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CONTRACT NO. A919

**PASSAIC VALLEY SEWERAGE COMMISSION
600 WILSON AVENUE
NEWARK, NEW JERSEY 07105**

CONTRACT AND SPECIFICATIONS

FOR

**FURNISH AND INSTALL NEW REPLACEMENT
ELECTRIC FEEDER CABLES FOR A TWO (2) YEAR PERIOD**

SEPTEMBER 2013

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**** NOT PART OF THIS CONTRACT**

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00500 CONTRACT AGREEMENT

CONTRACT NO. A919
PASSAIC VALLEY SEWERAGE COMMISSION
600 WILSON AVENUE
NEWARK, NEW JERSEY 07105

CONTRACT AND SPECIFICATIONS
FOR

FURNISH AND INSTALL NEW REPLACEMENT
ELECTRIC FEEDER CABLES FOR A TWO (2) YEAR PERIOD

THIS AGREEMENT, made and executed this 3 day of December, 2013 by
and between the Passaic Valley Sewerage Commission, a public body of the County of Essex, State of
New Jersey, hereinafter called the "Commission," acting through its Chairman, and

TRAVIS INC.

a corporation chartered under the laws of the State of New Jersey partnership,
individual with principals offices at 11 Merry Lane

East Hanover, NJ 07936

hereinafter called the "Contractor."

WITNESSETH: That the said Contractor has agreed and by these presents does agree with the Commission, for the Prices bid and stipulated in the Proposal herein contained or hereunto annexed and under the terms and conditions expressed in Bonds bearing even date with these presents, and herein contained or hereunto annexed, to furnish at his own cost and expense all the necessary materials, labor, superintendence, tools, and appliances and shall execute, construct, and finish and test in an expeditious and workmanlike manner all the work as described in the contract specifications commencing the work within ten (10) days from the date of Notice to Proceed and executing the same within the time and proceed in the manner specified and in conformity with the requirements set forth in the Contract Documents herein contained or hereunto attached and in accordance with the Contract Specifications of said Work.

In the event that the contract documents, exclusive of the Contractor's Bid Form, are in conflict with the Contractor's Bid or Bid Form, the provisions, terms and conditions of the Commission Contract Documents and specifications shall bind the parties.

The Contractor shall proceed with the said Work in a prompt and diligent manner and shall do all parts thereof at such times in such order as the Commission may approve. Further, he shall complete the whole of said Work in accordance with the Contract Documents to the satisfaction of the Commission, and within 730 consecutive calendar days from the date of "Notice to Proceed."

The Commission shall not be liable to the Contractor for any neglect, default, delay or interference of or by another other contractor, nor shall any such neglect, default, delay or interference of any other contractor, or alteration which may be required in said Work, release the Contractor from the obligation to finish the said Work within the time aforesaid or from the damages to be paid in default thereof.

Name and addresses of each person or company interested in the Contract:

____ A. J. DiGiovanni 583 Rockport Rd., Mansfield, NJ _____

____ Robert G. Travis 558 Marsh Creek Rd., Venice, FL _____

____ Peter M. Barba 10481 S. E. Banyan Way, Tequesta, FL _____

It is hereby mutually agreed that the Commission is to pay and the Contractor is to receive the amount bid (less retainage, if any) as stipulated in the proposal herein contained or hereto annexed, as full compensation for furnishing all material and labor and in all respects completing the herein described work in the manner and under the conditions herein specified, and for fully complying with the terms and conditions of this Contract.

Subject to the applicable provisions of law, the Contract shall be in full force and effect from and after the date when a fully executed and approved counterpart hereof is delivered to the Contractor at the address set forth above and shall remain and continue in full force and effect until after the expiration of the warranty period and the Contractor and the sureties are finally released by the Commission.

IN WITNESS WHEREOF: The parties hereto have executed this agreement the day and year first above mentioned.

