawings: Provide installation drawings indicating pipe/tubing layout and location of plumbing fixtures.

1.05 - QUALITY ASSURANCE

- A. Perform Work in accordance with State of New York and Town code.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.
- C. Welding Materials and Procedures: Conform to ASME SEC IX and applicable state labor regulations.
- D. Welders Certification: In accordance with ASME SEC IX.
- E. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.06 - REGULATORY REQUIREMENTS

- A. Perform Work in accordance with the State of New York and the Town code.
- B. Conform to applicable code for installation of backflow prevention devices.
- C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

1.07 - DELIVERY, STORAGE, AND PROTECTION

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on steel valves.
- C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.08 - ENVIRONMENTAL REQUIREMENTS

- A. Do not install underground piping when bedding is wet or frozen.

PART 2 - PRODUCTS**2.03 – PROPANE GAS PIPING**

- A. Steel Pipe: ASTM A53 or ASTM A106
1. Fittings: Steel with operating pressure of 250 psig
 2. Joints: Shall be threaded, flanged, welded or brazed per NFPA 58 section 6.9.3.5.
 3. All aboveground piping and equipment shall be of corrosion resistant material or coated to prevent corrosion. Underground piping and equipment shall be made of corrosion resistant material and have cathodic protection as per NFPA 58, section 6.17.3.
- B. Copper Pipe: ASTM B42
1. Fittings: Copper with operating pressure of 250 psig.
 2. Joints: Shall be threaded, flanged, welded or brazed per NFPA 58 section 6.9.3.5.
 3. All aboveground piping and equipment shall be of corrosion resistant material or coated to prevent corrosion. Underground piping and equipment shall be made of corrosion resistant material and have cathodic protection as per NFPA 58, section 6.17.3.
- C. Polyethylene Pipe shall only be installed outside, below grade: ASTM D2513
1. Fittings: shall be heat fusion (ASTM D2683, ASTM D3261, ASTM F1055, or ASTM F1733), compression type mechanical (ASTM D2513), or by factory-assembled transition fitting.
 2. Joints: shall be heat fusion, compression type mechanical, or by factory-assembled transition fitting.
 3. High visibility 'Hazard Warning' tape shall be installed 12 inches directly over entire length of buried gas lines and tracer wire for detection..

2.04 - ESCUTCHEONS

- A. Chrome slip-on type, one piece.

PART 3 - EXECUTION**3.01 - EXAMINATION**

- A. Section 013100 – Project Management and Coordination: Verification of existing conditions before starting work.

3.02 - PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 – INSTALLATION (GENERAL)

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls. Effect changes in size with reducing fittings.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Provide loops, pipe offsets or expansion loops.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 220719.
- H. Establish elevations of buried piping outside the building to ensure not less than 4 feet of cover.
- I. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.
- J. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- K. Provide support for utility meters in accordance with requirements of utility companies.

- L. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting. Refer to Section 090190 – Painting and Coating.
- M. Install bell and spigot pipe with bell end upstream.
- N. Install valves with stems upright or horizontal, not inverted.
- O. Pipe vents from gas pressure reducing valves to outdoors and terminate in weather proof hood.
- P. Sleeve pipes passing through partitions, walls and floors.
- Q. Provide inserts for placement in concrete formwork.
- R. Install buried gas piping in accordance with the requirements of the local gas utility.
- S. Provide support for utility meters in accordance with utility company requirements.
- T. All metallic LP-Gas piping shall be installed in accordance with ASME B31.3 Process Piping.
- U. Polyethylene piping to be installed a minimum of 12” of ground cover.

3.05 - APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Provide plug valves in gas systems for shut-off service.

3.06 - FIELD QUALITY CONTROL

- A. Pressure test gas piping in accordance with utility company requirements.
- B. Pressure test compressed air piping at 150 psi for 24 hours. Check all joints for leakage by swabbing with a soap and water solution while under test pressure.
- C. After Press fittings have been installed a “two step test” shall be followed. Pressurize the system with application appropriate test medium, water between 15 and 85 psi, or air/dry nitrogen between .5 and 45 psi. Check the pressure gauge for pressure loss. If the system does not hold pressure, walk the system and check for un-pressed fittings. Should you identify an un-pressed fitting/s ensure the tube is fully inserted into the fitting, and properly marked, prior to pressing the joint. After appropriate repairs have been made, retest the system per local code, or specification requirements, not to exceed 600 psi with water or, 200 psi when using air.

END OF SECTION

SECTION 260000 - ELECTRICAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavation and backfill for electrical work.
- B. Demolition of existing electrical systems.
- C. Secondary power wiring and distribution system.
- D. Electrical control systems and interlock wiring.
- E. Wiring for built-in equipment.
- F. Distribution panels and switches.
- G. Engine generator system.
- H. Sound acoustical generator enclosure.
- I. Instrumentation and Controls.

1.02 RELATED WORK

- A. Foundations and pads required for equipment furnished under this division of specifications.
- B. Field painting, except such painting as is required to maintain shop coat painting and factory finish painting.
- C. Flashing and sealing of conduits through outside walls.
- D. Cutting and patching for electrical work, except for errors and omissions under this Division.

1.03 QUALITY ASSURANCE

- A. It is understood that the rights and benefits given the Owner by the guarantees found in the technical specifications are in addition to and not in derogation of any rights or benefits found in the special and general provisions of the contract.
- B. Electrical equipment provided under this Division shall be turned over in operating condition. Instruction on further operation and maintenance shall be included in the operating and maintenance instructions.

1.04 REFERENCES

- A. Perform work in accordance with standards listed below. Where these specifications are more stringent, they take precedence. In case of conflict, obtain a decision from the Engineer.
 - 1. NFPA-70: National Electrical Code
 - 2. NFPA-101: Life Safety Code
 - 3. New York State Energy Code
 - 4. New York State Building Code
 - 5. Applicable New York State Administrative Code
 - 6. Applicable Town Ordinances.
 - 7. Electric utility rules and regulations.

8. Telephone utility rules and regulations.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. All materials and equipment used in carrying out these specifications shall have UL listing and label. Specifications and drawings indicate name, type, or catalog numbers of materials and equipment to be used as standards. Proposals shall be based on these standards. Contractor may use materials and equipment equivalent to those specified, subject to Engineer's approval.

PART 3 - EXECUTION

3.01 COORDINATION

- A. Carefully examine specifications, drawings and project site to be thoroughly familiar with items which require electrical connections and coordination. Electrical drawings are diagrammatic and shall not be scaled for exact sizes.
- B. Notify other Contractors of any deviations or special conditions necessary for the installation of work. Interferences between work of various contractors to be resolved prior to installation. Work installed not in compliance with specifications and drawings and without properly checking and coordinating as specified above shall, if necessary, be removed and properly reinstalled without additional cost to the Owner. Engineer to be mediating authority in all disputes arising on project.
- C. Equipment shall be installed in accordance with manufacturer's recommendation. Where conflicts occur between contract documents and these recommendations, a clarification shall be requested of the Engineer for decision before proceeding with such work.
- D. Insofar as it is possible to determine in advance, advise masonry tradesmen to leave proper chases and openings. Place all outlets, anchors, sleeves, and supports prior to pouring concrete or installation of masonry work. Should the Contractor neglect doing this, any cutting and/or patching required to be done is at this Contractor's expense.

3.02 CUTTING AND PATCHING

- A. Repair or replace routine damage caused by cutting in performance of work under this Division.
- B. Correct unnecessary damage caused due to installation of electrical work, brought about through carelessness or lack of coordination.
- C. Holes cut through floor slabs to be core drilled with drill designed for this purpose. All openings, sleeves, and holes in slabs to be properly sealed, fire proofed and waterproofed.
- D. Repairs to be performed with materials which match existing materials and to be installed in accordance with appropriate sections of these specifications.

3.03 TESTS

- A. On completion of work, installation shall be completely operational and entirely free from ground, short circuits, and open circuits. Perform a thorough operational test in presence of the Engineer. Balance all circuits so that feeders to panels are not more than 10% out of balance between phases with all available load energized and operating. Furnish all labor, materials and instruments for above tests.

- B. Furnish Engineer with a copy of such tests including identification of each circuit and readings recorded, also the main service ground resistance test as described in Section 260526 of these specifications. Test information to include ampere readings of all panels and major circuit breakers, isolation resistance reading of motors and transformers.

3.04 IDENTIFICATION OF EQUIPMENT

- A. Properly identify the following:
 - 1. Motor Control Centers including all individual devices.
 - 2. Distribution panels.
 - 3. Disconnect switches.
 - 4. Transfer switches.
 - 5. Individually mounted circuit breakers.
 - 6. Relays.
 - 7. Pilot lights and control switches.
 - 8. Service entrance equipment and main circuit breaker.
- B. Use permanently attached black phenolic plates with 1/4-inch white engraved lettering on the face of each, attached with two sheet metal screws.
- C. Panelboard identification plates shall indicate panel by name.

3.05 INSTALLATION

- A. The Contractor shall carefully move and replace existing equipment, appliances and all related items, as required to conduct proposed work.
- B. Install and conduct all work per applicable NEC, State and local codes.

END OF SECTION

SECTION 260010 - ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Electrical demolition.

1.02 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary work.

1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition work, safety of structure and dust control.
- B. Obtain required permits from authorities.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Do not close or obstruct egress width to exits.
- E. Do not turn off electric equipment without authorization from Owner.
- F. Conform to procedures applicable when discovering hazardous or contaminated materials.
- G. Obtain a utilities mark-out of all buried underground utilities for telephone, electric, gas, sewer and water, including all customer owned utilities.

1.04 SCHEDULING

- A. Schedule Work to coincide with new construction.

PART 2 - PRODUCTS

2.01 NOT USED.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify field circuiting arrangements at Plant No. 1/Administration Building and Plant No. 16.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation. Report discrepancies to the Engineer before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing condition.

3.02 PREPARATION

- A. Coordinate utility service outages with Utility Company.

- B. Provide power, wiring and connections to maintain all existing power, control and telemetry systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction, as indicated on drawings.
- B. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.
- D. Repair adjacent construction and finishes damaged during demolition and extension work.
- E. Provide caps and filler plates/plugs for all openings in equipment and enclosures after removal of conduits.
- F. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
- G. Remove demolished materials from site as work progresses.
- H. Completely remove and dispose of all electrical power, control, and telemetry feeds including conduits, conductors, boxes and supports not scheduled to remain after new construction is tested and operational.
- I. Where existing devices and equipment are called to be removed, Contractor shall maintain circuit continuity to all existing devices and equipment remaining on that circuit. Contractor shall provide all required conduit, conductors and boxes as required.

3.04 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment which remain or are to be reused.
- B. Remove temporary work.

END OF SECTION

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Wires and cables.
- B. In general, the wires and cables included under this Section shall include, but not be limited to, the following:
 - 1. 600V power and control cable
 - 2. Instrumentation wires
 - 3. Communication cables
- C. All conductors to be continuous from origin to panel or equipment termination without splices.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.
- B. NECA Standard of Installations.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.

1.04 QUALITY ASSURANCE

- A. Products used in the work of this Section shall be produced by manufacturers regularly engaged in the manufacturing, installing and servicing of similar items with a history of successful production acceptable to the Engineer as specified herein and in accordance with the General Conditions.
- B. Contractor shall submit the following information pertaining to the manufacturer(s):
 - 1. Complete literature, performance, and technical data describing the proposed equipment and listing of items made by the manufacturer.
 - 2. Location of closest service office from which this equipment shall be serviced.
 - 3. Location of closest parts inventory for item installation.

1.05 COORDINATION

- A. Coordination:
 - 1. Coordinate wire and cable required with the equipment being furnished by others for the satisfactory operation of the equipment or system.
 - 2. Review installation procedures under other sections and contracts and coordinate them with the work specified herein.
 - 3. Notify other prime contractors in advance of the installation of the work included to provide them with sufficient time for installation and coordination of interrelated items that are included in their contracts and that must be installed in conjunction with the work included in this Section.

1.06 PROJECT CONDITIONS

- A. Verify that embedded conduit, in masonry and concrete, is installed as shown on the Drawings prior to the work being enclosed by others.

- B. The Contractor shall be present at all concrete pours made by the General Contractor.
- C. Conductor sizes are based on copper at 75°C.
- D. Wire and cable routing shown on Drawings is approximate unless dimensioned or specifically called for such as where conduit is to be embedded in concrete or masonry. Route wire and cable as required to meet project conditions and shall be routed above ceilings, directly under joists, in pipe trenches, where available, and in masonry. Where exposed conduit is permitted, it shall be run to maximize wall space.
- E. Field verify destination location to determine cable routing.
- F. Where wire and cable routing is not shown for proposed destination, determine exact routing and lengths required. Routing shall be reviewed with the Engineer.

PART 2 - PRODUCTS

2.01 CONDUCTORS

- A. Install products in accordance with manufacturer's recommendations.
- B. Single copper conductors with 600-volt insulation.
- C. Minimum size of feeder conductors and grounds shall be No. 12 AWG.
- D. Insulation: No. 12 AWG and No. 10 AWG, provide ANSI/NFPA 70, Type THWN-2 for interior circuits, Type XHHW-2 for exterior circuits.
- E. Use solid conductor for feeder and branch circuits, 10 AWG and smaller.
- F. All conductors shall include complete set of manufacturer's markings for insulation and conductor size.
- G. Manufacturers shall be ANACONDA, TRIANGLE, ROME, or approved equal.
- H. Provide white colored neutral conductors; provide black, color coded phase conductors; provide green colored ground conductors.

2.02 300 VOLT INSTRUMENTATION SIGNAL CABLE - FOR INDOOR USE

- A. Indoor Application:
 - 1. The 300-volt instrumentation signal cable for indoor use shall consist of single or multiple twisted pairs or triads of coated, stranded copper conductors with polyvinyl chloride (PVC) insulation and nylon jacket. Each individual pair or triad of wires shall have an aluminum/polyester tape shield with a tinned copper drain wire. For multiple pair or triad cables, an overall aluminum/polyester tape shield with a tinned copper drain wire shall enclose the individual wire assemblies. The overall jacket shall be PVC. Cables shall have a 105°C rating.
 - 2. The conductors shall be annealed, tin-coated copper with Class B stranding per ASTM B-8. Minimum size conductor shall be AWG No. 16.
 - 3. The insulation shall be PVC. The insulation thickness shall be 15 mils.
 - 4. Individual Conductor Insulation: The jacket over each individual wire shall be nylon and shall have a thickness of 4 mils.
 - 5. The shield for each individual pair or triad shall be an aluminum/polyester tape. The shield shall be 1.35 mils thick and shall be overlapped to provide 100% coverage. The

shield shall also contain a 7-strand tinned copper drain wire which shall be a maximum of two sizes smaller than the conductors. All individual shields shall be completely isolated from each other.

6. The overall shield for multiple pair or triad cables shall be an aluminum/polyester tape. The shield shall be 2.35 mils thick and shall be overlapped to provide 100% coverage. The shield shall also contain a 7-strand tinned copper drain wire which shall be the same size as the conductors.
7. The overall jacket shall be PVC and shall meet the requirements of UL 13.
8. The jacket thickness shall be as follows:

Wire Size	No. of Pairs	No. of Triads	Jacket Thickness
16 AWG	1	-	35 Mils
16 AWG	2,4	-	50 Mils
16 AWG	8,10,12	-	60 Mils
16 AWG	-	1	35 Mils
16 AWG	-	2,4	50 Mils
16 AWG	-	8	60 Mils
16 AWG	-	12	70 Mils

9. Manufacturers and their products shall be equal to:
 - a. Cablec APVIC
 - b. Okonite A Type P-OS and Type SP-OS
 - c. Or approved equal

B. Outdoor Use in Conduits:

1. The 300-volt instrumentation signal cable for outdoor use in conduits shall consist of single or multiple twisted pairs or triads of coated, stranded copper conductors with polyvinyl chloride (PVC) insulation and nylon jacket. Each individual pair or triad of wires shall have an aluminum/polyester tape shield with a tinned copper drain wire. For multiple pair or triad cables, an overall aluminum/polyester tape shield with a tinned copper drain wire shall enclose the individual wire assemblies. The overall jacket shall be chlorinated polyethylene (CPE). Cables shall have a 105°C rating.
2. The conductors shall be annealed, tin-coated copper with Class B stranding per ASTM B-8. Minimum size conductor shall be AWG No. 16.
3. The insulation shall be PVC. The insulation thickness shall be 15 mils.
4. The jacket over each individual wire shall be nylon and shall have a thickness of 4 mils.
5. The shield for each individual pair or triad shall be an aluminum/polyester tape. The shield shall be 1.35 mils thick and shall be overlapped to provide 100% coverage. The shield shall also contain a 7-strand tinned copper drain wire which shall be a maximum of two sizes smaller than the conductors. All individual shields shall be completely isolated from each other.
6. The overall shield for multiple pair or triad cables shall be an aluminum/polyester tape. The shield shall be 2.35 mils thick and shall be overlapped to provide 100% coverage. The shield shall also contain a 7-strand tinned copper drain wire which shall be the same size as the conductors.
7. The overall jacket shall be CPE and shall meet the requirements of UL 13.
8. The jacket thickness shall be as follows:

Wire Size	No. of Pairs	No. of Triads	Jacket Thickness
16 AWG	1	-	35 Mils
16 AWG	2,4	-	50 Mils
16 AWG	8,10,12	-	60 Mils
16 AWG	-	1	35 Mils

Wire Size	No. of Pairs	No. of Triads	Jacket Thickness
16 AWG	-	2,4	50 Mils
16 AWG	-	8	60 Mils
16 AWG	-	12	70 Mils

9. Manufacturers and their products shall be as follows:
- Cablec APZIC
 - Okonite AOkobon Type P-OS and Type SP-OS
 - Or approved equal

2.03 MECHANICAL CONNECTORS

- Conductor tapping connectors shall be BURNDY Servit split bolt, Series KS and KS3, or approved equal.
- Split bolt connectors shall use BURNDY Type SC Servit cover on indoor applica-tions.
- Terminal lugs shall be BURNDY Universal Terminal Series. Terminal lugs shall be sized for proper ampacity and proper number of conductor holes. Each conductor shall occupy only one hole on a terminal lug.
- Conductor tapping connectors for multiple conductors shall be BURNDY Series V-Tap with V-Tap covers, and V-Blok mounting platforms.

PART 3 - EXECUTION

3.01 INSTALLATION

- General:
 - Make terminations in accordance with cable manufacturers instructions for the particular type of wire and cable.
 - Splices are not allowed in the underground duct and manhole systems. If splices are required, the Contractor shall obtain approval in writing from the Engineer prior to splicing.
 - All splices shall be in made in terminal boxes.
- Wire and Cable Sizes: The sizes of wire and cable shall be as shown on the Contract Drawings, or if not shown, as approved by the Engineer. Minimum size wire shall be No. 12 AWG for all power, lighting and receptacle circuits. Wires for control circuits shall be No. 14 AWG minimum. Wire for instrumentation circuits shall not be smaller than No. 16 AWG. If due to field routing the voltage drop exceeds 2.5%, the size of conductors shall be increased such that 2.5% is the maximum voltage drop incurred.
- Number of Wires: The number of wires indicated on the Contract Drawings for the various control, indications, and metering circuits were determined for general schemes of control and for particular indication and metering systems. Coordinate wiring schemes with equipment schematics.
- Wiring Identification: All wiring shall have a unique wire number and be labeled at both ends. Wire numbers shall correspond with the equipment terminal wire numbers. Where no wire numbers are indicated, the Contractor shall assign wire numbers. Wire numbers shall not be duplicated.
- Cable Identification Tags: The Contractor shall furnish all labor and materials and affix in a permanent way to each cable in manholes, cable compartments and vaults, junction boxes, pull boxes and points of termination, a laminated plastic tag, bearing clearly printed, the cable

number indicated on the Contract Drawings or some other approved identification number or symbol. All cables shall be temporarily tagged with its full ID number immediately after it has been pulled.