PASSAIC VALLEY SEWERAGE COMMISSION

BY: _____

ATTEST BY: _____
PASSAIC VALLEY SEWERAGE COMMISSION

TRAVIS INC.
CONTRACTOR NAME

BY: _____
CONTRACTOR

ATTEST BY: _____
CONTRACTOR

00305 **BID SHEET (Including Terms and Conditions Applicable to the Proposal)**

**CONTRACT NO. A919 - FURNISH AND INSTALL NEW REPLACEMENT
ELECTRIC FEEDER CABLES FOR A TWO (2) YEAR PERIOD**

Name of Contractor: Travis Inc.
Business Name: Travis Inc.
Mailing Address: 11 Merry Lane
(Mailing Address must include Street Address)
East Hanover, NJ 07936
Telephone No. 973-515-5352 Fax No. 973-515-4513
Contact Person: Anthony E. DiGiovanni

- A. The Bidder shall furnish all labor, equipment, materials and supplies necessary to furnish and install new replacement electric feeder cables for a two (2) year period, in accordance with the contract specifications at various PVSC Facilities.

All work shall be performed on a time and material (T&M) basis and shall be in accordance with the contractor's T&M Schedule (Section 00400) which shall be submitted with the bid and will become part of this contract.

Costs for supervision and labor shall include all cost factors, such as wages, benefits, travel time, fuel, insurance, overhead and profit, general and administrative (G&A) and all other additional expenses. Billing time for the maintenance, testing and repair services performed is to begin at the start of work at PVSC and end at the time leaving PVSC. The minimum billable time for a call in will be four (4) hours.

The contractor hourly rate submitted for straight time will cover PVSC's normal working hours of 7:45AM to 4:15PM Monday through Friday in accordance with Division 1, Section 01046 - Working Hours. The overtime hourly rate will be used during weekdays after 40 hours per week or for services provided on weekends, Holidays or when being requested to work during PVSC non-normal working hours. Overtime hourly work (if approved) will be billed at a cost of 1.5 times the T&M schedule rate.

The contractor shall be available 7 days a week for 24 hour notice on-call and emergency service work during the life of this contract and will be compensated at the respective hourly rates.

Materials shall be billed at cost plus a 15% markup fee.

For purposes of evaluating and comparing bids, the contractor shall provide a T&M Schedule (see Section 00400) to maintain a hypothetical work crew at a PVSC facility, for a period of one forty (40) hour work week per year. The Contractor hourly rates for labor shall commence from the actual time the Contractor reports at the PVSC Facility requiring service until the time leaving PVSC. PVSC will maintain appropriated records showing the actual time the contractor spent on the job. The contractor will **not** be compensated for any travelling time between place of business and the PVSC Facility where work is to be performed.

All hourly rate(s) listed in the T&M Schedule (see Section 00400) shall be filled out in subsection 1.A. Failure to do so would be considered a non-responsive bid and may be cause for the bid to be rejected.

The hypothetical work crew described is for bid evaluation purposes only. Actual crews, equipment and duration will vary, depending on the specific task to be done.

The work required under this contract is indeterminate and will be performed on a "Time and Material" basis. There shall be no fixed contract amount when a specific task is required; a "not to exceed" price and time frame will be established for the task. Contractor's time required to develop a cost proposal for any given task or project and the time spent in pre-construction meeting(s) shall not be compensable.

The term of this contract is for a two (2) year period, beginning from the Notice to Proceed date. All prices shall hold firm and not be subject to increase during the term of the contract.

The work shall proceed in the manner specified and in conformity with the requirements set forth in the Contract Documents herein contained or hereunto attached and in accordance with the Contract Specifications.

In the event of a conflict between the bid specifications (request for proposal, invitation to bid, etc.) and the contractor's bid submission (proposal, response, etc.) the terms of the specifications (or otherwise as referenced) shall govern the agreement between PVSC and the contractor.