- F. Wiring Supplies: Only electrical wiring supplies manufactured under high standards of production and meeting the approval of the Engineer shall be used. Friction tape shall be in accordance with ASTM D69.
- G. Training of Cable: Furnish all labor and material required to train cables around cable vaults within buildings and in manholes in any outdoor underground duct system. Sufficient length of cable shall be provided in each manhole and vault so that the cable can be trained and racked in an approved manner. In training or racking, the radius of bend of any cable shall be not less than the manufacturer's recommendation. All manhole cables shall be arc and fireproofed.
- H. Connections at Control Panels, Limit Switches and Similar Devices:
- Where stranded wires are terminated at panels, and/or devices connections shall be made by solderless lug, crimp type ferrule or solder dipped.
 - Where enclosure sizes and sizes of terminals at limit switches, solenoid valves, float switches, pressure switches, temperature switches, and other devices make 7-strand, No. 12 AWG, wire terminations impractical, the Contractor shall terminate external circuits in an adjacent junction box of proper size and shall install No. 14 AWG stranded wires to the junction box in a conduit.
- I. Pulling Temperature: Cable shall not be flexed or pulled when the temperature of the insulation or of the jacket is such that damage will occur due to low temperature embrittlement. When cable will be pulled with an ambient temperature within a three day period prior to pulling of 40°F or lower, cable reels shall be stored during the three day period prior to pulling in a protected storage with an ambient temperature not lower than 55°F and pulling shall be completed during the work day for which the cable is removed from the protected storage.
- J. Color Coding:
- Conductor jacket shall be color coded as follows:

AC POWER

480V/277 Volt, 3f	208Y/120 Volt, 3f	240/120 Volt, 3f
Phase A - Brown	Phase A - Blue	Phase A - Blue
Phase B - Orange	Phase B - Black	Phase B - Black
Phase C - Yellow	Phase C - Red	Phase C - Orange
Neutral - White	Neutral - White	Neutral - White
Ground - Green	Ground - Green	Ground - Green

- Control (Per ICEA Method 1, K-2):

WIRE NUMBER	COLOR
1	Black
2	Red
3	Blue
4	Orange
5	Yellow
6	Brown
7	Red With Black
8	Blue With Black

WIRE NUMBER	COLOR
9	Orange With Black
10	Yellow With Black
11	Brown With Black
12	Black With Red
13	Blue With Red
14	Orange With Red
15	Yellow With Red
16	Brown With Red
17	Black With Blue
18	Red With Blue
19	Orange With Blue

3. DC Power
 - a. Positive Lead - RED
 - b. Negative Lead - BLACK
4. Instrumentation Signal
 - a. Pairs - Black and White
 - b. Triads - Black, Red and White
5. Equipment Ground - GREEN

K. Instrumentation Cable Installation:

1. Where instrumentation cables are installed in panels, etc., arrange wiring to provide maximum clearance between cables and other conductors. Instrumentation cables shall not be installed in same bundle with conductors of other circuits.
2. Grounding of cable shield shall be accomplished at one point only, unless otherwise required by instrumentation systems manufacturer.
3. Special instrument cable shall be as specified or recommended by the vendor of the equipment or instruments requiring such wiring. Installation, storage, terminations, etc., shall be per manufacturer's recommendations.

3.02 IDENTIFICATION

- A. Identify wire and cable under provisions of Section 260553.
- B. Identify each conductor with its circuit number.

3.03 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014500.
- B. Inspect wire and cable for physical damage and proper connection.
- C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.
- D. Field Testing:
 1. Wires and cables shall be tested before being connected to motors, devices or terminal blocks.
 2. If tests reveal defects or deficiencies, the Contractor shall make the necessary repairs or shall replace the cable as directed by the Engineer, without additional cost to the Owner.
 3. All tests shall be made by and at the expense of the Contractor who shall supply all testing equipment.

- E. Continuity Tests: All cables, wires and shields shall be tested for continuity. Testing for continuity shall be by test light or buzzer.
- F. Insulation-Resistance Tests:
 - 1. 600V power and control cables and wires shall be tested for their insulation-resistance values. Test shall utilize a megohmmeter with applied voltage to be 1000VDC for one (1) minute. Insulation-resistance test shall be performed on each conductor with all other conductors grounded. The resistance value shall be 20 megohms or greater.
 - 2. 300V instrumentation signal cable shall be tested from conductor to conductor, conductor to ground, and conductor to shield using a digital volt-ohm meter. The resistance value shall be 10 megohms or greater.

END OF SECTION

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Grounding electrodes and conductors.
- B. Equipment grounding conductors.
- C. Bonding.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS

2.01 COMPONENTS

- A. Ground clamps: OZ ELECTRICAL MANUFACTURING COMPANY, Type "CG", or equal by STEEL CITY or APPLETON.
- B. Raceways, conductors, outlet boxes, pull and junction boxes to be furnished in accordance with applicable sections of these specifications.
- C. Rod Electrode: Copper, 3/4-inch diameter, 10 feet long.
- D. Wire: Copper, sized to meet NFPA 70 requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Clean all conductive surfaces on equipment to be grounded, to assure good electrical continuity.
 - 2. Effectively bond all grounding conductors to grounding rod electrodes, equipment enclosures and ground busses.
 - 3. Locate all grounding attachments away from areas subject to physical damage. Provide protective covering as required.
 - 4. Generators shall have a dedicated grounding system for a separately derived system for switching neutrals.
- B. Feeder/Branch Circuits:
 - 1. All circuits shall have a separate green grounding conductor in conduit sized in accordance with NFPA 70. Minimum size of conductor shall be No. 12 AWG.
 - 2. Flexible conduit will not be approved as achieving continuity of ground. All flexible conduit to have a jumper wire sized to ampacity of branch breaker and to be connected to conduit system on both ends; this applies to fixtures, motors, controls, etc.

3.02 TEST

- A. Test ground on main service. Ground system resistance shall be no greater than 10 ohms using test equipment similar to a "Biddle" test. Test data to be submitted to the Engineer for approval and such approved test data to become a part of the Record Documents.

END OF SECTION

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. System of supporting devices and hangers for support or bracing for conduit, electrical equipment, safety switches, fixtures, panelboards, outlet boxes, junction boxes and cabinets.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS

2.01 EQUIPMENT REQUIREMENTS

- A. Provide appropriate corrosion-resistant supporting devices and hangers for electrical equipment, as manufactured by ERICO PRODUCTS, INC., CADDY FASTENERS, STEEL CITY, MINERALLAC or equivalent.
 1. "Z" purlin clips.
 2. Conduit clips.
 3. Beam clamps (universal and vertical flange).
 4. Beam clamps (set screw type).
 5. Combination push-in conduit clips.
 6. Combination conduit hanger clamps.
 7. Flexible conduit clips.
 8. Special combination conduit clips.
 9. One hole steel straps.
 10. Conduit hangers.
- B. Provide materials, sizes and types of anchors, fasteners and supports to carry the loads of equipment, wire in conduit and conduit.

2.02 CHANNEL SUPPORT SYSTEM

- A. Channel systems and supports shall be manufactured by KINDORF/THOMAS & BETTS, or approved equal.
- B. Channels shall be 1-1/2" x 1-1/2".
- C. Channels and all associated accessories and bolts shall be hot dipped galvanized.
- D. Channels shall have 9/16" bolt holes on 1-1/2" centers.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Secure conduits to within 3 feet of each outlet box, junction box, cabinet, fitting, etc., and at intervals not to exceed 10 feet in accordance with currently effective edition of the National Electric Code.
- B. In seismic zones, support conduits 1 inch and smaller at 6 foot intervals.
- C. Install clamps secured to structure for feeder and other conduits routed against structure. Use drop rods and hangers to support conduits run apart from the structure.
- D. Provide and install suitable angle iron, channel iron or steel metal framing with accessories to support or brace electrical equipment including safety switches, fixtures, panelboards, etc.
- E. Paint all supporting metal not otherwise protected, with rust inhibiting primer and then with a finish coat if appropriate to match the surrounding metal surfaces. Prepainted or galvanized support material is not required to be painted or repainted.
- F. Do not use chains, perforated iron, baling wire or tie wire for supporting conduit runs. Use of clips to support conduit to top of t-bar ceiling grid will not be permitted.
- G. Obtain permission from Engineer before drilling or cutting structural members.
- H. Install surface mounted cabinets and panelboards with a minimum of four anchors.
- I. Do not fasten supports to pipes, ducts, mechanical equipment and conduit.
- J. Install products in accordance with manufacturer's instructions.

END OF SECTION

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Conduit system with associated couplings, connectors and fittings. Conduits to be mechanically and electrically continuous from outlet to outlet and from outlets to cabinets, pull or junction boxes.
 - 1. Conduit Use - Rigid Galvanized Conduit:
 - a. All interior and exterior circuits above and below ground.
 - 2. Conduit Use - Flexible Liquid-tight Metal Conduit:
 - a. Connecting motors, generators and other equipment subject to vibration, maximum length - 3 feet.
 - b. Passing through building expansion joints.
- B. Device Boxes: Provide each fixture switch, receptacle and other wiring device with a box of appropriate size and depth for its particular location use unless indicated otherwise.
- C. Pull boxes, junction boxes and wire troughs

1.02 REFERENCES

- A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
- B. ANSI/NFPA 70 - National Electric Code.
- C. NECA Standard of Installation.
- D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- E. NEMA TC 3 - PVC Fittings for use with Rigid PVC conduit and tubing.
- F. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.
- G. ANSI/NEMA OS1 - Sheet-steel outlet boxes, device boxes, covers and box supports.
- H. NEMA 250 - Enclosures for electrical equipment (1000 volts maximum).

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.

1.04 REGULATORY REQUIREMENTS

- A. Furnish products listed and classified by Underwriters Laboratories, Inc.
- B. Conform to requirements of ANSI/NFPA 70.

1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 017839.
- B. Accurately record actual routing of all conduits.

1.06 FIELD SAMPLES

- A. Provide under provisions of Section 014500.
- B. Provide field sample of conduit two each at 2 feet in length.
- C. Provide field sample of expansion/deflection fitting, two each.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, protect, and handle products in accordance with manufacturers' recommendations.
- B. Accept conduit on site. Inspect for damage.
- C. Protect conduit from corrosion and entrance of debris by storing abovegrade. Provide appropriate covering.

1.08 PROJECT CONDITIONS

- A. Verify all conduit routings by field measurements.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system. Provide all required sweeps, boxes and fittings.

PART 2 - PRODUCTS

2.01 RIGID GALVANIZED CONDUIT

- A. Rigid conduit shall be hot dipped, galvanized, or electro-galvanized steel by Wheatland, Triangle, Republic or approved equal.
- B. Associated couplings, connectors and fittings shall be as manufactured by THOMAS & BETTS CORP., O.Z. GEDNEY CO., EFCOR or approved equal. Catalog numbers used below are those of THOMAS & BETTS CORP. based on 3/4-inch size and are considered standards by which equivalents are to be judged.
- C. ERICKSON couplings, Series 676 or approved equal, shall be used where neither length of conduit can be rotated.
- D. Conduit connectors shall be threaded type. Set screw and compression type connections ARE NOT acceptable.
- E. Sealing fitting locknuts shall be Series 142SL.
- F. Steel or malleable iron insulated bullet hub, Series 370-379, complete with sealing "O" ring. DO NOT use "die cast" material.
- G. Entrance ells shall be Series 1491 or approved equal.
- H. Combination coupling shall be Series 531 for connecting rigid galvanized conduit to electrical metallic tubing.

2.02 FLEXIBLE LIQUID-TIGHT METAL CONDUITS AND FITTINGS

- A. Liquid-tight flexible metal conduit shall be ANACONDA or approved equal.
- B. Description: Interlocked steel construction with PVC jacket.
- C. Provide flexible liquid-tight conduits and fittings as manufactured by THOMAS & BETTS CORP., O.Z. GEDNEY CO. or approved equal. Catalog numbers used below are those of the THOMAS & BETTS CORP., based on 3/4" size and are to be considered as standards by which equivalents are to be judged. All conduit shall be liquid-tight flexible type, UL type UA, or suitable for exposure to continuous or intermittent moisture.
- D. Flexible liquid-tight connectors shall be Series 5333 or approved equal.

2.03 OUTLET AND DEVICE BOXES

- A. Acceptable Manufacturers: Raco, General Electric or approved equal.
- B. Sheet Metal Outlet Boxes - All concealed boxes shall be NEMA OSI, galvanized steel:
 - 1. Luminare and Equipment Supporting Boxes: Rated for weight of equipment supported. Provide 1/2" male fixture stubs where required.
- C. Concrete Ceiling Boxes: Concrete type.
- D. Cast Boxes: All exposed surface mounted boxes shall be NEMA FB1, Type FD, cast ferrous alloy. Provide gasketed cover by box manufacturer.

2.04 JUNCTION BOXES

- A. Acceptable Manufacturers: RACO, GENERAL ELECTRIC or approved equal.
- B. Sheet metal boxes: NEMA OS1, galvanized steel.
- C. Covers: Galvanized steel.

2.05 WIRE TROUGH

- A. Wireways shall be manufactured by Square D, Class 526, rain tight trough or approved equal.
- B. Wireway shall be completely enclosed with removable covers.
- C. Construction: 16 Gauge Galvanized Steel. 8-inch and 12-inch wire trough shall be 14-gauge galvanized steel.
- D. Finish: ANSI-49 epoxy paint applied by cathodic electro-deposition paint process over a corrosion resistant phosphate preparation.
- E. UL listed.

2.06 ELECTRICALLY CONDUCTIVE CORROSION-RESISTANT THREAD COMPOUND

- A. KOPR-SHIELD or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION OF CONDUITS

- A. Minimum size of conduits shall be 3/4-inch.
- B. Minimum conduit depth shall be 18" below grade, measured to the top of the conduit on exterior underground installations.
- C. Conduit joints shall be cut square, threaded, reamed smooth, and drawn up tight so conduit ends will butt in couplings, connectors and fittings.
- D. All threaded conduits and fittings shall have KOPR-SHIELD compound applied to all threads prior to assembly.
- E. Make bends or offsets with standard ells or field bends with an approved bender.
- F. Run concealed conduits in direct line with long sweep bends or offsets. Run exposed conduits parallel to and at right angles to building lines. Group multiple conduit runs in banks.
- G. Secure conduits to all boxes and cabinets with double locknuts and bushings so system will be electrically continuous from service to all outlets.
- H. Install conduit in accordance with NECA Standard of Installation.
- I. Cap ends of conduits to prevent entrance of water and other foreign material during construction.
- J. Complete all conduit systems before pulling conductors.
- K. Support conduits under provisions of Section 260529.
- L. Provide approved expansion joints or fittings and bonding jumpers where conduits in concrete pass through building expansion joints.
- M. Provide cable supports in conduits rising vertically in accordance with the National Electric Code, Article 300-19.
- N. Provide No. 12 AWG copper pull wires or nylon cord in all empty conduits. Steel wire not acceptable as pull wire.
- O. Install conduit to preserve fire resistance rating of partitions and other elements.
- P. Ground and bond conduit under provisions of Section 260526.
- Q. Where neither length of conduit can be rotated, ERICKSON couplings Series 676 shall be used.
- R. In areas where enclosed and gasketed fixtures and weatherproof devices are specified, where rigid conduit enters a sheet metal enclosure, junction box and outlet box, and not terminated in a threaded hub, a steel, or malleable iron nylon insulated bullet hub, complete with recessed sealing "O" ring, shall be used, Series 370-379 . DO NOT use die cast material.
- S. In concrete slabs block up conduit from forms and securely fasten in place. All conduits in slabs shall be installed below concrete slab.

- T. Where conduits running overhead pass through building expansion joints, install flexible liquid tight conduit of same size with sufficient slack to allow conduits on either side of expansion joint to move a minimum of 3-inches in any direction. Provide supports as required on each side of expansion joint, all in accordance with seismic requirements of specific area.
- U. Failure to route conduit through building without interfering with other equipment and construction shall not constitute a reason for an extra charge. Equipment, conduit and fixtures shall fit into available spaces in building and shall not be introduced into building at such times and manner as to cause damage to structure. Equipment requiring servicing shall be readily accessible.
- V. Arrange supports to prevent misalignment during wiring installation.
- W. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- X. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.
- Y. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- Z. Do not attach conduit to ceiling support wires.
- AA. Arrange conduit to maintain headroom and present neat appearance.
- AB. Route exposed conduit parallel and perpendicular to walls.
- AC. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
- AD. Route conduit in and under slab from point-to-point.
- AE. Do not cross conduits in slab.
- AF. Maintain adequate clearance between conduit and piping.
- AG. Maintain 12-inch clearance between conduit and surfaces with temperatures exceeding 104°F (40°C).
- AH. Bring conduit to shoulder of fittings; fasten securely.
- AI. Use conduit hubs with sealing locknuts to fasten conduit in damp and wet locations.
- AJ. Install no more than equivalent of three 90-degree bends on interior locations between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2-inch size.
- AK. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- AL. Do not use dissimilar strap or clamp supports. Provide dielectric tape, fittings, straps, and bushings where dissimilar metals are used.
- AM. Where fittings for liquid-tight flexible conduit are brought into an enclosure with a knockout, a gasket assembly, consisting of one piece "O" ring, with a Buna-R sealing material, Series

5200, shall be installed on outside of box. Fittings shall be made of either steel or malleable iron only, and shall have insulated throats or insulated bushings.

- AN. A copper ground wire sized in accordance with NEC shall be installed on the inside of the conduit as a jumper around flexible conduit to assure a continuity of ground.
- AO. Install a copper jumper across all flexible conduit including lighting fixtures, controls and other utilization equipment.
- AP. Install liquid-tight flexible conduit in such a manner as to prevent liquids from run-ning on surface toward fittings.
- AQ. Allow sufficient slack conduit to reduce the effect of vibration.
- AR. Complete all conduit systems before pulling the conductors.
- AS. Support in accordance with requirements of National Electric Code.

3.02 INSTALLATION OF BOXES

- A. Install boxes concealed in finished walls.
- B. Locate boxes to prevent moisture from entering or accumulating within them.
- C. Support boxes independently of conduit, as required by the National Electric Code.
- D. Provide 4" x 1-1/2" octagonal, 4" x 1-1/2" square or 4" x 2-1/8" square ceiling outlet boxes.
- E. Where required to hang a specific fixture, provide a fixture stud of the no-bolt, self-locking type on ceiling outlets.
- F. Provide 2-1/2" x 3-3/4" one gang masonry boxes for switches and receptacles installed concealed in concrete block walls. For increased cubic capacity, provide 3-1/2" x 3-3/4" one gang masonry boxes. Where more than two conduits enter the box from one direction, provide 4" square boxes with square cut device covers not less than 1" deep specifically designed for this purpose. Use round edge plaster rings only if the block walls are to be plastered. Use sectional or gang-type outlet boxes only in drywall construction.
- G. Provide 4-11/16" square outlet boxes with square cut device corners for block walls or round edge plaster rings for plastered walls for telephone outlets. Single gang device boxes are not acceptable.
- H. Provide fittings with threaded hubs for screw connections and with the proper type covers for switches and receptacles served by exposed conduit. Use pressed steel outlet only for ceiling fixture outlets.
- I. Provide condulets with threaded hubs and covers and with proper configurations for all changes of direction of exposed conduits. Standard conduit ells may be used if they do not interfere or damage or mar the appearance of the installation.
- J. Use boxes of sufficient cubic capacity to accommodate the number of conductors to be installed, in accordance with the National Electric Code.
- K. Effectively close unused openings in boxes with metal plugs or plates.
- L. Set boxes so that front edges are flush with finished surfaces.

- M. Support boxes from structural members with approved braces.
- N. Install blank device plates on outlet boxes left for future use.
- O. Provide bushings in holes through which cords or conductors pass.
- P. Install boxes so that the covers will be accessible at all times.
- Q. Electrical boxes may be installed in vertical fire resistive assemblies classified as fire/smoke and smoke partitions without affecting the fire classification, provided such openings occur on one side only in each framing space and that openings do not exceed 16 square inches. All clearance between such boxes and the gypsum board shall be completely filled with joint compound or approved fire-resistive compound. The wall shall be built around outlet boxes larger than 16 square inches so as not to interfere with the wall rating.