- B. All prices are exclusive of N. J. State and Federal Taxes. The Passaic Valley Sewerage Commission is an agency of the State of New Jersey and is exempt from the New Jersey Sales and Use Taxes, pursuant to Section 9(a)(1) of the New Jersey Sales and Use Tax Act (N.J.S.A. 54:32B-1 et seq.).**
- C. The cost of all Warrantees shall be included.**
- D. The bidder's price shall be inclusive, including all labor, equipment, consumables, inspection and transportation. Bidder shall not include the cost of any services provided by PVSC.**
- E. Prices shall also include all transportation charges on materials removed from site and charges pertaining to disposal and other costs pertaining to the execution of the work.**
- F. The Commission reserves the right to make no award and reject all bids should, in their judgment it be in the public interest to do so.**
- G. Contract Period and Extension Option: If in the opinion of the Commission it is in the best interest of PVSC to extend this contract, the Contractor will be so notified of the Commission's intent at least thirty (30) days prior to the expiration date of the existing contract. The Contractor shall have fifteen (15) calendar days to respond to the Commission's request to extend the contract. If the Contractor agrees to the extension, all terms and conditions of the original contract, including all prices, will be applicable.**
- H. The successful Bidder shall maintain for the duration of the work to be done under this contract, Liability Insurance in the amounts specified in the General Conditions, Section 00727. Upon execution of the contract, the contractor shall furnish the PVSC with all certificates of insurance as required and set forth herein.**
- I. It is the bidder's responsibility to visit the PVSC facilities to inspect and to verify all locations, dimensions, conditions and access as needed to perform the contract work. Arrangements for the site visit can be made by contacting Mr. Peter Wasiliew, Electrical Engineer at (973) 817-5794.**
- J. No variations will be permitted to the terms and conditions of the contract. Terms and conditions are in accordance with N.J. Laws for Public Bidding and the policies of the Passaic Valley Sewerage Commission. Any bids that include variations to the terms and conditions will be considered non-responsive and will be rejected.**
- K. If the Bidder intends to offer alternatives to the materials, equipment and/or services specified, then it is mandatory that the Bidders list and explain in detail any and all such exceptions to the**

specifications on the attached "Bidders Exception" sheet, and shall submit the sheet with his bid. If the exception involves material or equipment, the Bidder shall also include technical data to show that the exception is equal to or better than those specified. It is understood that if no exception is listed on the "Bidders Exceptions" sheet, the Bidder shall supply all the materials, equipment and/or services exactly as prescribed and shall return the "Bidders Exception" sheet marked "NONE".

- L. Only Bidders with experience with a similar type of work will be considered. Certification of this experience, and the names and addresses of at least three (3) customers from whom similar work was performed within the last two (2) years, shall be supplied with the bid. A certification questionnaire form is included for the Contractor's convenience.
- M. Unless prevented by strike or strikers which prevent construction or delivery of equipment or supplies from the manufacturer, failure to complete the work within the specified time shall be considered an abandonment of the contract and the Commission may seek redress for damages.
- N. The work must be completed without interrupting the operation of the PVSC Treatment Plant. The contractor must schedule his operations in detail with PVSC as noted in Div. 1, Section 01310 of Contract Specifications.
- O. Payment will be made in accordance with the Schedule as specified in Division 1, Section 01025.
- P. **Proposals shall be enclosed in opaque sealed envelopes, addressed to Passaic Valley Sewerage Commission, 600 Wilson Avenue, Newark, New Jersey 07105, with the name and address of the bidder plainly marked upon the outside thereof. (If forwarded by preferably registered mail, the sealed envelope containing the proposal, marked as directed above must be enclosed in another envelope addressed as specified in the Proposal.) The outside envelope containing the bids must clearly identify the bid number, contract name and bid opening date. Failure to properly identify the contents may result in the bid being rejected.**

To the extent that N.J.S.A. 2A:30A-2 et seq. applies to the project and its related work and/or any agreement between PVSC and the Contractor, all exceptions contained in N.J.S.A. 2A:30A-2(a) et seq. shall apply solely for the benefit of PVSC.

STATE OF NEW JERSEY

COUNTY OF Morris

§

I, Anthony E. DiGiovanni of the firm of Travis Inc. in the County of Morris and State of New Jersey, of full age, being duly sworn according to law, on my oath depose and say that:

I am an estimator, of Travis Inc., the Bidder making the Bid for this Project.

I execute the said Bid with full authority to do so.

I, and to the best of my knowledge, the Bidder, and any officer, director, employee or other representative of the bidder, have not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above-named Project.

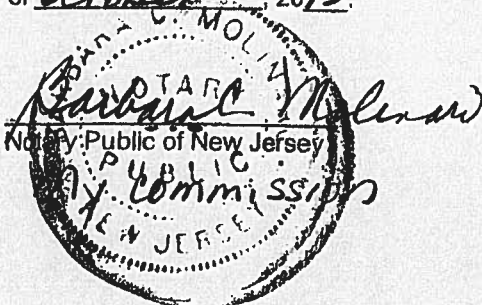
All statements contained in said Bid and all Contract Documents and in this affidavit are true and correct, and made with full knowledge that the Passaic Valley Sewerage Commission rely upon the truth of the statements contained in said Bid and Contract Documents, and in the statements contained in this Affidavit, in awarding the Contract for said Project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract agreement or understanding for a commission, percentage, brokerage or contingent fee except bona fide employees or bona fide established commercial or selling agencies maintained by the Bidder.

Sworn on Behalf of: Travis Inc.

Name of Bidder: *Anthony E. DiGiovanni*

Sworn and subscribed to
before me this 18 day
of October, 2013.



00403 (To be used if the contract value is expected to exceed \$100,000.00)

PASSAIC VALLEY SEWERAGE COMMISSION
CONTRACT NO. A919 - SUBCONTRACTOR LISTING

Failure to complete this Section may be a cause for the bid to be rejected.

The undersigned proposes to use the following subcontractors to perform the work indicated (use additional sheets as required).

<u>Work to be Performed</u>	<u>Name(s) and Address of Subcontractor(s)**</u>	<u>License Number(s)</u>
1. Plumbing & Gas Fitting and all Kindred Work	None _____ _____ _____	_____ _____ _____
2. Heating and Ventilation and all Kindred Work	None _____ _____ _____	_____ _____ _____
3. Electrical Work	None _____ _____ _____	_____ _____ _____
4. Structural Steel and Ornamental Iron Work	None _____ _____ _____	_____ _____ _____

Anthony E. DiGiovanni, Estimator

Name and Title of Authorized Representative



Signature of Authorized Representative

****IMPORTANT NOTE:** Whenever a Bid sets forth more than one subcontractor for any of the specialty trade categories (1) through (4) specified hereinabove in this section, the Bidder shall submit to PVSC a certificate signed by the bidder listing each subcontractor named in the Bid for that category. The certificate shall set forth the scope of work for which the subcontractor has submitted a price quote and which the Bidder has agreed to award to each subcontractor should the Bidder be awarded the contract. The certificate shall be submitted to PVSC simultaneously with the list of subcontractors. The certificate may take the form of a single certificate listing all subcontractors or, alternatively, a separate certificate may be submitted for each subcontractor.

PUBLIC WORKS CONTRACTOR REGISTRATION

**PASSAIC VALLEY SEWERAGE COMMISSION
600 WILSON AVENUE
NEWARK, NEW JERSEY 07105**

PUBLIC WORKS CONTRACTOR REGISTRATION**CONTRACT NO. A919****FURNISH AND INSTALL NEW REPLACEMENT
ELECTRIC FEEDER CABLES FOR A TWO (2) YEAR PERIOD**

1. In accordance with "The Public Works Contractor Registration Act," P.L. 1999, c238 (N.J.S.A 34:11 – 56.48 et seq.) amended by P.L. 2003, C91

"No contractor shall bid on any contract for public work as defined in section 2 of P.L 1963, c150 (C34:11 – 56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L 1999, c238 (C34:11 – 56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor is registered pursuant to that act." (N.J.S.A 34:11 – 56.51)

"Contractor means a person, partnership, association, joint stock company, trust, corporation, or other legal business entity or successor thereof who enters into a contract which is subject to the provisions of the "New Jersey Prevailing Wage Act," P.L 1963, c150 (C34:11 – 56.25 et seq.) and includes any subcontractor or lower tier subcontractor of a contractor defined herein" (N.J.S.A 34:11 – 56.50)

2. Proof of registration is required before an award can be made:

"Each contract shall, after the bid is made and prior to the awarding of this contract, submit to the public entity the certificates of registration for all subcontractors listed in the bid proposal. Applications for registration shall not be accepted as a substitute for a certificate of registration for the purposes of this section." (N.J.S.A 34:11 – 56.55)

3. On and after August 16, 2003, Contractors and their listed subcontractors bidding on covered work shall provide proof of the required registration prior to the contract award. [As a practical matter, proof of required registration should be submitted with the Bid].
4. By signing this form, the Contractor certifies that they shall provide proof of the required registration prior to the contract award.