3.03 INSTALLATION OF PULL BOXES, JUNCTION BOXES AND WIRE TROUGHS

- A. Provide junction boxes as shown on Drawings and otherwise where required, sized according to number of conductors in box or type of service to be provided. Mini-mum junction box size 4-inch square and 2-1/8-inches deep. Provide screw covers for junction boxes.
- B. Install boxes in conduit runs wherever necessary to avoid long runs or too many bends. Do not exceed 100-foot runs without pull boxes. Install pull boxes at all 90-degree bends.
- C. Rigidly secure boxes to walls or ceilings. Conduit runs will not be considered adequate support.
- D. Install boxes with covers in accessible locations. Size boxes in accordance with the National Electric Code.
- E. Do not install pull boxes or junction boxes for joint use of line voltage and signal or low voltage controls unless all conductors are insulated for the highest voltage being used in the same box.
- F. Coordinate installation of exterior pull boxes with General contractor to establish elevations of finished grades and pavements. All castings shall have chimney adjustment of + 6".

3.04 CONDUIT LOCATIONS

- A. Contractor shall not route conduits over pump motors, roof hatches and trolley beams which would prevent removal of pump motors.

END OF SECTION

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Nameplates and labels.
- B. Wire and cable markers.
- C. Conduit markers.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide catalog data for nameplates, labels and markers.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Underwriters Laboratories, Inc. Include instructions for storage, handling, protection, examination, preparation and installation of product.

1.04 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 NAMEPLATES AND LABELS

- A. Nameplates: Engraved three-layer laminated plastic, white letters on black background.
- B. Locations:
 - 1. Motor Control Centers.
 - 2. Distribution panelboards.
 - 3. All control switches and pilot light devices.
 - 4. Transfer Switches.
 - 5. Generator Enclosure.
- C. Letter Size:
 - 1. Use 1/4 inch (6 mm) letters for identifying all control pilot lights.
- D. Labels: Embossed adhesive tape, with 3/16" (5mm) white letters on black background. Use for identifying existing equipment, distribution panels, switchboards, disconnect switches, and individual electrical devices.

2.02 WIRE MARKERS

- A. Manufacturers:

1. 3M ELECTRICAL SPECIALTY DIV., Product Scotch Code.
 2. THOMAS & BETTS CORP., Product E-Z Code.
 3. Substitutions shall be permitted only after receiving written approval from the Engineer.
- B. Description: Epoxy film tape type wire markers.
- C. Locations: Each conductor at panelboards, auxiliary gutters, pull boxes, outlet and junction boxes, circuit breakers and each load connection.
- D. Legend:
1. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.
 2. Control Circuits: Control wire number indicated on interconnection diagrams on drawings.

2.03 CONDUIT MARKERS

- A. Manufacturers:
1. THOMAS & BETTS CORP.
 2. Substitutions shall be permitted only after receiving written approval from the Engineer.
- B. Description: Self-sticking vinyl; black letters on orange background.
- C. Location: Furnish markers for each conduit longer than 6 feet (1.8 m).
- D. Spacing: 20 feet (6 m) on center.

2.04 UNDERGROUND WARNING TAPE

- A. Manufacturers:
1. THOMAS & BETTS CORP., Model NA-0708.
 2. Substitutions shall be permitted only after receiving written approval from the Engineer.
- B. Description: 6 inch (150 mm) wide plastic tape, detectable type, colored yellow with suitable warning legend describing buried electrical lines.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive nameplates and labels.

3.02 APPLICATION

- A. Install nameplate and label parallel to equipment lines.
- B. Secure nameplate to equipment front using screws, rivets or adhesive.
- C. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.
- D. Apply conduit markers at 20 foot (6 m) intervals.
- E. Identify underground conduits using underground warning tape. Install one tape per trench at 3 inches (75 mm) below finished grade.

3.03 ELECTRICAL EQUIPMENT IDENTIFICATION

- A. The Contractor shall identify all existing circuits in existing distribution panels, switchboards and disconnect switches to remain.
- B. Label all circuits identifying the load served including all individual circuit breakers.
- C. Label all new circuit breakers and switches used for new feeder and branch circuits.

END OF SECTION

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Switches, receptacles, thermostats, device plates and other wiring devices as indicated on Drawings.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.
- B. NEMA WD1 - General Purpose Wiring Devices.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Provide manufacturer's catalog information showing dimensions, colors and configuration.

1.04 REGULATORY REQUIREMENTS

- A. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 EMERGENCY KILL MUSHROOM SWITCH

- A. Acceptable Manufacturers: SQUARE D Model No.: 9001KR9P1RH1321 or approved equal.
- B. Operator: 2-POSITION MAINTAINED PULL-MAINTAINED PUSH ILLUMINATED FLASHING mushroom head pushbutton. Switch head shall only be flashing in the "pushed" position.
- C. Mushroom Head: 2-1/4-inch diameter head.
- D. Nameplate: Large 2.92-inch square, Red nameplate with engraved logo "Emergency Stop", unless noted otherwise on drawings.
- E. Enclosure: Heavy duty, one opening, sheet steel enclosure, NEMA 12.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Mounting:
 - 1. Mount all switches 46-inches above finished floor to center line of switch unless noted otherwise.
 - 2. Mount all receptacles 18-inches above finished floor to center line of receptacle unless noted otherwise.
 - 3. Install switches with OFF position down.
- B. Polarity: Properly wire all receptacles so that the hot wire, the neutral wire and the ground wire connect to the proper terminal on all receptacles.

- C. Grounding: Install all devices in boxes specified under Section 260533 and install a No. 12 green ground wire from device grounding terminal to the outlet box in accordance with the National Electric Code.
- D. Install device plates on switch, receptacle and blank outlets in full contact with wall surface.
- E. Provide new SO cord for all chemical pumps and install plug end to match receptacle.

3.02 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify that each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.

END OF SECTION

SECTION 263213 - DIESEL ENGINE GENERATOR SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Packaged engine generator set.
- B. Exhaust piping, fittings, silencer and insulation.
- C. Control panels.
- D. Battery and charger.
- E. Vibration isolation.

1.02 REFERENCES

- A. NEMA AB1 - Molded Case Circuit Breakers.
- B. NEMA MG1 - Motors and Generators.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- D. ANSI/NFPA 70 - National Electric Code.
- E. NFPA 110 - Emergency Standby Systems.
- F. NFPA 30 - Flammable and Combustible Liquids Code.
- G. NFPA 37 - Installation of Stationary Engines.
- H. NFPA 101 - Life Safety Code.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Shop Drawings: Indicate electrical characteristics and connection requirements. Show plan and elevation views with overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, electrical diagrams including schematic and interconnection diagrams.
- C. Product Data: Provide data showing dimensions, weights, ratings, interconnection points and internal wiring diagrams for engine, generator, control panel, battery, battery rack, battery charger, exhaust silencer, vibration isolators, radiator and derating schedules, operating performance, exhaust flow data, and cooling system data. Submit generator alternator output curves, deration curves and temperature data on the complete genset individual components.
- D. Test Reports: Indicate results of performance testing including 0.8 power factor test at 100 percent load.
- E. Prototype Test Reports: Submittals will not be received without submission of prototype test reports. No exceptions.

- F. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation and starting of product. Provide typical system interconnection wiring diagrams.
- G. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- H. Manufacturer's Field Reports: Submit under provisions of Section 017500. Indicate procedures and findings.

1.04 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017823.
- B. Operation Data: Include instructions for normal operation.
- C. Maintenance Data: Include instructions for routine maintenance requirements, service manuals for engine and day tank, oil sampling and analysis for engine wear, and emergency maintenance procedures.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with NFPA 110.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum ten years experience, and with an authorized distributor offering 24-hour parts and service availability within 50 miles of the project. The manufacturer shall fabricate the engines, generators and control panel. Automatic transfer switches and generator enclosures shall be supplied, warranted and serviced by a single system source supplier.
- B. Supplier: Authorized distributor of specified manufacturer with minimum six years documented experience with specified products and factory-trained service technicians. The supplier must be factory authorized to perform warranty service on the entire system, including but not limited to, the engines, generators, control panels and automatic transfer switches. The supplier must show proof of factory trained service technicians on all components.
- C. The complete engine generator system shall be standard of a single manufacturer. It shall be factory built, tested and shipped by this single manufacturer.

1.07 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70 and NFPA 110.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and indicated.

1.08 EXTRA SERVICES

- A. The single source supplier shall provide as part of the package a 5-year warranty and 5-year planned maintenance agreement at no additional cost to the Owner. This warranty shall cover the generator system, transfer switches and generator enclosures. Agreement shall include, as a minimum, one service call per year. The services must be performed by the authorized

distributor of the equipment furnished, and may not be subcontracted. The following services shall be performed once a year.

1. Replace engine-lubricating oil and remove used oil from premises.
2. Replace oil and fuel filters.
3. Check oil/water separator. Remove water from premises.
4. Check coolant system for proper levels and condition. Replace coolant filters and add corrosion inhibitor as needed.
5. Check air filter.
6. Check and clean crankcase breathers.
7. Check turbocharger free-spin and end play.
8. Check and adjust belts as required.
9. Check engine for loose, bare or broken wiring. Replace as needed.
10. Fuel tanks and lines to be inspected for the purpose of determining if excessive sludge or rust is collecting.
11. Check entire equipment for fuel or water leaks.
12. Check condition of batteries and report any action necessary for recharging or replacing.
13. Start and run all engines, check temperatures and pressures.
14. Test engine safety shutdown systems.
15. Test all transfer switches operation and time delays.
16. Submit a report of this inspection to the Owner and advise of any further work required.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. ONAN CORPORATION, Minneapolis, Minnesota, or specifically approved equal.
- B. Proposal for any substitute equipment shall provide complete submittal data, as specified in Section 012500 - Substitution Procedures and specified herein, to the Engineer for approval or disapproval. The supplier must submit detailed sizing calculations for each generator to verify models are capable of picking up the entire loads with voltage dips as herein specified.
- C. Approval of Substitute Equipment: Design has been based on ONAN Model Generators. If substitute equipment is approved, the contractor shall be responsible for the charges of any necessary revisions to the plans and specifications, drawings, and project documentation; and charges related to equipment spacing, enclosure sizes, foundation sizes, mounts, electrical wiring, ventilation equipment, fuel, exhaust components, etc., as well as any engineering costs. If a brand name other than that specified is proposed for use, the supplier must provide a locally available generator system for the Owner and engineer to review and inspect, as well as witness testing to show compliance with the specifications. Also, the supplier must furnish a list of completed installations, including name, address and telephone number of at least five comparable installations which can prove the proposed products have operated satisfactorily for three years.
- D. It is intended that all products specified herein be of standard ratings, therefore, the KW and KVA, starting KVA and maximum allowable voltage dip, ratings, etc., shall be the manufacturer's next size or rating to exactly meet the specifications. No exceptions.

2.02 SYSTEM REQUIREMENTS

- A. The engine generator shall start and provide continuous power to the loads with 100 percent block loading at the time of transfer.

2.03 DIESEL ENGINE GENERATOR SET

- A. Rating: The AC engine generator set, ONAN Model 450 DFEJ and shall be rated by the manufacturer for standby operation at 450kW/563kVA at 0.8 PF, 60 Hz, 1800 RPM for use at 277/480 volts, 3 phase, 4 wire. Ratings shall be at an elevation of 5700 feet above sea level, and at 104 degrees F.
1. Voltage regulation shall be +/- 0.5 percent of rated voltage for any constant load between no load and rated load.
 2. Frequency regulation shall be isochronous under varying from no load to 100% rated load.
 3. Random Voltage Variation: The cyclic variations in RMS voltage shall not exceed +/- 0.5% of rated speed for constant loads from no load to rated load, with constant ambient and operating temperature.
 4. Random Frequency Variation: Speed variations for constant loads from no load to rated load shall not exceed plus or minus 0.25% of rated speed, with constant ambient and operating temperature.
 5. Telephone Harmonic Distortion: The sum of AC voltage waveform harmonics, from no load to full linear load, shall not exceed 5% of rated voltage (L-N, L-L, L-L-L) and no single harmonic shall exceed 3% of rated voltage.
 6. Telephone Influence Factor: TIF shall be less than 50 per NEMA MG1-22.43.
 7. The diesel engine generator set shall be capable of picking up 100% of nameplate KW and power factor in one step with the engine generator set at operating temperature, in accordance with NFPA Standard 110, Paragraph 5-13.2.6.
 8. The maximum allowable engine BMEP on the engine shall not exceed 318 psi at 100% rated load.
 9. The engine generator shall start and provide power to the loads in the following step starting sequence with a maximum instantaneous voltage dip of 20% and a maximum frequency dip of 3%.

Step No.	Description	Load	Volts/Phase	Motor Code	Load Type	Starting Method
1	EUH-1	5kVA	480/3	-	Heating	Full Voltage
1	EUH-2	5kVA	480/3	-	Heating	Full Voltage
1	EUH-3	5kVA	480/3	-	Heating	Full Voltage
1	EUH-4	3kVA	480/3	-	Heating	Full Voltage
1	EF-1	1/3HP	120/1	N	Motor	Full Voltage
1	EF-2	1/6HP	120/1	P	Motor	Full Voltage
1	EF-3	1/10HP	120/1	R	Motor	Full Voltage
1	ERP-1	1.12kVA	208/1	-	Misc.	Full Voltage
1	ERP-2	1.12kVA	208/1	-	Misc.	Full Voltage
1	Lime Mixer	1/2HP	120/1	M	Motor	Full Voltage
1	Lighting	3kVA	120/1	-	Lighting	Full Voltage
1	General Power	15kVA	208/1	-	Misc.	Full Voltage
1	Perchlorate EF-1	1/3HP	120/1	N	Motor	Full Voltage
1	Perchlorate EUH-1	7.5kVA	480/3	-	Heating	Full Voltage
1	Perchlorate EUH-2	7.5kVA	480/3	-	Heating	Full Voltage
1	Perchlorate EUH-3	7.5kVA	480/3	-	Heating	Full Voltage

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H2M

1	Perchlorate Lighting	1kVA	120/1	-	Misc.	Full Voltage
1	Perchlorate General Power	3.33kVA	120/1	-	Misc.	Full Voltage
1	(Future Nitrate Treatment) EF-1	1/2.5HP	120/1	-	Motor	Full Voltage
1	(Future Nitrate Treatment) EF-2	1/2.5HP	120/1	-	Motor	Full Voltage
1	(Future Nitrate Treatment) Lighting	2.32kVA	120/1	-	Lighting	Full Voltage
1	(Future Nitrate Treatment) Miscellaneous	16.67kVA	208/1	-	Misc.	Full Voltage
1	(Future Nitrate Treatment) EUH-1	7.5kVA	480/3	-	Heating	Full Voltage
1	(Future Nitrate Treatment) EUH-2	7.5kVA	480/3	-	Heating	Full Voltage
1	(Future Nitrate Treatment) EUH-3	7.5kVA	480/3	-	Heating	Full Voltage
1	Eyewash	3.6kVA	208/1	-	Heating	Full Voltage
1	Sink Water Heater	8kVA	277/1	-	Heating	Full Voltage
1	(Future Nitrate Treatment) Eyewash/Shower Water	3kVA	208/1	-	Heating	Full Voltage
2	CL2 Pump-1	1/6HP	120/1	P	Motor	Full Voltage
2	Sequestering Pump-1	1/30HP	120/1	R	Motor	Full Voltage
2	Lime Pump-1	1/3HP	120/1	N	Motor	Full Voltage
3	(Future Nitrate Treatment) Brine Pump-1	2HP	480/3	L	Motor	Full Voltage

3	(Future Nitrate Treatment) Brine Pump-2	2HP	480/3	L	Motor	Full Voltage
3	(Future Nitrate Treatment) Recycle Pump-1	2HP	480/3	L	Motor	Full Voltage
3	(Future Nitrate Treatment) Recycle Pump-2	2HP	480/3	L	Motor	Full Voltage
4	(Future Nitrate Treatment) Overhead Door Motor-1	1/2HP	120/1	M	Motor	Full Voltage
5	(Future Nitrate Treatment) Overhead Door Motor-2	1/2HP	120/1	M	Motor	Full Voltage
5	Well No. 16-1	200HP	480/3	G	Motor	Full Voltage

- B. The generator shall at a minimum provide the following performance:
- C. The generator as a packaged unit (engine, alternator and controls) provide a minimum of 2,429 SKVA sustaining a minimum of 90% of rated no load voltage with the specified 2,429 SKVA load at near zero power factor applied to the generator.
- D. The alternator performance shall be designed to provide a minimum of 2,200 locked rotor KVA at a maximum voltage dip of 35%.
- E. The following performance verifications shall be provided for substitute generators.
1. Submit five copies of generator sizing program based upon the specified step/starting sequence and associated voltage/frequency dips and required starting KVA.
 2. As part of the substitution requirements the contractor shall enter all design step/starting sequence loads into the manufacturer's generator sizing program in the presence of the engineer to verify model proposed by substitute manufacturer meets the specified requirements for ambient temperature, site altitude, voltage dip, frequency dip, and starting KVA.
- F. The diesel fuel oil tank shall be rated at 2525 gallons and shall be placed in a rupture basin of 110% capacity for secondary contain-ment, in accordance with Nassau County Fire Marshall/Suffolk County Department of Health Services requirements. Minimum 12 gauge steel shall be used for tank body, and minimum 3/16" steel shall be used for rupture basin. Tank shall be U.L. 142 listed and labeled, have vent, emergency vent, lockable fill, electric gauge, and fuel level contacts. Rupture basin shall have contacts to indicate a leak in the fuel

tank. Tank must be factory tested for leaks under pressure prior to ship-ment. Three (3) integral, pre-engineered cable entry area shall be provided in the fuel tank and rupture basin for power, controls and distribution panel. Design of this entry area shall ensure the integrity of the rupture basin and tank, and be coordinated with the generator set manufacturer for location under the cable connection area on the generator. Bottom of rupture basin shall be raised 1 3/4" minimum off concrete pad so bottom does not rest on concrete pad. Exterior of tank and rupture basin and base rails to be painted with coal tar epoxy primer and exterior epoxy paint to prevent corrosion. Four-point lifting provisions shall be provided at the enclosure base, with capacity suitable for rigging the entire assembly. Quality assurance procedures of the manufacturer shall include regular testing of the lift devices.

2.04 AC GENERATOR, REGULATOR AND EXCITER UNIT

- A. The AC generator, exciter and voltage regulator shall be designed and manufactured by the engine generator set manufacturer as a complete generator system.
- B. The AC generator shall be synchronous, four pole, revolving field, drip-proof construction, single prelubricated sealed bearing, air cooled by a direct drive centrifugal blower fan and directly connected to the engine with flexible drive discs. The armature shall have skewed laminations of insulated electrical grade steel, two-thirds pitch windings in order to minimize field heating and voltage harmonics. The rotors shall have amortisseur (damper windings) layer wound mechanically wedged winding construction. The rotors shall be dynamically balanced. The exciters shall be brush-less, three phase, with full wave silicon diodes mounted on the rotating shaft and a surge suppressor connected in parallel with the field winding. Field discharge resistors shall not be acceptable. Systems using three wire solid state devices (such as SCRs or transistors) mounted on the rotor shaft shall not be acceptable.
- C. All insulation system components shall meet NEMA MG1 standard temperature limits for Class H insulation system. Actual temperature rise measured by resistance method at full load shall not exceed 80 degrees C to provide additional allowance for internal hot spots. The main generator and exciter insulation systems must be suitably impregnated for operation in severe environments for resistance to sand, salt and sea spray.
- D. Generator shall be a Permanent Magnet Generator (PMG). Permanent magnet generators shall provide excitation power to the automatic voltage regulator for immunity from voltage distortion caused by nonlinear SCR controlled loads on the generator. The PMG's shall sustain main field excitation power for optimum motor starting and to sustain short circuit current for selective operation and coordination of system overcurrent devices.