 10-18-13
(Signature) (Date)

ANTHONY F. DIGIORGANNI
(Name and Title of Signer - Please type)

END OF SECTION

00400

SUPPLEMENTS TO BID FORMS

Contract No. A919

T&M SCHEDULE

1.	For purposes of evaluating and comparing bids, the Bidder shall provide the following cost to maintain a hypothetical work crew at PVSC Facility, for a period of one 40 hour work week, including a hypothetical material cost.	YEAR 1	YEAR 2
	<p>A. Hourly Rate per Person Including all wages, labor, travel, taxes, insurance (including Liability Insurance), overhead, licenses, qualifications, equipment, profit and all other mark-ups and costs:</p> <p>1. Electrical Foreman \$ <u>113.40</u> /Hr. x 40 Hrs.</p> <p>2. Electrical Journeyman \$ <u>99.75</u> /Hr. x 40 Hrs.</p> <p>B. Material Mark-up Including all insurance, overhead, profit and any other mark-up shall be fifteen (15) percent.</p> <p>1. Materials <u>15</u>%</p> <p>Formula:</p> <p>Hypothetical Material Cost per week x % Mark up</p> <p>\$80,000.00/wk X <u>1.15</u> [enter % as decimal]</p>	<p>= \$ <u>4,536⁰⁰</u> (A1)</p> <p>= \$ <u>3,990⁰⁰</u> (A2)</p> <p>= \$ <u>92,000.00</u> (B1)</p> <p>= \$ <u>100,526⁰⁰</u></p>	<p>= \$ <u>4,496⁰⁰</u> (C1)</p> <p>= \$ <u>4,150⁰⁰</u> (C2)</p> <p>= \$ <u>92,000.00</u> (D1)</p> <p>= \$ <u>100,846⁰⁰</u></p>
	<p>Year 1: Total (Sum of A1, A2 and B1)</p> <p>Year 2: Total (Sum of C1, C2 and D1)</p>		
	<p>TOTAL (Sum Year 1 plus Year 2)</p>	<p>\$ <u>201,372⁰⁰</u></p>	

00402

PASSAIC VALLEY SEWERAGE COMMISSION

ACKNOWLEDGMENT OF RECEIPT OF CHANGES TO BID DOCUMENTS FORM

CONTRACT NO. A919

FURNISH AND INSTALL NEW REPLACEMENT
ELECTRIC FEEDER CABLES FOR A TWO (2) YEAR PERIOD

Pursuant to N.J.S.A. 40A:11-23.1a et seq., the undersigned bidder hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the PVSC's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid. If there were no revisions or addenda write NONE on the top line, sign the acknowledgment below and submit with the bid documents.

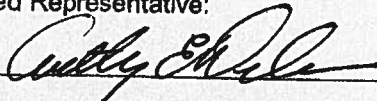
Local Unit Reference Number or Title of Addendum/Revision	How Received (mail, fax, pick-up, etc.)	Date Received

Acknowledgment by Bidder:

Name of Bidder: Travis Inc.
(Company Name)

By Authorized Representative:

Signature:



Print Name and Title: Anthony E. DiGiovanni, Estimator

Date: 10/18/13

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00700 GENERAL CONDITIONS

00701 The Contractor enters into this agreement with the full knowledge of the conditions and requirements of the specifications, including the physical characteristics above, on and below the surface of the ground where applicable.

00702 The Contractor will, simultaneously with the execution of this contract, deliver to PVSC a surety bond of a surety company qualified to do business in New Jersey, and shall be listed in the current Federal Register, Department of the Treasury Circular 570. "Surety Companies acceptable on Federal Bonds." The said surety bond will provide that the surety company will become surety for the faithful performance of the work and shall be in an amount equal to the contract price, and shall be so conditioned as to indemnify PVSC against any losses due to the failure of the Contractor to conform to the requirements.

The form of the surety bond shall be subject to the approval of the Chief Counsel of PVSC and shall be in accordance with the requirements of N.J.R.S. 2A:44-143 to 147.

00703 The Contractor agrees that during the entire term of the contract it will pursue the work faithfully and diligently and will, at all times, have the necessary sources of supply, labor, material and machinery necessary to complete the contract in accordance with the terms of the specifications.

00704 All work done under this contract shall be done to the satisfaction of the Engineer of PVSC, who shall in all cases determine the amount, quality, acceptability and fitness of the material and work which are to be paid for hereunder and shall decide any questions which may arise as to the fulfillment of this decision thereon shall be final and conclusive. The word "Engineer" shall mean the person holding the position of Chief Engineer of the Passaic Valley Sewerage Commission, or his duly authorized representative.

00705 If the Contractor should be adjudged a bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail to supply enough skilled workmen or proper materials, or if it should fail to make prompt payment to subcontractors for material, labor, or equipment rental, or persistently disregard laws, ordinances, or other instructions of the Engineer, or this contract, then PVSC, upon the certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the Contractor thirty (30) days written notice, terminate the employment of the Contractor. The termination of the employment of the Contractor under the provisions of this paragraph shall not relieve the surety of its responsibility.

00706 The Contractor shall be responsible for all parts of its work, either temporary or permanent, until the contract is accepted by PVSC and it shall thoroughly protect all work, finished or unfinished, against damage from any cause. Risk of loss shall remain with the Contractor until the work has been accepted by a resolution duly adopted by PVSC. The use of part or all of the work by PVSC shall not relieve the Contractor of its responsibility until such time as the work has been formally accepted by resolution. The Contractor shall conduct its operations in such a manner as to provide maximum safety for all employees on the work and the public as well, and shall comply with the requirements of all New Jersey and Federal Statutes governing safety requirements for employees.

00707 All notices, demands, requests, instructions, approvals and claims shall be in writing. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor specified in the bid (or at such other offices as the Contractor may from time to time designate to the Engineer in writing) or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered by telephone electronic/facsimile (FAX) transmission system. All papers required to be delivered to PVSC shall, unless otherwise specified to the Contractor in writing, be delivered to the office of PVSC at 600 Wilson Avenue, Newark, New Jersey 07105 and any notice to or demand upon PVSC shall be sufficiently given if delivered to

the said office, or if deposited in the United States mail in a sealed, postage-prepaid envelope, certified mail, return receipt requested.

- 00708** No final payment shall be made until the Engineer has certified to PVSC that the work has been completed by the Contractor in accordance with the requirements of the plans, specifications and contract.
- 00709** The Contractor shall not assign the contract or sublet it in whole or in part without the prior written consent of PVSC, nor shall the Contractor assign any monies due or becoming due to it without the prior written consent of PVSC.
- 00710** This contract, and all incorporations by reference together with the plans, specifications and bid documents, constitutes the entire agreement and understanding between the parties. This contract may not be modified, altered, abridged, amended or supplemented, except by written agreement executed by the parties.
- 00711** Neither the inspection by the Engineer or any agent or employee of PVSC, nor any order by PVSC for the payment of money, nor any payment for, or acceptance of, the whole or any part of the work, by PVSC or the Engineer, nor any possession taken by PVSC or their employees, shall operate as a waiver of any provisions of this contract, or of any right to damage herein provided, nor shall any waiver of any breach of the contract be held to be a waiver of any or subsequent breach. Any remedy provided in this Contract shall be taken and construed as cumulative, that is, in addition to each and every other remedy herein provided, and PVSC shall also be entitled as of right to a writ of injunction against any breach of any of the provisions of this contract.
- 00712** The Contractor covenants and agrees that anything in this contract or in the contract documents to the contrary notwithstanding, or regardless of any matter, thing, contingency or condition unforeseen or otherwise, present or future, the Contractor shall not be entitled to receive any additional or further sums of money than the amounts in said contract documents provided, except pursuant to a written change order duly authorized by a resolution of PVSC; and the failure of PVSC to insist upon strict performance of any of the terms, covenants, agreements, provisions or conditions in this contract or in the contract documents or any one or more instances, shall not be construed as a waiver of relinquishment for the future of any such terms, covenants, agreements, provisions and conditions, but the same shall be and remain in full force and effect with power and authority on the part of PVSC to enforce the same or cause the same to be enforced at any time, without prejudice to any other rights which PVSC may have against the Contractor under this contract or the contract documents.
- 00713** Plans, specifications and the within contract shall be construed in accordance with the laws of the State of New Jersey.
- 00714** The Contractor shall commence with the work on the project within ten (10) days after notice to proceed unless stated otherwise herein.
- 00715** The Contractor has agreed that is has carefully examined the site of the work, the form of the contract and specifications and the drawings referred to therein, and will provide all necessary machinery, tools, apparatus, and other means for construction and do all the work and furnish all the materials called for by the within contract and the specifications and the requirements under them of the Engineer and in accordance with the bidders notice, information for bidders, plans, general requirements, specifications, etc., all of which are incorporated herein as though fully set forth and form a part of this contract.
- 00716** The Contractor is held to have visited the site prior to the time of submitting bids and to have apprised and informed itself of all conditions at the site. Any information furnished by a representative of PVSC upon such matters shall in no way relieve the Contractor from risk or responsibility in fulfilling all of the terms of the contract; nor shall PVSC assume any responsibility or incur any liability as the result of furnishing of information by any representative.