2.05 ENGINE GENERATOR SET CONTROLS

- A. The generator sets shall be provided with microprocessor-based control systems which are designed to provide automatic starting, monitoring, and control functions for the generator set. The control systems shall also be designed to allow local monitoring and control of the generator sets, and remote monitoring and control as described in this specification. The controls shall be mounted on the generator sets, and shall be vibration isolated and prototype tested to verify the durability of all components in the system under vibration conditions encountered. The controls shall be UL-508 labeled, CSA282-M1989 certified, and meet IEC-8528 part 4. All switches, lamps and meters shall be oil-tight and dust-tight, and the enclosure doors shall be gasketed. There shall be no exposed points in the controls (with the door open) that operate in excess of 50 volts. The controls shall meet or exceed the requirements of Mil-Std 461C part 9, and IEC Std. 801.2, 801.3 and 801.5 for susceptibility, conducted and radiated electromagnetic emissions. The entire controls shall be tested and meet the requirements of IEEE587 for voltage surge resistance. The generator set mounted controls shall include the following features and functions:

1. The generator control panel shall provide a network interface for the future Scada System. This network interface shall communicate all the generator status, control, display messages, troubleshooting and safety features as described below. Software shall be available for interfacing PLC Software with generator control panel communications. This interface and software development will be performed by another contract.
2. Three position control switch labeled RUN/OFF/AUTO. In the RUN position the generator set shall automatically start, and accelerate to rated speed and voltage. In the OFF position the generator set shall immediately stop, bypassing all time delays. In the AUTO position the generator set shall be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage.
3. Red "mushroom-head" push-button EMERGENCY STOP switch. Depressing the emergency stop switch shall cause the generator set to immediately shut down, and be locked out from automatic restarting.
4. Push-button RESET Switch: The RESET switch shall be used to clear a fault and allow restarting the generator set after it has shut down for any fault condition.
5. Generator Set AC Output Metering: The generator set shall be provided with a metering set with the following features and functions:
 - a. 2.5-inch, 90 degree scale analog voltmeter, ammeter, frequency meter, and kilowatt (KW) meter. These meters shall be provided with a phase select switch and an indicating lamp for upper and lower scale on the meters. Ammeter and KW meter scales shall be color coded in the following fashion: readings from 0-90% of generator set standby rating: green; readings from 90-100% of standby rating: amber; readings in excess of 100%: red.
 - b. Digital metering set, 0.5% accuracy, to indicate generator RMS voltage and current, frequency, output current, output KW, KW-hours and power factor. Generator output voltage shall be available in line-to-line and line-to-neutral voltages, and shall display all three phase voltages (line to neutral or line to line) simultaneously.
6. Generator Set Alarm and Status Message Display: The generator set shall be provided with alarm and status indicating lamps to indicate non-automatic generator status, and existing alarm and shutdown conditions. The lamps shall be high-intensity LED type. The lamp condition shall be clearly apparent under bright room lighting conditions. The generator set control shall indicate the existence of the following alarm and shutdown conditions on a digital display panel:
 - a. Low Oil Pressure (alarm)
 - b. Low Oil Pressure (shutdown)
 - c. Oil Pressure Sender Failure (alarm)
 - d. Low Coolant Temperature (alarm)
 - e. High Coolant Temperature (alarm)
 - f. High Coolant Temperature (shutdown)
 - g. Engine Temperature Sender Failure (alarm)
 - h. Fail to Crank (shutdown)
 - i. Overcrank (shutdown)
 - j. Overspeed (shutdown)
 - k. Low DC Voltage (alarm)
 - l. Low Coolant Level (alarm or shutdown-selectable)
 - m. High DC Voltage (alarm)
 - n. Weak Battery (alarm)
 - o. Low Fuel-Daytank (alarm)
 - p. High AC Voltage (shutdown)
 - q. Low AC Voltage (shutdown)
 - r. Under Frequency (shutdown)
 - s. Over Current (warning)
 - t. Over Current (shutdown)
 - u. Short Circuit (shutdown)

- v. Ground Fault (alarm)
 - w. Over Load (alarm)
 - x. Emergency Stop (shutdown)
 - 1) In addition, provisions shall be made for indication of two customer-specified or future alarm or shutdown conditions. These two alarm conditions shall be interfaced with leak detection/overflow alarm panel for overflow and leak detection. Labeling of the customer specified or future alarm or shutdown conditions shall be of the same type and quality as the above specified conditions. The non-automatic indicating lamp shall be red, and shall flash to indicate the generator set is not able to automatically respond to a command to start from a remote location.
7. Engine Status Monitoring: The following information shall be available from a digital status panel on the generator set control:
- a. Engine Oil Pressure (psi of kPA)
 - b. Engine Coolant Temperature for left and right block temperatures (degrees F or C; both)
 - c. Engine Oil Temperature (degrees F or C)
 - d. Engine Speed (rpm)
 - e. Number of Hours of Operation (hours)
 - f. Number of Start Attempts
 - g. Battery Voltage (DC volts)
8. Control Functions: The control system shall provide for the following functions:
- a. The control system provided shall include a cycle cranking system, which allows for user selected crank time, reset time, and number of cycles. Initial settings shall be for 3 cranking periods of 15 seconds each, with 15 second rest period between cranking periods.
 - b. The control system shall include an idle mode control, which allows the engine to run in idle mode in the RUN position only. In this mode, the alternator excitation system shall be disabled.
 - c. The control system shall include an engine governor control, which functions to provide steady state frequency regulation as noted elsewhere in this specification. The governor control shall include adjustments for gain, damping, and ramping function to control engine speed and limit exhaust smoke while the unit is starting. The governor control shall be suitable for use in paralleling applications without component changes.
 - d. The control system shall include time delay start (adjustable 0-300 seconds) and time delay stop (adjustable 0-600 seconds) functions.
 - e. The control system shall include sender failure monitoring logic for speed sensing, oil pressure, and engine temperature which is capable of discriminating between failed sender or wiring components, and an actual failure condition.
9. Alternator Control Functions: The generator set control shall include the following alternator control functions:
- a. The generator set shall include an automatic voltage regulation system which is matched and prototype tested with the governing system provided. It shall be immune from misoperation due to load-induced voltage waveform distortion and provide a pulse width modulated output to the alternator exciter. The voltage regulation system shall be equipped with three-phase RMS sensing and shall control build up of AC generator voltage to provide a linear rise and limit overshoot. The systems shall include a torque-matched characteristic, which shall reduce output voltage in proportion to frequency below a threshold of [58-59] HZ. The voltage regulator shall include adjustments for gain, damping and frequency roll-off. Adjustments shall be broad range, and made via digital raise-lower switches, with an alpha-numeric LED readout to indicate setting level.

- b. The voltage regulation system shall include provisions for reactive load sharing and electronic voltage matching for paralleling applications. Motorized voltage adjust pot is not acceptable for voltage matching.
 - c. Controls shall be provided to monitor the output current of the generator set and initiate an alarm when load current exceeds 110% of the rated current of the generator set on any phase for more than 60 seconds. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator.
 - d. Controls shall be provided to monitor the KW load on the generator set, and initiate an alarm condition when total load on the generator set exceeds the generator set rating for in excess of 5 seconds.
 - e. Controls shall include a load shed control, to operate a set of dry contacts (for use in shedding customer load devices) when the generator set is overloaded.
 - f. An AC over/under voltage monitoring system which responds only to true RMS voltage conditions shall be provided. The system shall initiate shutdown of the generator set when alternator output voltage exceeds 110% of the operator-set voltage level for more than 10 seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown shall occur when the output voltage of the alternator is less than 85% for more than 10 seconds.
 - g. A battery monitoring system shall be provided which initiates alarms when the DC control and starting voltage is less than 25VDC or more than 32VDC. During engine starting, the low voltage limit shall be disabled, and if DC voltage drops to less than 14.4 volts for more than two seconds a "weak battery" alarm shall be initiated.
 - h. The control system shall include a ground fault monitoring relay. The relay shall be adjustable from 100-1200 amps, and include adjustable time delay of 0-1.0 seconds. The relay shall be for indication only, and not trip or shut down the generator set. Note bonding and grounding requirements for the generator set, and provide relay which will function correctly in system as installed.
10. Control Interfaces for Remote Monitoring: All control and interconnection points from the generator set to remote components shall be brought to a separate connection box. No field connections shall be made in the control enclosure or in the AC power output enclosure. Provide the following features in the control system:
- a. Form "C" dry common alarm contact set rated 2A @ 30VDC to indicate existence of any alarm or shutdown condition on the generator set.
 - b. One set of contacts rated 2A @ 30VDC to indicate generator set is ready to load. The contacts shall operate when voltage and frequency are greater than 90% of rated condition.
 - c. A fused 10 amp switched 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit whenever the generator set is running.
 - d. A fused 20 amp 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit at all times from the engine starting/control batteries.
 - e. The control shall be provided with provisions for connection of remote monitoring equipment as described herein or shown on the drawings.

2.06 ENGINES

- A. The diesel engine shall be manufactured by Cummins Engine Company and designed specifically for generator set duty. The diesel engine shall be 4 cycle, diesel fueled, direct injection, 1800 RPM, with forged steel crankshaft and connecting rods. Minimum engines shall be 912 cubic inches. Engines shall have a minimum of 6 cylinders. The cylinder blocks shall be cast iron with replaceable wet liners and have four valves per cylinder. The engines shall be turbocharged and aftercooled.

- B. Two cycle engines will not be acceptable.
- C. Electronic governor systems shall provide automatic isochronous frequency regulation. The engine governing systems shall not utilize any exposed operating linkage.
- D. The engines shall be cooled by a unit-mounted closed loop radiator system including belt-driven pusher fan, coolant pump and thermostat temperature control. The cooling systems shall be rated for full rated load operation in 122 degrees F (50 degrees C) ambient condition. The cooling capability of the generator sets shall be demonstrated by prototype tests on a representative generator set model conducted by the generator set manufacturer; calculated data from the radiator manufacturer only is not sufficient. Radiators shall be provided with a duct adapter flange permitting the attachment of an air discharge duct to direct the radiator air outside according to the manufacturer's instructions.
- E. Rotating parts shall be guarded against accidental contact per OSHA requirements.
- F. The maximum radiator cooling air shall not exceed 25,000 scfm. The maximum alternator cooling air shall not exceed 2,190 cfm for the genset. The maximum allowable static restriction shall not exceed 0.5 inches of water. The entire cooling air system is based on the above data. All costs incurred if an alternate manufacturer is purchased shall be the responsibility of the electrical contractor. These costs shall include costs to all other trades as well as any associated engineering fees.

2.07 ENGINE ACCESSORY EQUIPMENT

- A. The engine generator sets shall include the following accessories:
 - 1. Fuel-Pressure Gauge.
 - 2. Electric starters capable of three complete cranking attempts without overheating, before overcrank shutdown (75 seconds).
 - 3. Positive displacement, mechanical, full pressure, lubrication oil pumps. Full flow lubrication oil filters with replaceable spin-on canister elements and dipstick oil level indicators. Provide bypass oil filters.
 - 4. Engine driven, mechanical, positive displacement fuel pumps. Fuel filters with replaceable spin-on canister elements. Replaceable heavy duty dry element air cleaners with restriction indicators and safety element. Flexible fire rated supply and return fuel lines.
 - 5. Engine mounted battery charging alternators, 35 ampere and solid-state voltage regulators.
 - 6. Fuel water separators.
 - 7. Anti-condensation heater for alternator.

2.08 BASES

- A. The engine-generator set shall be mounted on a heavy duty steel base to maintain proper alignment between components. The engine-generator set shall incorporate battery trays with battery holddown clamps on the base rails. Provisions for stub up of electrical connections shall be within the footprint of the generator set base rails and within the basetanks as specified in the housing section of the specification. Vibration isolators, spring type, shall be provided to be mounted under the generator set base.

2.09 GENERATOR SETS CIRCUIT BREAKERS

- A. Generator main circuit breaker shall be solid state UL listed, molded case type, rated as listed below. Circuit breakers shall be mounted in a separate NEMA 1 enclosure and be shipped

completely wired to the gensets. No exceptions. Enclosures shall include neutral blocks for field connection.

- B. Solid State circuit breakers shall be 100% rated: Refer to drawings for sizes.
- C. Circuit breaker (CB) shall be long time current and instantaneous pickup with solid state trip unit. CB shall have visible mechanical fault indicator and push button trip.
- D. Circuit breakers shall be rated at 65,000 AIC.
- E. Provide auxiliary contacts on breaker position.

2.10 EXHAUST SYSTEMS

- A. One exhaust silencer shall be provided for the generator set. The silencer shall be Quiet Site Level 2. The sound pressure level shall be no higher than 74 dBA at 7 meters.
- B. All exterior fittings, accessories and bolts shall be type 304 stainless steel. Provide heat resistant gaskets between all flanged connections to serve as dielectric protectors.
- C. The maximum gas flow shall not exceed 3105 cfm. The exhaust gas temperature shall not exceed 865 degrees F. The maximum back pressure shall not exceed 41 inches of water. The design of the entire exhaust system is based on the above data. If a substitution of model specified is made, all costs incurred to redesign as well as costs to other trades to modify the layout shall be the complete responsibility of the electrical contractor.
- D. Provide stainless steel flexible exhaust connections for the engine as required for connection between the engine exhaust manifolds and exhaust lines in compliance with applicable codes and standards.
- E. Provide an exhaust system condensation trap with manual drain valve to trap and drain off exhaust condensation and to prevent condensation from entering the engine.
- F. Provide a suitable weather cap at the stack outlet with all necessary flanges and fittings for proper installation. The weather cap shall have the proper counter weights attached to prevent banging while generator is unloaded.
- G. Thermal jacket for interior exhaust lines and silencer by FIRWIN CORP. or engineered approved equal. Jacket thickness shall be sufficient to maintain a surface temperature of less than 200 degrees F.
- H. Exhaust mufflers shall be installed by enclosure manufacturer so their weight is not supported by the engines.

2.11 ACCESSORIES

- A. Vibration isolators: Spring type.
- B. Alternator Anti-Condensation Heater.
- C. Starting and control Batteries: Two (2) 24 volt starting batteries each genset, lead acid type, sized to accommodate 45 seconds of cranking at an ambient of 0 degrees F without being recharged.
- D. Battery Chargers: One 10 amp voltage regulated battery charger shall be provided for each engine-generator set. Input AC voltage and DC output voltage shall be as required. Chargers

shall be equipped with float, taper and equalize charge settings. Operational monitors shall provide visual output along with individual form C contacts rated at 4 amps, 120 VAC, 30 VDC for remote indication of :

1. Loss of AC Power - red light.
 2. Low Battery Voltage - red light.
 3. High Battery Voltage - red light.
 4. Power ON - green light (no relay contact).
- E. Block Heaters: Thermostatically controlled jacket water heater shall be supplied for each genset with a minimum size shall be 4826 watts. Input voltage of heaters shall be 208 VAC 1 phase.
- F. Provide generator 20 light remote annunciator located inside the Plant 16 Well Building, recessed in the face of the existing ATS Cubicle. Modify existing ATS door and provide all mounting hardware and accessories as required. Interface generator set controls with battery charger and fuel tank alarms for all status conditions. Provide all power, control wiring including conduits.

2.12 ENCLOSURE

- A. The generator set shall be provided with a factory-installed sound attenuated housing which allows the generator set to operate at full rated load in the ambient conditions previously specified. The enclosure shall reduce the sound level of the generator set while operating at full rated load to a maximum of 75 dBA at any location 7 meters from the generator set in a free field environment. Housing materials used shall be aluminum. Fiberglass and plastic are not acceptable. Acoustical materials used shall be oil and water resistant. No foam materials shall be used.
- B. The enclosure shall include hinged doors for access to both sides of the engine and alternator, and the control equipment and a hinged rear see-through control door. Key-locking and padlockable door latches shall be provided for all doors. Door hinges shall be stainless steel.
- C. The enclosure shall be provided with an exhaust silencer which is mounted on top of the enclosure, and allows the generator set package to meet specified sound level requirements. Silencer and exhaust shall include a rain cap and rain shield.
- D. All sheet metal shall be primed for corrosion protection and finish painted with the manufacturers standard color using a two step electrocoating paint process, or equal meeting the performance requirements specified below. Metal part surfaces shall be prepared, primed and painted. The painting process shall result in a coating which meets the following requirements:
1. Primer thickness, 0.5-2.0 mils. Top coat thickness, 0.8-1.2 mils.
 2. Gloss, per ASTM D523, 80% plus or minus 5%. Gloss retention after one year shall exceed 50%.
 3. Crosshatch adhesion, per ASTM D3359, 4B-5B.
 4. Impact resistance, per ASTM D2794, 120-160 inch pounds.
 5. Salt spray, per ASTM B117, 1000+ hours.
 6. Humidity, per ASTM D2247, 1000+ hours.
 7. Water Soak, per ASTM D2247, 1000+ hours.
- E. Painting of hoses, clamps, wiring harnesses, and other non-metallic service parts will not be acceptable. Fasteners used shall be corrosion resistant, and designed to minimize marring of the painted surface when removed for normal installation or service work. The enclosure shall be built and tested by the engine generator manufacturer.

2.13 SOURCE QUALITY CONTROL

- A. To provide proven reliability of the system, three series of tests shall be performed: prototype model tests, production model tests and field tests. The manufacturer shall provide documentation demonstrating satisfactory prototype and production test results. Generator sets that have not been prototype tested and factory tested at 0.8 PF will not be acceptable.
- B. Generator Set Factory Production Tests and Evaluation: These tests and evaluations must have been performed on a prototype generator set representative of the Model specified. A summary of the generator set testing results shall be submitted for review. The manufacturer's standard series of components development tests on the generator system, engine and other major components shall also be performed and available for review, but shall not be acceptable as a substitute for prototype testing on the complete representative generator set prototype.
- C. Torsiograph Analysis and Test: The manufacturer of the generator set shall verify that the engine generator set, as configured, is free from harmful torsional stresses. The analysis shall include correlation of empirical data from tests on a representative prototype. The empirical data must include spectrum analysis of the torsional transducer output within the operating speed range of the engine generator set. Calculations based on engine and generator separately are not acceptable.
- D. Temperature Rise Test: Complete thermal evaluation of a prototype generator rotor and starter must include actual measurement of internal generator and exciter temperatures by embedded detector method, and measurement of average temperature rise by resistance method. No position measured any place in the windings may exceed the temperature rise limits of NEMA for the particular type of insulation system used. Resistance method temperature rise data shall be confirmed by a full load test on the generator set prototype to include conducted and radiated heat from the engine.
- E. Short Circuit Test: A test on a prototype generator set shall have demonstrated that the generator set is designed to withstand the mechanical forces associated with a short circuit condition. With the generator set operating at rated load and speed, the generator terminals must be short circuited on all three phases for a duration of 20 seconds. At the conclusion of this test, the generator set must be capable of full load operation.
- F. Endurance Run Test: A minimum of 500 continuous hours of endurance testing with a representative generator set prototype operating as defined by the manufacturer's standby rating shall have been performed. Endurance testing shall be used to verify structural soundness and durability.
- G. Maximum Power Test: With the prototype generator set at normal operating temperature and with all power consuming auxiliaries in place, the maximum power available at rated speed shall be determined with the governor set at its fuel stop. The generator set shall maintain this power for a minimum of two minutes.
- H. Linear Vibration Test: A test for in-line motion of components occurring along a repeatable path shall meet the manufacturer's acceptance criteria.
- I. Cooling System Test: A cooling system test shall demonstrate the ability of the generator set cooling system to maintain normal operating temperature while operating at full rated load and power factor at the highest ambient temperature (104°F) of the system rating. Cooling air requirements, radiator air flow and maximum allowable restriction at radiator discharge, shall be verified by this test.

- J. Maximum Motor Starting KVA: Motor starting KVA shall be determined by test, based on a sustained RMS recovery voltage of at least 90 percent of no load voltage with the specified load KVA at near zero power factor applied to the generator set.
- K. Transient Response, Steady State Speed Control and Voltage Regulation: Prototype generator set tests shall demonstrate consistent performance as follows; stable voltage and frequency at all loads from no load to full rated load, consistent frequency backwidth with steady state load, maximum voltage and frequency kp on load acceptance and rejection and restoration to steady state after sudden load changes. Transient response is a complete generator set (engine, generator, exciter, and regulator) performance criteria and cannot be established on generator data alone.
- L. Witnessed Generator Set Factory Production Tests: On the equipment to be shipped, an 8-hour test shall be performed at rated load and 0.8 PF. These tests shall include certified data to document the following: run at full load, maximum power, voltage regulation, transient and steady state governing, single step load pickup and safety shutdowns. Provide a factory certified test record of the production testing. Certified test record shall be sealed by a licensed professional engineer. The contractor and/or equipment supplier at their expense shall coordinate and provide all transportation and lodging for the Owner and an Owner's engineering representative to witness the above stated factory-test.

2.14 WARRANTY

- A. Provide a 5-year manufacturer's limited warranty, including 100% parts and labor, ONAN Option L031. The complete electrical power system, including but not limited to, generator set, controls, associated switches, enclosures, and accessories, as provided by the single source manufacturer, shall be warranted by the manufacturer against defects in materials and workmanship for a period of five (5) years from the date of system startup. Coverage shall include parts, labor, travel expenses, and labor to remove/reinstall the equipment, per ONAN's standard published limited warranty. Supplier must be factory authorized to perform warranty service on the entire system, including, but not limited to, the engine, the generator, the control panels, and the automatic transfer switches.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install engine generator and all appurtenances in accordance with manufacturer's recommendations.
- B. Enclosure manufacturer shall install all exhaust components as shown on the drawings and as required to comply with NFPA 37 and local codes and regulations. Components shall be sized to assure full load operation without excessive backpressure sized as per manufacturer's recommendations with actual site dimensions when installed as shown on the drawing. Make provisions as required for pipe expansion and contraction.
- C. Coordinate installation of anchor bolts with generator enclosure manufacturer.
- D. Installation shall comply with applicable State and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

3.02 FIELD QUALITY CONTROL

- A. Initial startup and field acceptance tests are to be conducted by the authorized representative of the system manufacturer who supplies the equipment.
- B. Test data shall be collected and recorded on the following: time of day, coolant temperature, operating oil pressure, battery charging rate, cranking time, crank-to-rated frequency time, voltage and frequency overshoot, load assumption-to-steady state voltage and frequency stabilization time, operating voltage, frequency, current, kilowatts and power factor. All data shall be taken every fifteen (15) minutes.
- C. Procedure: Generator manufacturer shall conduct a six (6) hour load bank test at 1.0 power factor for each generator set. Contractor shall provide load bank for testing generator set at 100% load. Contractor is not permitted to use load bank specified as part of the testing requirements. Load bank test shall test generator at full nameplate KW rating. Generator manufacturer's representative shall record test data, as described in (B) above. Test data shall be tabulated and typed for submission and approval by the engineer for final acceptance. No handwritten field notes will be allowed.

END OF SECTION

SECTION 263214 - NATURAL GAS ENGINE GENERATOR SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Packaged engine generator set.
- B. Exhaust piping, fittings, silencer and insulation.
- C. Control panels.
- D. Battery and charger.
- E. Vibration isolation.

1.02 REFERENCES

- A. NEMA AB1 - Molded Case Circuit Breakers.
- B. NEMA MG1 - Motors and Generators.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- D. ANSI/NFPA 70 - National Electric Code.
- E. NFPA 110 - Emergency Standby Systems.
- F. NFPA 30 - Flammable and Combustible Liquids Code.
- G. NFPA 37 - Installation of Stationary Engines.
- H. NFPA 101 - Life Safety Code.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 013300.
- B. Shop Drawings: Indicate electrical characteristics and connection requirements. Show plan and elevation views with overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, electrical diagrams including schematic and interconnection diagrams.
- C. Product Data: Provide data showing dimensions, weights, ratings, interconnection points and internal wiring diagrams for engine, generator, control panel, battery, battery rack, battery charger, exhaust silencer, vibration isolators, radiator and derating schedules, operating performance, exhaust flow data, and cooling system data. Submit generator alternator output curves, deration curves and temperature data on the complete genset individual components.
- D. Test Reports: Indicate results of performance testing including 0.8 power factor test at 100 percent load.
- E. Prototype Test Reports: Submittals will not be received without submission of prototype test reports. No exceptions.

- F. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation and starting of product. Provide typical system interconnection wiring diagrams.
- G. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- H. Manufacturer's Field Reports: Submit under provisions of Section 017500. Indicate procedures and findings.

1.04 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017823.
- B. Operation Data: Include instructions for normal operation.
- C. Maintenance Data: Include instructions for routine maintenance requirements, service manuals for engine and day tank, oil sampling and analysis for engine wear, and emergency maintenance procedures.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with NFPA 110.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum ten years experience, and with an authorized distributor offering 24-hour parts and service availability within 50 miles of the project. The manufacturer shall fabricate the engines, generators and control panel. Automatic transfer switches and generator enclosures shall be supplied, warranted and serviced by a single system source supplier.
- B. Supplier: Authorized distributor of specified manufacturer with minimum six years documented experience with specified products and factory-trained service technicians. The supplier must be factory authorized to perform warranty service on the entire system, including but not limited to, the engines, generators, control panels and automatic transfer switches. The supplier must show proof of factory trained service technicians on all components.
- C. The complete engine generator system shall be standard of a single manufacturer. It shall be factory built, tested and shipped by this single manufacturer.

1.07 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70 and NFPA 110.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and indicated.

1.08 EXTRA SERVICES

- A. The single source supplier shall provide as part of the package a 5-year warranty and 5-year planned maintenance agreement at no additional cost to the Owner. This warranty shall cover the generator system, transfer switches and generator enclosures. Agreement shall include, as a minimum, one service call per year. The services must be performed by the authorized

distributor of the equipment furnished, and may not be subcontracted. The following services shall be performed once a year.

1. Replace engine-lubricating oil and remove used oil from premises.
2. Replace oil and fuel filters.
3. Check coolant system for proper levels and condition. Replace coolant filters and add corrosion inhibitor as needed.
4. Check air filter.
5. Check and clean crankcase breathers.
6. Check turbocharger free-spin and end play.
7. Check and adjust belts as required.
8. Check engine for loose, bare or broken wiring. Replace as needed.
9. Check entire equipment for fuel or water leaks.
10. Check condition of batteries and report any action necessary for recharging or replacing.
11. Start and run all engines, check temperatures and pressures.
12. Test engine safety shutdown systems.
13. Test all transfer switches operation and time delays.
14. Submit a report of this inspection to the Owner and advise of any further work required.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. ONAN CORPORATION, Minneapolis, Minnesota, or specifically approved equal.
- B. Proposal for any substitute equipment shall provide complete submittal data, as specified in Section 012500 - Substitution Procedures and specified herein, to the Engineer for approval or disapproval. The supplier must submit detailed sizing calculations for each generator to verify models are capable of picking up the entire loads with voltage dips as herein specified.
- C. Approval of Substitute Equipment: Design has been based on ONAN Model Generators. If substitute equipment is approved, the contractor shall be responsible for the charges of any necessary revisions to the plans and specifications, drawings, and project documentation; and charges related to equipment spacing, enclosure sizes, foundation sizes, mounts, electrical wiring, ventilation equipment, fuel, exhaust components, etc., as well as any engineering costs. If a brand name other than that specified is proposed for use, the supplier must provide a locally available generator system for the Owner and engineer to review and inspect, as well as witness testing to show compliance with the specifications. Also, the supplier must furnish a list of completed installations, including name, address and telephone number of at least five comparable installations which can prove the proposed products have operated satisfactorily for three years.
- D. It is intended that all products specified herein be of standard ratings, therefore, the KW and KVA, starting KVA and maximum allowable voltage dip, ratings, etc., shall be the manufacturer's next size or rating to exactly meet the specifications. No exceptions.

2.02 SYSTEM REQUIREMENTS

- A. The engine generator shall start and provide continuous power to the loads with 100 percent block loading at the time of transfer.

2.03 DUAL FUEL NATURAL GAS/PROPANE ENGINE GENERATOR SET

- A. Rating: The AC engine generator set, ONAN Model 200 GFPC (Natural Gas)/130 GFPC (Propane) shall be rated by the manufacturer for standby operation at 200 KW/250 KVA at 0.8 PF, 60 Hz, 1800 RPM for Natural Gas fuel, and 130kW/163KVA at 0.8PF, 60Hz, 1800 RPM for

Propane fuel, for use at 277/480 volts, 3 phase, 4 wire. Ratings shall be at an elevation of 200 feet above sea level, and at 104 degrees F.

B. Natural Gas

1. Voltage regulation shall be plus or minus 1 percent of rated voltage for any constant load between no load and rated load.
2. Frequency regulation shall be isochronous under varying from no load to 100% rated load.
3. Random Voltage Variation: The cyclic variations in RMS voltage shall not exceed plus or minus 1% of rated speed for constant loads from no load to rated load, with constant ambient and operating temperature.
4. Random Frequency Variation: Speed variations for constant loads from no load to rated load shall not exceed plus or minus .5% of rated speed, with constant ambient and operating temperature.
5. Telephone Harmonic Distortion: The sum of AC voltage waveform harmonics, from no load to full linear load, shall not exceed 5% of rated voltage (L-N, L-L, L-L-L) and no single harmonic shall exceed 3% of rated voltage.
6. Telephone Influence Factor: TIF shall be less than 50 per NEMA MG1-22.43.
7. The natural gas engine generator set shall be capable of picking up 100% of nameplate KW and power factor in one step with the engine generator set at operating temperature, in accordance with NFPA Standard 110, Paragraph 5-13.2.6.
8. The maximum allowable engine BMEP on the engine shall not exceed 204 psi at 100% rated load.
9. For Natural Gas Fuel the engine generator shall start and provide power to the loads in the following step starting sequence with a maximum instantaneous voltage dip of 14% and a maximum frequency dip of 4%. For Propane Fuel the engine generator shall start and provide power to the loads in the following step starting sequence with a maximum instantaneous voltage dip of 19% and a maximum frequency dip of 13%.

Step No.	Description	Load	Volts/Phase	Motor Code	Load Type	Starting Method
1	Lime Mixer	5HP	240/3	J	Motor	Full Voltage
1	Admin Building General Power	8kVA	120/1	-	Misc.	Full Voltage
1	Admin Building General Lighting	10.0kVA	120/1	-	Lighting	Full Voltage
1	Well Building General Power	1.5kVA	120/1	-	Misc.	Full Voltage
1	Well Building General Lighting	1.6kVA	120/1	-	Lighting	Full Voltage
1	Heat Trace	2kVA	240/1	-	Misc.	Full Voltage
1	EF-1	1/10HP	120/1	R	Motor	Full Voltage
1	UH-1 & UH-2	1/3HP	120/1	-	Heating	Full Voltage
1	AC Unit XB 13	3.2kVA	240/1	-	Cooling	Full Voltage
1	AC Unit XB 1000 Big	5.3kVA	240/1	-	Cooling	Full Voltage
1	AC Unit XB 1000 Small	2.7kVA	240/1	-	Cooling	Full Voltage
1	AH-1	1/4HP	120/1	P	Motor	Full Voltage
1	AH-2	1/4HP	120/1	P	Motor	Full Voltage
2	Well 1	75HP	240/3	G	Motor	Auto Transformer
3	Chemical Pumps	1HP	120/1	L	Motor	Full Voltage

- C. The generator shall at a minimum provide the following performance:
- D. The generator as a packaged unit (engine, alternator and controls) provide a minimum of 920 SKVA sustaining a minimum of 90% of rated no load voltage with the specified 920 SKVA load at near zero power factor applied to the generator.
- E. The alternator performance shall be designed to provide a minimum of 840 locked rotor KVA at a maximum voltage dip of 30%.
- F. The following performance verifications shall be provided for substitute generators.
 - 1. Submit five copies of generator sizing program based upon the specified step/starting sequence and associated voltage/frequency dips and required starting KVA.
 - 2. As part of the substitution requirements the contractor shall enter all design step/starting sequence loads into the manufacturer's generator sizing program in the presence of the engineer to verify model proposed by substitute manufacturer meets the specified requirements for ambient temperature, site altitude, voltage dip, frequency dip, and starting KVA.

2.04 AC GENERATOR, REGULATOR AND EXCITER UNIT

- A. The AC generator, exciter and voltage regulator shall be designed and manufactured by the engine generator set manufacturer as a complete generator system.
- B. The AC generator shall be synchronous, four pole, revolving field, dripproof construction, single prelubricated sealed bearing, air cooled by a direct drive centrifugal blower fan and directly connected to the engine with flexible drive discs. The armature shall have skewed laminations of insulated electrical grade steel, two-thirds pitch windings in order to minimize field heating and voltage harmonics. The rotors shall have amortisseur (damper windings) layer wound mechanically wedged winding construction. The rotors shall be dynamically balanced. The exciters shall be brush-less, three phase, with full wave silicon diodes mounted on the rotating shaft and a surge suppressor connected in parallel with the field winding. Field discharge resistors shall not be acceptable. Systems using three wire solid state devices (such as SCRs or transistors) mounted on the rotor shaft shall not be acceptable.
- C. All insulation system components shall meet NEMA MG1 standard temperature limits for Class H insulation system. Actual temperature rise measured by resistance method at full load shall not exceed 80 degrees C to provide additional allowance for internal hot spots. The main generator and exciter insulation systems must be suitably impregnated for operation in severe environments for resistance to sand, salt and sea spray.
- D. Generator shall be a Permanent Magnet Generator (PMG). Permanent magnet generators shall provide excitation power to the automatic voltage regulator for immunity from voltage distortion caused by nonlinear SCR controlled loads on the generator. The PMG's shall sustain main field excitation power for optimum motor starting and to sustain short circuit current for selective operation and coordination of system overcurrent devices.

2.05 ENGINE GENERATOR SET CONTROLS

- A. The generator sets shall be provided with microprocessor-based control systems which are designed to provide automatic starting, monitoring, and control functions for the generator set. The control systems shall also be designed to allow local monitoring and control of the generator sets, and remote monitoring and control as described in this specification. The controls shall be mounted on the generator sets, and shall be vibration isolated and prototype tested to verify the durability of all components in the system under vibration conditions encountered. The controls shall be UL-508 labeled, CSA282-M1989 certified, and meet IEC-8528 part 4. All switches, lamps and meters shall be oil-tight and dust-tight, and the enclosure doors shall be gasketed. There shall be no exposed points in the controls (with the door open) that operate in excess of 50 volts. The controls shall meet or exceed the requirements of Mil-Std 461C part 9, and IEC Std. 801.2, 801.3 and 801.5 for susceptibility, conducted and radiated electromagnetic emissions. The entire controls shall be tested and meet the requirements of IEEE587 for voltage surge resistance. The generator set mounted controls shall include the following features and functions:
1. The generator control panel shall provide a network interface for the future Scada System. This network interface shall communicate all the generator status, control, display messages, troubleshooting and safety features as described below. Software shall be available for interfacing PLC Software with generator control panel communications. This interface and software development will be performed by another contract.
 2. Three position control switch labeled RUN/OFF/AUTO. In the RUN position the generator set shall automatically start, and accelerate to rated speed and voltage. In the OFF position the generator set shall immediately stop, bypassing all time delays. In the AUTO position the generator set shall be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage.
 3. Red "mushroom-head" push-button EMERGENCY STOP switch. Depressing the emergency stop switch shall cause the generator set to immediately shut down, and be locked out from automatic restarting.
 4. Push-button RESET Switch: The RESET switch shall be used to clear a fault and allow restarting the generator set after it has shut down for any fault condition.
 5. Generator Set AC Output Metering: The generator set shall be provided with a metering set with the following features and functions:
 - a. 2.5-inch, 90 degree scale analog voltmeter, ammeter, frequency meter, and kilowatt (KW) meter. These meters shall be provided with a phase select switch and an indicating lamp for upper and lower scale on the meters. Ammeter and KW meter scales shall be color coded in the following fashion: readings from 0-90% of generator set standby rating: green; readings from 90-100% of standby rating: amber; readings in excess of 100%: red.
 - b. Digital metering set, 0.5% accuracy, to indicate generator RMS voltage and current, frequency, output current, output KW, KW-hours and power factor. Generator output voltage shall be available in line-to-line and line-to-neutral voltages, and shall display all three phase voltages (line to neutral or line to line) simultaneously.
 6. Generator Set Alarm and Status Message Display: The generator set shall be provided with alarm and status indicating lamps to indicate non-automatic generator status, and existing alarm and shutdown conditions. The lamps shall be high-intensity LED type. The lamp condition shall be clearly apparent under bright room lighting conditions. The generator set control shall indicate the existence of the following alarm and shutdown conditions on a digital display panel:
 - a. Low Oil Pressure (alarm)
 - b. Low Oil Pressure (shutdown)
 - c. Oil Pressure Sender Failure (alarm)
 - d. Low Coolant Temperature (alarm)
 - e. High Coolant Temperature (alarm)

- f. High Coolant Temperature (shutdown)
 - g. Engine Temperature Sender Failure (alarm)
 - h. Fail to Crank (shutdown)
 - i. Overcrank (shutdown)
 - j. Overspeed (shutdown)
 - k. Low DC Voltage (alarm)
 - l. Low Coolant Level (alarm or shutdown-selectable)
 - m. High DC Voltage (alarm)
 - n. Weak Battery (alarm)
 - o. Low Fuel-Daytank (alarm)
 - p. High AC Voltage (shutdown)
 - q. Low AC Voltage (shutdown)
 - r. Under Frequency (shutdown)
 - s. Over Current (warning)
 - t. Over Current (shutdown)
 - u. Short Circuit (shutdown)
 - v. Ground Fault (alarm)
 - w. Over Load (alarm)
 - x. Emergency Stop (shutdown)
 - 1) In addition, provisions shall be made for indication of two customer-specified or future alarm or shutdown conditions. These two alarm conditions shall be interfaced with leak detection/overflow alarm panel for overflow and leak detection. Labeling of the customer specified or future alarm or shutdown conditions shall be of the same type and quality as the above specified conditions. The non-automatic indicating lamp shall be red, and shall flash to indicate the generator set is not able to automatically respond to a command to start from a remote location.
7. Engine Status Monitoring: The following information shall be available from a digital status panel on the generator set control:
- a. Engine Oil Pressure (psi or kPA)
 - b. Engine Coolant Temperature for left and right block temperatures (degrees F or C; both)
 - c. Engine Oil Temperature (degrees F or C)
 - d. Engine Speed (rpm)
 - e. Number of Hours of Operation (hours)
 - f. Number of Start Attempts
 - g. Battery Voltage (DC volts)
8. Control Functions: The control system shall provide for the following functions:
- a. The control system provided shall include a cycle cranking system, which allows for user selected crank time, reset time, and number of cycles. Initial settings shall be for 3 cranking periods of 15 seconds each, with 15 second rest period between cranking periods.
 - b. The control system shall include an idle mode control, which allows the engine to run in idle mode in the RUN position only. In this mode, the alternator excitation system shall be disabled.
 - c. The control system shall include an engine governor control, which functions to provide steady state frequency regulation as noted elsewhere in this specification. The governor control shall include adjustments for gain, damping, and ramping function to control engine speed and limit exhaust smoke while the unit is starting. The governor control shall be suitable for use in paralleling applications without component changes.
 - d. The control system shall include time delay start (adjustable 0-300 seconds) and time delay stop (adjustable 0-600 seconds) functions.