- 00717** Any information as to the location of existing substructures and utilities shown on the contract drawings is not guaranteed as to accuracy by PVSC and PVSC incurs no responsibility or obligation to the Contractor or others in connection therewith.
- 00718** The Contractor shall not employ any subcontractor that PVSC may object to as incompetent or unfit; nor shall the Contractor subcontract to any person that has submitted a bid proposal for the award of the contract. Additionally, the Contractor shall not enter into any joint venture of any kind whatsoever relating to the within construction. PVSC may waive the provisions of this paragraph in its sole and absolute discretion, upon submission of a written request by the Contractor for a waiver supported by a disclosure of all of the facts and circumstances accompanied by a copy of the joint venture contract agreement or understanding.
- 00719** The Contractor agrees that it is as fully responsible to PVSC for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.
- 00720** The Contractor will be required to comply with the requirements of Local Public Contracts Law (N.J.S.A. 40A:11-1 et seq.) and all New Jersey Statutes affecting public contracts; more particularly, but not limited to, the provisions of the Statutes hereinafter recited. All statutes not referred to herein but required by law to be applicable to public contracts are incorporated herein as though fully set forth.
- 00721** Representatives of PVSC shall have access to the work when it is in progress. Any inspection costs incurred by PVSC by reason of any breach or derelictions by the Contractor shall be chargeable to the Contractor.
- 00722** The Contractor must arrange for its own utilities, paying for all permits, connections, consumption, as required of whatsoever kind.
- 00723** The Contractor shall procure at its own expense all necessary permits to prosecute and complete the work. It shall keep itself fully informed of all existing and future state and Federal Laws and Regulations and Municipal Ordinances and Regulations, in any manner affecting the work and the persons engaged or employed in the work, or the materials used in the work, or in any affecting the performance of the work, either with respect to hours of labor or otherwise, and of all such laws, ordinances, regulations, orders and decrees, and shall protest and indemnify PVSC and their officers and agents against any claims or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by itself, or by its agents or employees.
- 00724** To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless PVSC and its commissioners, officers, directors, employees, and agents (collectively, the "Indemnified Parties" and individually, an "Indemnified Party") from and against any and all claims, damages, losses, fines, civil penalties, liabilities, judgments, costs and expenses of any kind or nature whatsoever, including, but not limited to, interest, court costs and attorneys' fees, which in any way arise out of or result from any act(s) or omission(s) by Contractor (or anyone directly or indirectly employed by Contractor, including sub-contractors, or anyone for whose acts Contractor may be liable) in the performance or non-performance of services or other obligations under this agreement or in the use or occupancy of any facilities or equipment provided by the Indemnified Parties, including, but not limited to, injury to or death of any person, damage to or destruction of any property, real or personal (including, but not limited to, property owned, leased or under the control of the Indemnified Parties), and liability or obligations under or with respect to any violation of federal, state and local laws, regulations, rules, codes and ordinances (including, but not limited to, those concerning environmental protection).