- e. The control system shall include sender failure monitoring logic for speed sensing, oil pressure, and engine temperature which is capable of discriminating between failed sender or wiring components, and an actual failure condition.
9. Alternator Control Functions: The generator set control shall include the following alternator control functions:
 - a. The generator set shall include an automatic voltage regulation system which is matched and prototype tested with the governing system provided. It shall be immune from misoperation due to load-induced voltage waveform distortion and provide a pulse width modulated output to the alternator exciter. The voltage regulation system shall be equipped with three-phase RMS sensing and shall control build up of AC generator voltage to provide a linear rise and limit overshoot. The systems shall include a torque-matched characteristic, which shall reduce output voltage in proportion to frequency below a threshold of 58-59 HZ. The voltage regulator shall include adjustments for gain, damping and frequency roll-off. Adjustments shall be broad range, and made via digital raise-lower switches, with an alpha-numeric LED readout to indicate setting level.
 - b. The voltage regulation system shall include provisions for reactive load sharing and electronic voltage matching for paralleling applications. Motorized voltage adjust pot is not acceptable for voltage matching.
 - c. Controls shall be provided to monitor the output current of the generator set and initiate an alarm when load current exceeds 110% of the rated current of the generator set on any phase for more than 60 seconds. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator.
 - d. Controls shall be provided to monitor the KW load on the generator set, and initiate an alarm condition when total load on the generator set exceeds the generator set rating for in excess of 5 seconds.
 - e. Controls shall include a load shed control, to operate a set of dry contacts (for use in shedding customer load devices) when the generator set is overloaded.
 - f. An AC over/under voltage monitoring system which responds only to true RMS voltage conditions shall be provided. The system shall initiate shutdown of the generator set when alternator output voltage exceeds 110% of the operator-set voltage level for more than 10 seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown shall occur when the output voltage of the alternator is less than 85% for more than 10 seconds.
 - g. A battery monitoring system shall be provided which initiates alarms when the DC control and starting voltage is less than 25VDC or more than 32VDC. During engine starting, the low voltage limit shall be disabled, and if DC voltage drops to less than 14.4 volts for more than two seconds a "weak battery" alarm shall be initiated.
 - h. The control system shall include a ground fault monitoring relay. The relay shall be adjustable from 100-1200 amps, and include adjustable time delay of 0-1.0 seconds. The relay shall be for indication only, and not trip or shut down the generator set. Note bonding and grounding requirements for the generator set, and provide relay which will function correctly in system as installed.
 10. Control Interfaces for Remote Monitoring: All control and interconnection points from the generator set to remote components shall be brought to a separate connection box. No field connections shall be made in the control enclosure or in the AC power output enclosure. Provide the following features in the control system:
 - a. Form "C" dry common alarm contact set rated 2A @ 30VDC to indicate existence of any alarm or shutdown condition on the generator set.
 - b. One set of contacts rated 2A @ 30VDC to indicate generator set is ready to load. The contacts shall operate when voltage and frequency are greater than 90% of rated condition.

- c. A fused 10 amp switched 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit whenever the generator set is running.
- d. A fused 20 amp 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit at all times from the engine starting/control batteries.
- e. The control shall be provided with provisions for connection of remote monitoring equipment as described herein or shown on the drawings.

2.06 ENGINES

- A. The natural gas engine shall be manufactured by Cummins Engine Company and designed specifically for generator set duty. The natural gas engine shall be 4 cycle, natural gas fueled, direct injection, 1800 RPM, with forged steel crankshaft and connecting rods. Minimum engines shall be 677 cubic inches. Engines shall have a minimum of 4 cylinders. The cylinder blocks shall be cast iron with replaceable wet liners and have four valves per cylinder. The engines shall be turbocharged and aftercooled.
- B. Two cycle engines will not be acceptable.
- C. Electronic governor systems shall provide automatic isochronous frequency regulation. The engine governing systems shall not utilize any exposed operating linkage.
- D. The engines shall be cooled by a unit-mounted closed loop radiator system including belt-driven pusher fan, coolant pump and thermostat temperature control. The cooling systems shall be rated for full rated load operation in 122 degrees F (50 degrees C) ambient condition. The cooling capability of the generator sets shall be demonstrated by prototype tests on a representative generator set model conducted by the generator set manufacturer; calculated data from the radiator manufacturer only is not sufficient. Radiators shall be provided with a duct adapter flange permitting the attachment of an air discharge duct to direct the radiator air outside according to the manufacturer's instructions.
- E. Rotating parts shall be guarded against accidental contact per OSHA requirements.
- F. The maximum radiator cooling air shall not exceed 18,221 scfm. The maximum alternator cooling air shall not exceed 1,314 cfm for the genset. The maximum allowable static restriction shall not exceed 0.5 inches of water. The entire cooling air system is based on the above data. All costs incurred if an alternate manufacturer is purchased shall be the responsibility of the electrical contractor. These costs shall include costs to all other trades as well as any associated engineering fees.

2.07 ENGINE ACCESSORY EQUIPMENT

- A. The engine generator sets shall include the following accessories:
 - 1. Electric starters capable of three complete cranking attempts without overheating, before overcrank shutdown (75 seconds).
 - 2. Positive displacement, mechanical, full pressure, lubrication oil pumps. Full flow lubrication oil filters with replaceable spin-on canister elements and dipstick oil level indicators. Provide bypass oil filters.
 - 3. Replaceable heavy duty dry element air cleaners with restriction indicators and safety element.
 - 4. Engine mounted battery charging alternators, 45 ampere and solid-state voltage regulators.
 - 5. Anti-condensation heater for alternator.

2.08 BASES

- A. The engine-generator set shall be mounted on a heavy duty steel base to maintain proper alignment between components. The engine-generator set shall incorporate battery trays with battery holddown clamps on the base rails. Provisions for stub up of electrical connections shall be within the footprint of the generator set base rails and within the basetanks as specified in the housing section of the specification. Vibration isolators, spring type, shall be provided to be mounted under the generator set base.

2.09 GENERATOR SETS CIRCUIT BREAKERS

- A. Generator main circuit breaker shall be solid state UL listed, molded case type, rated as listed below. Circuit breakers shall be mounted in a separate NEMA 1 enclosure and be shipped completely wired to the gensets. No exceptions. Enclosures shall include neutral blocks for field connection.
- B. Solid State circuit breakers shall be 100% rated: Refer to drawings for sizes.
- C. Circuit breaker (CB) shall be long time current and instantaneous pickup with solid state trip unit. CB shall have visible mechanical fault indicator and push button trip.
- D. Circuit breakers shall be rated at 65,000 AIC.
- E. Provide auxiliary contacts on breaker position.

2.10 ACCESSORIES

- A. Vibration isolators: Spring type.
- B. Alternator Anti-Condensation Heater.
- C. Starting and control Batteries: Two (2) 24 volt starting batteries each genset, lead acid type, insert sized to accommodate 45 seconds of cranking at an ambient of 0 degrees F without being recharged.
- D. Battery Chargers: One 10 amp voltage regulated battery charger shall be provided for each engine-generator set. Input AC voltage and DC output voltage shall be as required. Chargers shall be equipped with float, taper and equalize charge settings. Operational monitors shall provide visual output along with individual form C contacts rated at 4 amps, 120 VAC, 30 VDC for remote indication of :
 - 1. Loss of AC Power - red light.
 - 2. Low Battery Voltage - red light.
 - 3. High Battery Voltage - red light.
 - 4. Power ON - green light (no relay contact).
- E. Block Heaters: Thermostatically controlled jacket water heater shall be supplied for each genset with a minimum size shall be 2500 watts. Input voltage of heaters shall be 208 VAC 1 phase.

2.11 ENCLOSURE

- A. The generator set shall be provided with a factory-installed sound attenuated housing which allows the generator set to operate at full rated load in the ambient conditions previously specified. The enclosure shall reduce the sound level of the generator set while operating at full rate load to a maximum of 72 dBA at any location 7 meters from the generator set in a free

field environment. Housing materials used shall be aluminum. Fiberglass and plastic are not acceptable. Acoustical materials used shall be oil and water resistant. No foam materials shall be used.

- B. The enclosure shall include hinged doors for access to both sides of the engine and alternator, and the control equipment and a hinged rear see-through control door. Key-locking and padlockable door latches shall be provided for all doors. Door hinges shall be stainless steel.
- C. The enclosure shall be provided with an exhaust silencer which is mounted on top of the enclosure, and allows the generator set package to meet specified sound level requirements. Silencer and exhaust shall include a rain cap and rain shield.
- D. All sheet metal shall be primed for corrosion protection and finish painted with the manufacturers standard color using a two step electrocoating paint process, or equal meeting the performance requirements specified below. Metal part surfaces shall be prepared, primed and painted. The painting process shall result in a coating which meets the following requirements:
 - 1. Primer thickness, 0.5-2.0 mils. Top coat thickness, 0.8-1.2 mils.
 - 2. Gloss, per ASTM D523, 80% plus or minus 5%. Gloss retention after one year shall exceed 50%.
 - 3. Crosshatch adhesion, per ASTM D3359, 4B-5B.
 - 4. Impact resistance, per ASTM D2794, 120-160 inch pounds.
 - 5. Salt spray, per ASTM B117, 1000+ hours.
 - 6. Humidity, per ASTM D2247, 1000+ hours.
 - 7. Water Soak, per ASTM D2247, 1000+ hours.
- E. Painting of hoses, clamps, wiring harnesses, and other non-metallic service parts will not be acceptable. Fasteners used shall be corrosion resistant, and designed to minimize marring of the painted surface when removed for normal installation or service work. The enclosure shall be built and tested by the engine generator manufacturer.

2.12 SOURCE QUALITY CONTROL

- A. To provide proven reliability of the system, three series of tests shall be performed: prototype model tests, production model tests and field tests. The manufacturer shall provide documentation demonstrating satisfactory prototype and production test results. Generator sets that have not been prototype tested and factory tested at 0.8 PF will not be acceptable.
- B. Generator Set Factory Production Tests and Evaluation: These tests and evaluations must have been performed on a prototype generator set representative of the Model specified. A summary of the generator set testing results shall be submitted for review. The manufacturer's standard series of components development tests on the generator system, engine and other major components shall also be performed and available for review, but shall not be acceptable as a substitute for prototype testing on the complete representative generator set prototype.
- C. Torsiograph Analysis and Test: The manufacturer of the generator set shall verify that the engine generator set, as configured, is free from harmful torsional stresses. The analysis shall include correlation of empirical data from tests on a representative prototype. The empirical data must include spectrum analysis of the torsional transducer output within the operating speed range of the engine generator set. Calculations based on engine and generator separately are not acceptable.
- D. Temperature Rise Test: Complete thermal evaluation of a prototype generator rotor and starter must include actual measurement of internal generator and exciter temperatures by embedded detector method, and measurement of average temperature rise by resistance method. No position measured any place in the windings may exceed the temperature rise limits of NEMA

for the particular type of insulation system used. Resistance method temperature rise data shall be confirmed by a full load test on the generator set prototype to include conducted and radiated heat from the engine.

- E. Short Circuit Test: A test on a prototype generator set shall have demonstrated that the generator set is designed to withstand the mechanical forces associated with a short circuit condition. With the generator set operating at rated load and speed, the generator terminals must be short circuited on all three phases for a duration of 20 seconds. At the conclusion of this test, the generator set must be capable of full load operation.
- F. Endurance Run Test: A minimum of 500 continuous hours of endurance testing with a representative generator set prototype operating as defined by the manufacturer's standby rating shall have been performed. Endurance testing shall be used to verify structural soundness and durability.
- G. Maximum Power Test: With the prototype generator set at normal operating temperature and with all power consuming auxiliaries in place, the maximum power available at rated speed shall be determined with the governor set at its fuel stop. The generator set shall maintain this power for a minimum of two minutes.
- H. Linear Vibration Test: A test for in-line motion of components occurring along a repeatable path shall meet the manufacturer's acceptance criteria.
- I. Cooling System Test: A cooling system test shall demonstrate the ability of the generator set cooling system to maintain normal operating temperature while operating at full rated load and power factor at the highest ambient temperature (104°F) of the system rating. Cooling air requirements, radiator air flow and maximum allowable restriction at radiator discharge, shall be verified by this test.
- J. Maximum Motor Starting KVA: Motor starting KVA shall be determined by test, based on a sustained RMS recovery voltage of at least 90 percent of no load voltage with the specified load KVA at near zero power factor applied to the generator set.
- K. Transient Response, Steady State Speed Control and Voltage Regulation: Prototype generator set tests shall demonstrate consistent performance as follows; stable voltage and frequency at all loads from no load to full rated load, consistent frequency backwidth with steady state load, maximum voltage and frequency kp on load acceptance and rejection and restoration to steady state after sudden load changes. Transient response is a complete generator set (engine, generator, exciter, and regulator) performance criteria and cannot be established on generator data alone.
- L. Witnessed Generator Set Factory Production Tests: On the equipment to be shipped, an 8-hour test shall be performed at rated load and 0.8 PF. These tests shall include certified data to document the following: run at full load, maximum power, voltage regulation, transient and steady state governing, single step load pickup and safety shutdowns. Provide a factory certified test record of the production testing. Certified test record shall be sealed by a licensed professional engineer. The contractor and/or equipment supplier at their expense shall coordinate and provide all transportation and lodging for the Owner and an Owner's engineering representative to witness the above stated factory-test.

2.13 WARRANTY

- A. Provide a 5-year manufacturer's limited warranty, including 100% parts and labor, ONAN Option L031. The complete electrical power system, including but not limited to, generator set, controls, associated switches, enclosures, and accessories, as provided by the single source manufacturer, shall be warranted by the manufacturer against defects in materials and

workmanship for a period of five (5) years from the date of system startup. Coverage shall include parts, labor, travel expenses, and labor to remove/reinstall the equipment, per ONAN's standard published limited warranty. Supplier must be factory authorized to perform warranty service on the entire system, including, but not limited to, the engine, the generator, the control panels, and the automatic transfer switches.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install engine generator and all appurtenances in accordance with manufacturer's recommendations.
- B. Enclosure manufacturer shall install all exhaust components as shown on the drawings and as required to comply with NFPA 37 and local codes and regulations. Components shall be sized to assure full load operation without excessive backpressure sized as per manufacturer's recommendations with actual site dimensions when installed as shown on the drawing. Make provisions as required for pipe expansion and contraction.
- C. Coordinate installation of anchor bolts with generator enclosure manufacturer.
- D. Installation shall comply with applicable State and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

3.02 FIELD QUALITY CONTROL

- A. Initial startup and field acceptance tests are to be conducted by the authorized representative of the system manufacturer who supplies the equipment.
- B. Test data shall be collected and recorded on the following: time of day, coolant temperature, operating oil pressure, battery charging rate, cranking time, crank-to-rated frequency time, voltage and frequency overshoot, load assumption-to-steady state voltage and frequency stabilization time, operating voltage, frequency, current, kilowatts and power factor. All data shall be taken every fifteen (15) minutes.
- C. Procedure: Generator manufacturer shall conduct a six (6) hour load bank test at 1.0 power factor for each generator set. Contractor shall provide load bank for testing generator set at 100% load. Contractor is not permitted to use load bank specified as part of the testing requirements. Load bank test shall test generator at full nameplate KW rating. Generator manufacturer's representative shall record test data, as described in (B) above. Test data shall be tabulated and typed for submission and approval by the engineer for final acceptance. No handwritten field notes will be allowed.

END OF SECTION

SECTION 263217 - FUEL OIL TANK OVERFILL AND LEAKAGE ALARMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Overfill/leakage alarm panel.
- B. Remote alarm.
- C. High and low level alarm probe.
- D. Secondary containment alarm probe.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electric Code.
- B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.03 SYSTEM DESCRIPTION

- A. Overfill and Leakage Alarm: System capable of sensing and indicating product overfill and leakage of fuel oil storage tank. System shall be capable of sensing WARNING, low and FULL level conditions.

1.04 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide technical data for alarm system.
- C. Shop Drawings: Indicate pertinent dimensions, lengths of probes, plan layout of equipment, mounting details, construction details, required clearances, power requirements and wiring diagrams.
- D. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Underwriters Laboratories, Inc. Include instructions for storage, handling, protection, examination, preparation, installation and starting of products.

1.05 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017823.
- B. Operation Data: Indicate procedures and methods required for proper operation of alarm system.
- C. Maintenance Data: Provide spare parts list and name of local parts supplier.

1.06 REGULATORY REQUIREMENTS

- A. Conform to the requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suit-able for purpose specified and shown.

1.07 COORDINATION

- A. Installation of alarm system shall be coordinated by generator enclosure manufacturer.
- B. Coordinate with all adjacent electrical and mechanical work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. OMNTEC/ELECTROLEVELS MFG., INC.
- B. Substitutions shall be permitted only after receiving written approval from the Engineer.
- C. Substitutions shall be acceptable and approved by the Suffolk County Department of Health Services.

2.02 COMPONENTS

- A. Overfill/Leakage Alarm Panel: Model ELP21L1P2, NEMA 4X, Type 4X stainless steel enclosure with internal steel component mounting back panel for wall mounting; housing the controlling electronic circuitry, including panel mounted audible alarm with time out and auto reset, and pushbutton switches for audible alarm silencing and system test; capable of continuously monitoring all sensor circuits; 120 volt, single phase, 60 Hz; complete with transformer type lights with push-to-test function having the following lens colors:
 - 1. Green Lens: Normal conditions.
 - 2. Yellow Lens: Warning conditions.
 - 3. Red Lens: Failure/alarm conditions.
- B. High & Low Level Alarm Probe: Model L-2-5, combination high-low level probe, capable of transmitting an electric signal to the control panel at tank warning level (90 percent capacity) and full level (95 percent capacity); automatically resetting once tank is less than 90 percent capacity; compatible diesel fuel oil. Model L-1-D low level probe. Probe shall also indicate a 10% capacity low level indication.
- C. Secondary Containment Alarm Probe: Model PDS-ASC, photo-optic type, capable of transmitting an electric signal to the control panel during a leakage situation within the walls of the tank and secondary containment; capable of distinguishing between the presence of product and water; automatically resetting when leaked product is no longer present.

2.03 ACCESSORIES

- A. Alarm Panel Guard: Wire mesh construction, sized to fit over and protect the remote alarm from damage.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify all openings in tank are properly located and sized and ready to receive work of this section.

3.02 PREPARATION

- A. Clean all parts and components of the alarm system such that they are free from dirt, water and other debris.

3.03 INSTALLATION

- A. Installation shall comply with Suffolk County Department of Health Services requirements.
- B. Generator enclosure manufacturer shall install alarm system in accordance with manufacturer's instructions and approved shop drawings.
- C. Generator enclosure manufacturer shall verify lengths of alarm probes for each fuel tank.
- D. Install overflow/leakage alarm panel at the location as indicated on the plans. Panel must be easily accessible for testing and reading of indication lights during an alarm situation.
- E. Install alarm condition into generator controls and for remote annunciator. Provide all wiring as required.
- F. Install high and low level alarm probe at location indicated on the plans.
- G. Install secondary containment alarm probe between the inner and outer walls of the fuel tank and located 1/4 inch (6 mm) above the bottom inner surface of the outer tank wall.

END OF SECTION

SECTION 312316 - EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for footings, paving, and site structures.
- B. Trenching for utilities outside the building to utility main connections.

1.02 SUBMITTALS

- A. See Section 013000 for submittal procedures.
- B. Field Quality Control Submittals: Document visual inspection of load-bearing excavated surfaces.

1.03 PROJECT CONDITIONS

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Locate, identify, and protect utilities that remain and protect from damage.

3.03 EXCAVATING

- A. Excavate to accommodate new structures and construction operations.
- B. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- C. Slope banks of excavations deeper than 4 feet (1.2 meters) to angle of repose or less until shored.
- D. Do not interfere with 45 degree bearing splay of foundations.
- E. Cut utility trenches wide enough to allow inspection of installed utilities.
- F. Hand trim excavations. Remove loose matter.
- G. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd (0.25 cu m) measured by volume.
- H. Correct areas that are over-excavated and load-bearing surfaces that are disturbed
- I. Grade top perimeter of excavation to prevent surface water from draining into excavation.

- J. Remove excavated material that is unsuitable for re-use from site.
- K. Remove excess excavated material from site.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

3.05 PROTECTION

- A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

SECTION 312317 - BACKFILLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Utility connections, conduit and foundation backfilling to subgrade elevations.
- B. Site filling and backfilling.
- C. Fill under sidewalks, border treatment and paving.
- D. Consolidation and compaction.
- E. Fill for over-excavation.

1.02 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb Rammer and 12 inch Drop.
- C. ANSI/ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- D. ANSI/ASTM D1556 - Standard Test Methods for Density and Unit Weight of Soil in Place by the Sand Cone Method.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

- A. Type A - Coarse Stone, Gravel: Angular, washed natural stone; free of shale, clay, friable material, sand, debris; minimum size 2 inches in diameter, maximum size 3 inches in diameter.
- B. Type C - Sand: Natural river or bank sand; washed, free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ANSI/ASTM C136, within the following limits:

Sieve Size	% Passing
No. 4	100
No. 14	10 to 100
No. 50	5 to 90
No. 100	4 to 30
No. 200	0 to 1

- C. Subsoil: Reused, graded, free of lumps larger than 6 inches, rocks larger than 3 inches, and debris.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify fill materials to be reused are acceptable.

3.02 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Type C fill and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Prior to placement of controlled fill at building areas and base course material at paved areas, compact subsoil to 95% of its maximum dry density in accordance with ANSI/ASTM D698.

3.03 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not back-fill over porous, wet, frozen or spongy subgrade surfaces.
- C. Granular Fill: Place and compact materials in continuous layers not exceeding 6 inches compacted depth.
- D. Subsoil Fill: Place and compact material in continuous layers not exceeding 6 inches compacted depth.
- E. Controlled Backfill: Place and compact material in continuous layers, not exceeding 6 inches compacted depth. Contractor shall not proceed with subsequent layer of backfill until compacted layer is tested and backfill is found to be compacted to 95% of its maximum dry density in accordance with ANSI/ASTM D698.
- F. Employ a placement method that does not disturb or damage foundation water-proofing and protective cover, and utilities in trenches.
- G. Maintain optimum moisture content of backfill materials to attain required com-paction density.
- H. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- I. Slope grade away from building minimum 1" inch in 10 feet, unless noted other-wise.
- J. Make grade changes gradual. Blend slope into level areas.
- K. Remove surplus backfill materials from site.
- L. Leave fill material stockpile areas completely free of excess fill materials.

3.04 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: ± 1 inch from required elevations.

3.05 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014500.
- B. Tests and analysis of fill material will be performed in accordance with ANSI/ASTM D698.
- C. Compaction testing will be performed in accordance with ANSI/ASTM D1556 or D1557.
- D. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

3.06 PROTECTION OF FINISHED WORK

- A. Protect finished work from damage due to continuing construction activity.
- B. Recompact fills subjected to vehicular traffic.

3.07 SCHEDULE

- A. Fill Under Seed/Sod Areas:
 - 1. Subsoil fill, to 4 inches below finish grade, compacted to 95%.
- B. Fill Under Landscaped Areas:
 - 1. Subsoil fill, to 12 inches below finish grade, compacted to 95%.
- C. Fill Under Asphalt and Concrete Paving:
 - 1. Subsoil fill, to 5-1/2 inches below finish asphalt paving elevation, to 4 inches below concrete sidewalk finish elevation and to 6 inches below concrete drive-way apron finish elevation, as shown on plans, compacted to 95%.
- D. Fill to Correct Over-excavation:
 - 1. Type C fill, to proposed subgrade, compacted to 95%.

END OF SECTION

SECTION 312318 - TRENCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavate trenches for piping and utilities outside building.
- B. Compacted bedding and backfill around and over piping and utilities to subgrade elevations.
- C. Backfilling and compaction.

1.02 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 kg) Rammer and 18-inch (457 mm) Drop.

1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Test Reports: Submit a sieve analysis for bedding to be used.

1.04 QUALITY ASSURANCE

- A. Do not excavate wet or frozen materials without written approval from the Engineer.
- B. Do not backfill over or with wet or frozen materials.
- C. Provide safety barricades around open excavations.

1.05 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as shown on plans.

1.06 COORDINATION

- A. Coordinate trenching with installation of pipe or conduit.
- B. Coordinate trenching with installation and removal of sheeting.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Bedding: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ANSI/ASTM C136; within the following limits:

Sieve Size	Percent Passing
No. 4 (4.75 mm)	100
No. 16 (1.18 mm)	10 - 100
No. 50 (0.30 mm)	5 - 90

Sieve Size	Percent Passing
No. 100 (0.15 mm)	4 - 30
No. 200 (0.075 mm)	0 - 1

- B. Subsoil: Reused, excavated material, free of lumps, rocks larger than 3 inches (75 mm) in size, debris and contaminants.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify fill materials to be reused are acceptable.
- B. Verify items to be buried during backfilling process have been inspected prior to backfilling.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Maintain and protect existing utilities remaining which pass through work area.
- C. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic. Any item damaged by the contractor shall be promptly repaired at the contractor's expense.
- E. Protect above and below-grade utilities which are to remain.
- F. Cut out soft areas of subgrade not capable of insitu compaction. Backfill with subsoil fill and compact to density equal to or greater than requirements for subsequent backfill material.

3.03 EXCAVATION

- A. Excavate subsoil required for piping.
- B. Cut trenches to the dimensions shown on the plans.
- C. Excavation shall not interfere with normal 45 degree bearing splay of foundations.
- D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock.
- F. For trenches made in solid rock, excavate to a depth of 1 foot (300 mm) below the proposed pipe invert.
- G. Correct unauthorized excavation at no cost to Owner in accordance with Section 312317.
- H. Stockpile excavated material in area designated on site and remove excess material not being used from site. Remove excavated material from site.
- I. All trenches deeper than 5 ft (1.5 m) shall require sheeting.

3.04 INSTALLATION - BEDDING

- A. Support pipe and conduit during placement and compaction of bedding fill.
- B. For trenches made in solid rock, place an additional 1 foot (300 mm) of bedding under pipe or conduit.
- C. Place bedding to the dimensions and limits as shown on the plans.
- D. Place bedding material against and to 1 foot (300 mm) over the top of the pipe or conduit in 6 inch (150 mm) compacted layers.
- E. All bedding material shall be compacted to 95 percent maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.
- F. Place bedding simultaneously on both sides of the pipe or conduit.

3.05 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen materials.
- B. Backfill to the dimensions and limits shown on the plans with reused subsoil.
- C. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- D. Place and compact material in continuous layers not exceeding 6 inches (150 mm) compacted depth.
- E. Employ a placement method that does not disturb or damage conduit or pipe.
- F. All backfilled materials shall be compacted to 95 percent of maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.
- G. Remove temporary sheeting as backfilling progresses.

3.06 TOLERANCES

- A. Maximum Variation From Top Surface of Backfilling Under Paved Areas: 1/4 inch (13 mm).
- B. Maximum Variation From Top Surface of General Backfilling: 1 inch (25 mm).

3.07 FIELD QUALITY CONTROL

- A. Field testing is to be performed under provisions of Section 014500.
- B. Tests and analysis of fill material are to be performed in accordance with ANSI/ASTM D1557.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.
- D. Unless additional testing is required by the Engineer, compaction tests shall be taken every 100 feet (30 m), at the springline of the pipe and every 2 vertical feet (610 mm) of backfill.

3.08 CLEANING

- A. Remove surplus backfill materials from site.
- B. Leave fill material stockpile areas completely free of excess fill materials.

3.09 PROTECTION

- A. Recompact fills subjected to vehicular traffic.

END OF SECTION

SECTION 321123 - AGGREGATE BASE COURSES

PART 1 - GENERAL

1.01 1.01 - SECTION INCLUDES

- A. Recycled concrete aggregate base course for repair of road for utility installation.

1.02 1.03 - REFERENCES

- A. ANSI/ASTM C88 - Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
- B. ANSI/ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates.
- C. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18-inch Drop.
- D. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.03 1.04 - SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Test Reports: Submit a sieve analysis for the aggregate base course used.
- C. Testing Firm: Submit name of testing firm for compaction tests.

1.04 1.05 - DELIVERY, STORAGE AND HANDLING

- A. Do not handle aggregate in any manner which will cause segregation of large or fine particles.

PART 2 - PRODUCTS

2.01 2.01 - MATERIALS

- A. Aggregate Base Course: Angular, crushed, recycled concrete; free of shale, clay, friable materials and debris; graded in accordance with ANSI/ASTM C136 within the following limits:

Sieve Size	Percent Passing
1½ inches (38 mm)	100
1 inch (25 mm)	90-100
½ inch (13 mm)	65-85
3/8 inch (9 mm)	55-75
No. 4 (4.75 mm)	40-55
No. 8 (2.36 mm)	30-45
No. 16 (1.18 mm)	22-36
No. 30 (0.60 mm)	16-27
No. 40 (0.30 mm)	12-19
No. 100 (0.15 mm)	7-13
No. 200 (75 micro m)	3-7

- B. Material retained on the 1/2 inch (13 mm) sieve is coarse aggregate.

- C. Coarse aggregate shall not have more than 10 percent by weight of flat or elongated pieces. A flat or elongated piece is defined as being three times greater in the largest dimension as compared to its least dimension.
- D. The portion of the aggregate base course which passes the No. 40 (0.30 mm) screen shall have a plasticity index of one as tested in accordance with ASTM D4318.

PART 3 - EXECUTION

3.01 3.01 - EXAMINATION

- A. Verify that subgrade is properly compacted and ready to receive work of this section.

3.02 3.02 - PREPARATION

- A. Fine grade and compact subgrade to 95 percent maximum dry density in accordance with ANSI/ASTM D1557.

3.03 3.03 - AGGREGATE PLACEMENT

- A. Spread course aggregate over prepared subgrade to a total compacted thickness as indicated on the plans.
- B. Place aggregate in 3 inch (75 mm) layers and compact by roller.
- C. Level and contour surfaces to elevations and gradients indicated.
- D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- E. Compact placed aggregate materials to achieve 145 lb/cu ft (2,300 kg/cu m) dry density when compacted in accordance with ANSI/ASTM D1557.
- F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- G. Use mechanical vibrating tamping in areas inaccessible to compaction equipment.
- H. New pavement must be placed on the properly compacted aggregate base course within 24 hours of final compaction. If aggregate base course is left open for more than 24 hours, recompact and retest in accordance with ANSI/ASTM D1557.

3.04 3.04 - TOLERANCES

- A. Maximum Variation From Flatness: 1/4 inch (6 mm) measured with 10 foot (3 m) straight edge.
- B. Maximum Variation From Scheduled Compacted Thickness: 1/4 inch (6 mm).
- C. Maximum Variation from True Elevation: 1/4 inch (6 mm).

3.05 3.05 - FIELD QUALITY CONTROL

- A. Perform compaction testing in accordance with ANSI/ASTM D1557.
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

C. Frequency of Tests: One test per 500 sq ft (50 sq m) immediately prior to paving.

END OF SECTION

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.01 1.01 - SECTION INCLUDES

- A. Asphaltic concrete paving, wearing and binder course for repair of road for utility installation.

1.02 1.03 - REFERENCES

- A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.
- B. AI MS-8 - Asphalt Paving Manual.
- C. ASTM D242 - Mineral Filler for Bituminous Paving Mixtures.
- D. ASTM D546 - Test Method for Sieve Analysis of Mineral Filler for Road and Paving Materials.

1.03 1.04 - SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Supplier: Submit name of asphalt supplier to be used on the project prior to placement of any asphalt on the project.
- C. Design Data: Submit asphalt mix design for each asphalt type to be used.
- D. Testing Firm: Submit name of testing firm.

1.04 1.05 - QUALITY ASSURANCE

- A. Obtain materials from the same supplier throughout the duration of the project.
- B. Do not alter from mix design requirements.

1.05 1.06 - DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products to the site under provisions of Sections 016500.
- B. Deliver asphalt in sealed, tight, metal containers covered with suitable material to protect the asphalt from the elements.
- C. Lightly lubricate the inside surface of the container with a thin oil or soap solution before loading asphalt.
- D. All containers must be cleaned of all foreign materials prior to loading.

1.06 1.07 - ENVIRONMENTAL REQUIREMENTS

- A. Do not place asphalt when base surface temperature is less than 40 degrees F (4 degrees C), or if surface is wet or frozen.
- B. Do not place asphalt when precipitation is occurring.

PART 2 - PRODUCTS

2.01 2.01 - MATERIALS

- A. Asphalt Cement: AC-20; homogeneous, and shall not foam when heated to 347 degrees F (175 degrees C).
- B. Fine Aggregate: Material passing the 1/8 inch (3.2 mm) sieve; natural sand of hard, strong, durable particles which are free from coatings or injurious amounts of clay, loam or other deleterious substances.
- C. Coarse Aggregate: Material retained on the 1/8 inch (3.2 mm) sieve; crushed stone or gravel; clean, durable, sharp angled fragments of rock of uniform quality.
- D. Mineral Filler: ASTM D242, finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter; 100 percent shall pass the No. 30 (0.60 mm) sieve; a minimum of 85 percent shall pass the No. 80 (0.18 mm) sieve; and a minimum of 65 percent shall pass the No. 200 (0.075 mm) sieve as measured in accordance with ASTM D546.

2.02 2.02 - EQUIPMENT

- A. Pavers: Equipped with a vibratory device.
- B. Rollers: Minimum weight of 10 tons (89 kN) equipped with lubricating devices for the roller wheels.

2.03 2.03 - ACCESSORIES

- A. Tack Coat: Homogeneous, medium curing, liquid asphalt.
- B. Wheel Lubricant: Oil-water mixture containing maximum 10 percent lubricating oil.

2.04 2.04 - MIXES

- A. Use dry material to avoid foaming. Mix uniformly.
- B. Binder Course: NYSDOT Type 3; 4.5 to 6.5 percent of asphalt cement by weight in mixture in accordance with the following gradation:

Sieve Size	Percent Passing
1-1/2 inches (38 mm)	100
1 inch (25 mm)	95-100
1/2 inch (13 mm)	70-90
1/4 inch (6.4 mm)	48-74
1/8 inch (3.2 mm)	32-62
No. 20 (0.85 mm)	15-39
No. 40 (0.425 mm)	8-27
No. 80 (0.18 mm)	4-16
No. 200 (0.075 mm)	2-8

- C. Wearing Course: NYSDOT Type 6; 5.8 to 7.0 percent of asphalt cement by weight in mixture in accordance with the following gradation:

Sieve Size	Percent Passing
1 inch (25 mm)	100
1/2 inch (13 mm)	95-100
1/4 inch (6.4 mm)	65-85
1/8 inch (3.2 mm)	36-65
No. 20 (0.85 mm)	15-39
No. 40 (0.425 mm)	8-27
No. 80 (0.18 mm)	4-16
No. 200 (0.075 mm)	2-6

2.05 2.05 - SOURCE QUALITY CONTROL

- A. Obtain asphalt materials from same source throughout the project.
- B. Provide asphalt in accordance with the approved mix design for each type of asphalt.
- C. Test samples in accordance with AI MS-2.

PART 3 - EXECUTION

3.01 3.01 - EXAMINATION

- A. Verify existing substrate and conditions.
- B. Verify that compacted subbase is dry and ready to receive work of this section.
- C. Verify gradients and elevations of base are correct.
- D. Verify that all castings are properly installed and are at the correct elevations.
- E. Beginning of installation means installer accepts existing conditions.

3.02 3.02 - PREPARATION

- A. Apply tack coat at uniform rate of 0.03 to 0.07 gal/sq. yd (0.14 to 0.32 L/sq. m) to contact surfaces of curbs, gutters and any asphalt or concrete material.
- B. Do not apply tack coat to wet or frozen surfaces.
- C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.03 3.03 - INSTALLATION

- A. Install work in accordance with AI MS-8.
- B. Maintain asphalt temperature between 250 and 325 degrees F (121 and 163 degrees C) during placement.
- C. Utilize the vibratory device on the paver at all times.
- D. Place asphalt within 24 hours of applying tack coat.

- E. Place asphalt to compacted thicknesses as identified on plans. If a multiple course pavement is to be used, place top course within 24 hours of placing bottom course. If more than 24 hours elapse, a tack coat will be required to be placed over the entire surface of the bottom course prior to any additional paving.
- F. Compact pavement by rolling. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- G. Compact pavement to a minimum of 94 percent maximum density.
- H. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.04 3.04 - TOLERANCES

- A. Maximum Variation From Flatness: 1/8 inch (3 mm) measured with 10 foot (3 m) straight edge.
- B. Maximum Variation From Scheduled Compacted Thickness: 1/8 inch (3 mm).
- C. Maximum Variation from True Elevation: 1/4 inch (6 mm).

3.05 3.05 - FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014500.
- B. Take samples and perform tests in accordance with AI MS-2.
- C. Testing to include percent compaction, gradation and asphalt content.
- D. Costs of testing are to be borne by the contractor.

3.06 3.06 - PROTECTION

- A. Protect finished work under provisions of Section 015200.
- B. Immediately after placement, protect pavement from mechanical injury until project is accepted by the Owner.

END OF SECTION

SECTION 323000 - SITE BOLLARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Bollards.

1.02 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM C33 - Concrete Aggregates.
- C. ASTM C150 - Portland Cement.
- D. ASTM C260 - Air-Entraining Admixtures for Concrete.
- E. ASTM C330 - Lightweight Aggregates for Structural Concrete.

1.03 SUBMITTALS FOR REVIEW

- A. Section 01330 - Submittals

PART 2 - PRODUCTS

2.01 MATERIALS

- A. A-36 structural steel tubing.

2.02 BOLLARDS

- A. Formed Steel Tubes: 1/4" thick, 6" diameter galvanized steel, concrete filled.
- B. PVC Bollard Cover: Manufactured by ULINE, Model H-3719Y. Color: Yellow.
- C. Quantity: As indicated on plans.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install units in accordance with manufacturer's instructions, without damage. Replace or repair damaged units.
- B. Install units in alignment with adjacent work.
- C. Install bollards in footings. Bollards shall be installed in locations as directed by Engineer.
- D. Install bollard cover. Drill and tap steel bollard to accept two (2) galvanized screws to attach bollard cover at 4" AFG.

END OF SECTION

SECTION 329219 - SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparation of subsoil.
- B. Placing topsoil.
- C. Seeding, mulching and fertilizer.
- D. Maintenance.

1.02 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.03 SUBMITTALS

- A. Topsoil samples.
- B. Seed mixture.

1.04 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.01 SEED MIXTURE

- A. Seed Mixture:
 - 1. Kentucky Blue Grass: 45 percent.
 - 2. Creeping Red Fescue Grass: 45 percent.
 - 3. Norlea Perennial Rye: 10 percent.

2.02 SOIL MATERIALS

- A. Topsoil: Minimum 2.75% organic content, free of stones, lumps, roots or similar objects larger than 2-inches and shall have a pH of not less than 5.8 or more than 6.5. Free of weeds.

2.03 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
- B. Fertilizer: Standard Quality; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, to the following proportions:
 - 1. Nitrogen: 10 percent.
 - 2. Phosphoric Acid: 6 percent.
 - 3. Soluble Potash: 4 percent.
- C. Water: Clean, fresh and free of substances, oil, or matter that could inhibit vigorous growth of grass.
- D. Erosion Fabric: Jute matting, open weave.
- E. Stakes: Softwood lumber, chisel pointed.
- F. String: Inorganic fiber.
- G. Peat Moss: Minimum 90% organic content with moisture absorptive capacity of 450% to 500%.
- H. Limestone: Ground dolomitic limestone containing minimum 90% calcium and magnesium carbonates. 100% shall pass the #10 mesh screen and a minimum of 50% shall pass the #100 mesh screen.

2.04 TESTS

- A. Provide analysis of topsoil fill under provisions of Section 014000.
- B. Analyze to ascertain percentage of nitrogen, phosphorus, soluble potash soluble salt content, organic matter content, and pH value.
- C. Submit minimum 10 oz (280 g) sample of topsoil proposed. Forward sample to approved testing laboratory in sealed containers to prevent contamination.
- D. Testing is not required if recent tests are available for imported topsoil. Submit these test results to the testing laboratory for approval. Indicate, by test results, information necessary to determine suitability.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.02 PREPARATION

- A. Areas to be seeded shall be harrowed, disced or otherwise completely pulverized to a depth of 4 inches. All stone or other unsuitable material over 2 inches in greatest dimension shall be removed from the site. After soil has been tilled to the satisfaction of the Engineer, superphosphate, at a rate of 2,000 pounds per acre, limestone at a rate of 4,000 pounds per acre and peat moss at the rate of 43 cubic yards per acre shall be applied and thoroughly disced into the soil to a depth of 4 inches.

3.03 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches (50 mm) of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.04 SEEDING

- A. Sow seed at the rate of 160 pounds per acre using a mechanical distributor. After sowing, the seeded areas shall be lightly rolled with a roller weighing not more than 100 pounds per foot to width. All mechanical equipment for seeding and rolling shall be as approved and shall pass parallel to the contours unless otherwise approved, to obtain uniform coverage of all materials.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- D. Immediately following seeding and compacting, apply mulch to a thickness of 1/8 inches (3 mm). Maintain clear of shrubs and trees.
- E. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches (100 mm) of soil.
- F. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches (100 by 100 mm).

3.05 PROTECTION

- A. Identify seeded areas with stakes and string around area periphery.
- B. Cover seeded slopes where grade is 4 inches per foot (333 mm per m) or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- C. Lay fabric smoothly on surface, bury top end of each section in 6 inch (150 mm) deep excavated topsoil trench. Provide 12 inch (300 mm) overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- D. Secure outside edges and overlaps at 36 inch (900 mm) intervals with stakes.
- E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches (150 mm).

3.06 MAINTENANCE

- A. Provide maintenance at no extra cost to Owner.

- B. Maintain seeded and mulched areas from the time of planting until one (1) month after the date of final payment request, or such earlier date as determined by the Engineer. Maintenance shall consist of repairing any areas damaged following seeding and mulching operations due to wind, fire, water, mulch removal, cutting or Contractor activity. Damaged areas shall be repaired to re-establish the condition and grade of the area prior to seeding and shall then be refertilized, reseeded and remulched as specified herein.
- C. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.
- D. Remove mulch from seeded areas prior to the first cutting or when requested by the Engineer.
- E. Mow grass at regular intervals to maintain at a maximum height of 2-1/2 inches (65 mm). Do not cut more than 1/3 of grass blade at any one mowing.
- F. Immediately remove clippings after mowing and trimming.
- G. Water to secure germination and initial establishment of the grass, and to prevent grass and soil from drying out.

END OF SECTION

CONSULTANTS:

MARK	DATE	DESCRIPTION
	XX-XX-15	PRELIMINARY SCHEMATIC



DESIGNED BY: CJD/CJS	DRAWN BY: CJD	CHECKED BY:	REVIEWED BY:
PROJECT NO.: RDWD 16-08	DATE: JUNE 2017	SCALE:	AS SHOWN

CLIENT: **Riverhead Water District**

Installation Of Emergency Generators At Plants No. 1 & 16



Riverhead, New York 11901

CONTRACT:

STATUS: **FINAL BID DOCUMENT**

SHEET TITLE: **PLANT NO. 1 ELECTRICAL SITE PLAN**

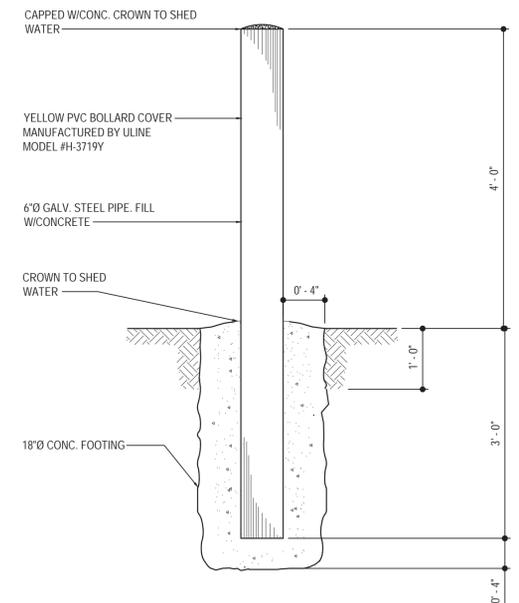
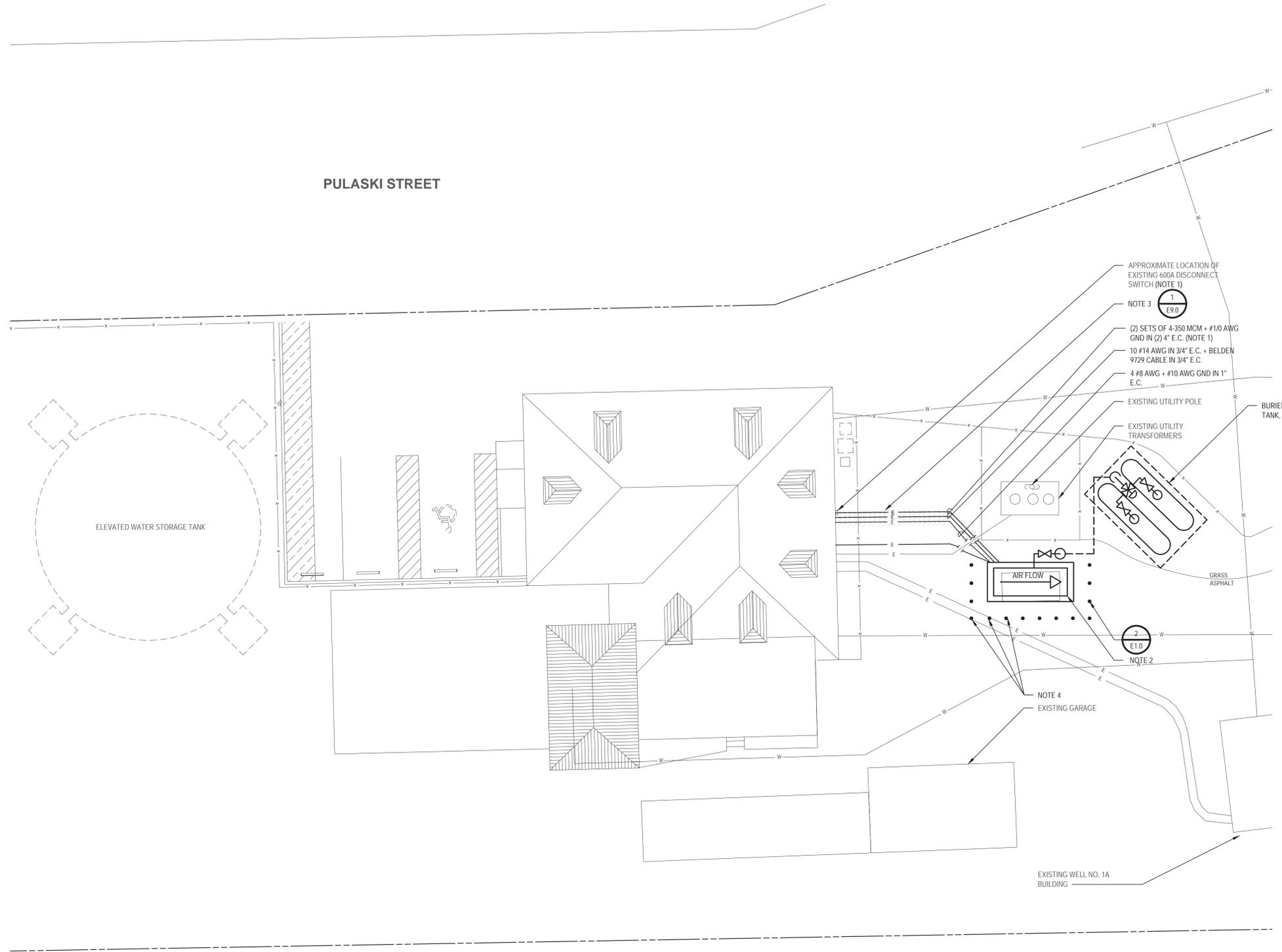
DRAWING No. **E1.0** SHEET No. **003** OF **014**

SITE PLAN LEGEND

— G —	CURB
— S —	EXISTING NATURAL GAS SERVICE
— W —	EXISTING SEWER SERVICE
— T —	EXISTING WATER SERVICE
— T —	EXISTING TELEPHONE SERVICE
— T —	NEW TELEPHONE SERVICE
— E —	EXISTING ELECTRICAL LINES
— E —	NEW ELECTRICAL LINES
— PE —	EXISTING PRIMARY ELECTRIC SERVICE
— PE —	NEW PRIMARY ELECTRIC SERVICE
— O/H-ELEC. —	EXISTING OVERHEAD ELECTRIC LINES
— X —	EXISTING FENCE
☐	NEW ELECTRIC PULL BOX
⊞	PAD MOUNTED UTILITY TRANSFORMER

- ELECTRICAL SITE PLAN GENERAL NOTES:**
- CONTRACTOR SHALL INSPECT CONSTRUCTION SITE PRIOR TO SUBMISSION OF BIDS AND SHALL MAKE NO ADDITIONAL CLAIMS REGARDING SITE CONDITIONS THEREAFTER.
 - LOCATION OF ALL UNDERGROUND UTILITIES BOTH PUBLIC AND CUSTOMER OWNED, WERE OBTAINED FROM EITHER MAPS, SURVEYS, DRAWINGS AND RECORDS SUPPLIED BY OTHERS. THE OWNER AND ENGINEER DO NOT GUARANTEE OR ACCEPT RESPONSIBILITY FOR ANY DAMAGE TO SUCH FACILITIES DUE TO DISCREPANCIES IN LOCATION AND SIZE SHOWN ON THE PLANS OR THOSE UTILITIES NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PRIVATE MARKOUT COMPANY FOR DETERMINING THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING WORK. CONTRACTOR SHALL LOCATE ALL UTILITIES WITHIN PROXIMITY OF CONSTRUCTION LIMITS.
 - CONTRACTOR SHALL COMPLETELY RESTORE ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO GRASS AREAS, LANDSCAPING, PAVEMENTS, SIDEWALKS, CURBING AND IN-GROUND SPRINKLER SYSTEMS.
 - THE CONTRACTOR SHALL PERFORM DAILY CLEAN-UP OPERATIONS WHICH INCLUDE REMOVAL OF DEBRIS AND EXCESS CONSTRUCTION MATERIAL TO THE SATISFACTION OF THE OWNER AND THE ENGINEER.
 - DURING ALL NON-WORKING HOURS, THE CONTRACTOR WILL BE REQUIRED TO STORE ALL EQUIPMENT AND MATERIALS WITHIN THE AREA DESIGNATED BY THE ENGINEER AT THE PROJECT SITE.
 - PROVIDE TEMPORARY FENCING TO PROTECT WORK AREAS.

- ELECTRICAL SITE PLAN KEY NOTES:**
- CONTRACTOR SHALL CONNECT THE CONDUIT AND FEEDERS FROM THE NEW GENERATOR TO EXISTING 600A DISCONNECT SWITCH. PROVIDE ALL REQUIRED HARDWARE/ACCESSORIES.
 - NEW GENERATOR AND CONCRETE FOUNDATION
 - TRENCH EXISTING ASPHALT AS REQUIRED TO INSTALL NEW CONDUIT. BACKFILL AND RESTORE ASPHALT PAVING.
 - CONTRACTOR SHALL HAND DIG IN LOCATION INDICATED TO AVOID DAMAGING EXISTING ELECTRICAL CONDUIT AND ASSOCIATED FEEDERS. AND TO DETERMINE EXACT LOCATION OF BOLLARDS. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF BOLLARDS IN AREA INDICATED PRIOR TO INSTALLING ADDITIONAL BOLLARDS SHOWN IN AN EFFORT TO INSTALL ALL BOLLARDS IN AN AESTHETICALLY APPROPRIATE MANNER.



2 Bollard Detail
SCALE: NTS

1 Riverhead Plant No. 1 Electrical Site Plan
SCALE: 1"=10'-0"

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 16 Jun 2017 4:42pm By cjs

CONSULTANTS:

MARK	DATE	DESCRIPTION
XX-XX-15		PRELIMINARY SCHEMATIC



DESIGNED BY: CJD/CJS
DRAWN BY: CJD
PROJECT NO.: RDWD 16-08
DATE: JUNE 2017
SCALE: AS SHOWN

CLIENT: **Riverhead Water District**

Installation Of Emergency Generators At Plants No. 1 & 16



Riverhead, New York 11901

CONTRACT:

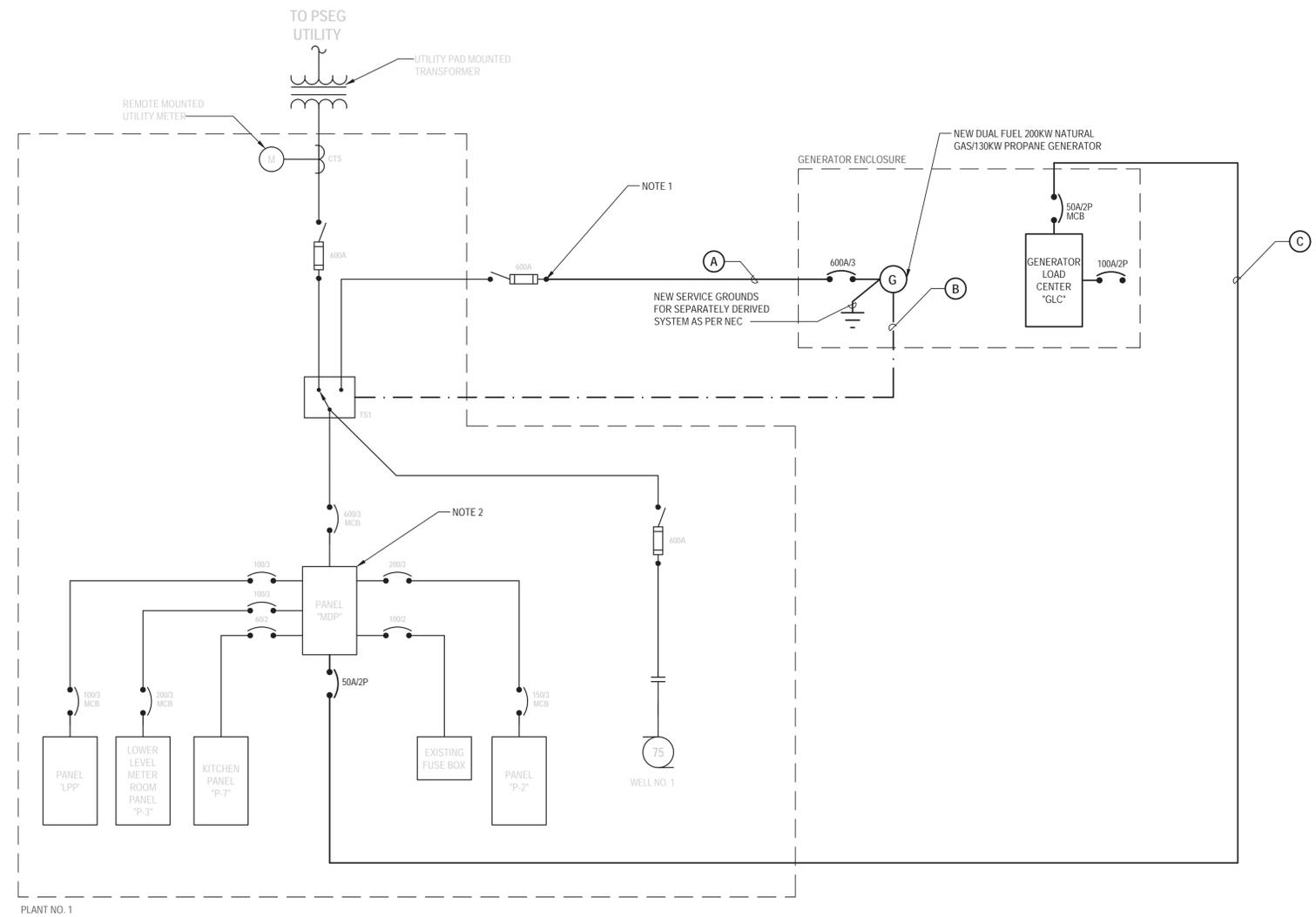
STATUS: **FINAL BID DOCUMENT**

SHEET TITLE: **PLANT NO. 1 ELECTRICAL SINGLE LINE DIAGRAM**

DRAWING No. **E3.0** SHEET No. **005** OF **014**

FEEDER SCHEDULE	
FEEDER	CONDUTOR AND CONDUITS FEEDER SCHEDULE
A	(2) SETS OF 4-350 MCM + #10 AWG GND IN (2) 4" E.C.
B	10 #14 AWG IN 3/4" E.C. + BELDEN 9729 CABLE IN 3/4" E.C.
C	4 #8 AWG + #10 AWG GND IN 1" E.C.

- SINGLE LINE NOTES:**
- CONTRACTOR SHALL CONNECT THE CONDUIT AND FEEDERS FROM THE NEW GENERATOR TO EXISTING 600A DISCONNECT. PROVIDE ALL REQUIRED HARDWARE/ACCESSORIES.
 - CONTRACTOR SHALL PROVIDE ALL HARDWARE AND ACCESSORIES NECESSARY TO SECURELY INSTALL NEW 50A 2 POLE BREAKER IN EXISTING PANEL "MDP" IN PLACE OF EXISTING SPACE.



1 Electrical Single Line Diagram
SCALE: NTS

Panel Wiring Schedule (3-Phase)

Panelboard: EXISTING PANEL "MDP" Voltage: 120/240 Phase: 3 Wire: 4 AIC Rating: -
 Manufacturer: SQUARE D Mains: 600A MCB Mains Rating: 600A
 Panel Type: E1 SERIES Mounting: SURFACE Options: - Note: -
 NEMA Type Enclosure: 1

LOAD DESCRIPTION	BREAKER OPTION	TRIP AMPS AND POLES	CONNECTED LOAD VOLT AMPERES			CIRC. NO.	A	B	C	CONNECTED LOAD VOLT AMPERES			TRIP AMPS AND POLES	BREAKER OPTION	LOAD DESCRIPTION
			0A	0B	0C					0A	0B	0C			
EXISTING LOAD "PANEL P-2"		200 3P				1				2			100		EXISTING LOAD "PANEL P-3"
EXISTING LOAD "HALL"		100 2P				3				4			3P		EXISTING LOAD "PANEL P-5"
GENERATOR LOAD CENTER "GLC"		50 2P			1350	11				12			60 2P		EXISTING LOAD "PANEL P-6"
SPACE					1610	13				14					SPACE
SPACE						15				16					SPACE
SPACE						17				18					SPACE
SPACE						19				20					SPACE
SPACE						21				22					SPACE
SPACE						23				24					SPACE

Connected Totals: 0A - KVA, 0B - KVA, 0C - KVA, Total - KVA - Amperes

Breaker Options:
 AS - Powerlink AS Breaker
 AUX - Auxiliary Contacts
 GFCI - Ground Fault Circuit Interrupter
 HACR - Heating, AC & Refrigeration
 LO - Handle lock-off device
 PA - Handle Padlock Attachment
 SF - Subfeed
 ST - Shunt Trip Type
 TC - Time Clock Control

(All Phases to be balanced to within 7% using Actual Load Totals.)

Panel Wiring Schedule (1-Phase)

Panelboard: GLC Voltage: 120/240 Phase: 1 Wire: 3 AIC Rating: 22,000
 Manufacturer: NOTE 1 Mains: 50A MCB Mains Rating: 125A
 Panel Type: NOTE 1 Mounting: - Options: - Note: -
 NEMA Type Enclosure: 1

LOAD DESCRIPTION	BREAKER OPTION	TRIP AMPS AND POLES	CONNECTED LOAD VOLT AMPERES			CIRC. NO.	A	B	C	CONNECTED LOAD VOLT AMPERES			TRIP AMPS AND POLES	BREAKER OPTION	LOAD DESCRIPTION
			0A	0B	0C					0A	0B	0C			
CONVENIENCE RECEPTACLE		20A/1P	360			1				2			20A/1P		SPARE
COOLANT HEATER		20A 2P		1250		3				4			20A/1P		SPARE
ANTI-CONDENSATION HEATER		20A/1P	1250	100		5				6			20A/1P		SPARE
SPARE		20A/1P				7				8			20A/1P		SPARE
SPARE		20A/1P				9				10			20A/1P		SPARE
SPARE		20A/1P				11				12			20A/1P		SPARE
SPARE		20A/1P				13				14			20A/1P		SPARE
SPARE		20A/1P				15				16			20A/1P		SPARE
SPARE		20A/1P				17				18			20A/1P		SPARE

Connected Totals: 0A - 1.6 KVA, 0B - 1.4 KVA, 0C - KVA, Total - 3.0 KVA - 12.5 Amperes

Breaker Options:
 AS - Powerlink AS Breaker
 AUX - Auxiliary Contacts
 GFCI - Ground Fault Circuit Interrupter
 HACR - Heating, AC & Refrigeration
 LO - Handle lock-off device
 PA - Handle Padlock Attachment
 SF - Subfeed
 ST - Shunt Trip Type
 TC - Time Clock Control

(All Phases to be balanced to within 7% using Actual Load Totals.)

- PANEL SCHEDULE NOTES:**
- AS PER GENERATOR MANUFACTURER.