This section shall apply regardless of whether or not the damage, loss, or injury complained of arises out of or relates to the negligence (whether active, passive or otherwise) of, or was caused in part by, an Indemnified Party. However, nothing contained in this section shall be construed as a release or indemnity by Contractor of an Indemnified Party from or against any

loss, liability, or claim to the extent arising from the gross negligence or willful misconduct of that Indemnified Party.

This section shall not be construed to negate, abridge or otherwise reduce any other right to indemnity which would otherwise exist in favor of any Indemnified Party, or any obligation of Contractor, or its officers, directors, employees, agents, contractors, or sub-contractors to indemnify an Indemnified Party. Contractor's obligations under this section shall not be limited by any limitation on the amount or type of damages, compensation, or benefits paid or payable by Contractor under workers' compensation laws, disability benefits laws, or other employee benefit laws or regulations.

The indemnification obligations of this section shall survive termination or expiration of the Contract.

00725 The contractor shall provide proof of its business registration with the New Jersey Department of Treasury with its bid. Failure to submit proof of business registration is a fatal defect by law that cannot be cured and cause for rejection of the bid.

The Contractor shall list all subcontractors that it intends to employ in its bid proposal, the subcontractor's State license number and business registration certificate from the NJ Department of Treasury.

00726 NOT USED IN THIS CONTRACT

00727 The Contractor must procure and maintain during the term of this contract the following types of insurance coverage, which shall be consistent with the terms of the specifications and general and supplemental conditions:

1. Commercial General Liability ("GCL") insurance, for personal injury and property damage liability of not less than five million dollars (\$5,000,000) combined single limit for each occurrence/five million dollars (\$5,000,000) aggregate;
2. Comprehensive automobile liability insurance coverage of not less than one million dollars (\$1,000,000) combined single limit;
3. Workers' compensation with limits in accordance with New Jersey law; and
4. Employer liability insurance with limits of at least five hundred thousand dollars (\$500,000).

PVSC and its commissioners, officers, directors, employees, and agents shall be named as additional insureds on the CGL and comprehensive automobile liability policies, and, within 20 days of the Notice of Intent to Award Contract, the Contractor shall provide evidence of same in the form of certified endorsements specifically naming PVSC and its commissioners, officers, directors, employees, and agents as additional insureds. The submission of a Certification of Insurance will not serve as adequate proof that PVSC and its commissioners, officers, directors, employees, and agents have been named as additional insureds.

Each insurance policy shall contain a provision stating that neither the insured, nor the insurer may cancel, materially change, or refuse renewal without a minimum 30 days prior written notice to PVSC. In the event of cancellation due to non-payment of premiums, said notice shall be at least 10 days prior to cancellation. All insurance required pursuant to this section shall remain in full force and effect until the final contract payment, or until the end of the warranty period which ever is later.

Each insurance policy shall provide that neither the Contractor, nor its insurer, shall have any right to subrogation against PVSC. Any and all policies of insurance maintained by the Contractor shall be primary without contribution from any insurance procured, carried, and/or maintained by PVSC.

In the event the Contractor is permitted to utilize any subcontractor, the Contractor shall require the subcontractor's insurance coverage to be at least equal to the requirements set forth above, including, without limitation, the provisions regarding the naming of additional insureds and the Contractor's insurance being primary. In the alternative, the Contractor may insure the activities of its subcontractors under its own policies. The Contractor is responsible for and will assume all liabilities for any insurance deficiency or delinquency of a subcontractor or any claim that may result because of the deficiency or delinquency.

The Contractor's insurance carrier(s) shall also provide an endorsement insuring, accepting and including the requirement of indemnification and defense as set forth in General Conditions Section 00724.

- 00728** Before the final acceptance of the work, the Contractor shall remove all equipment, temporary work, unused materials and rubbish, and temporary buildings; shall repair or replace in an acceptable manner all private or public property which may have been damaged, destroyed, moved or removed on account of the prosecution of the work; and shall leave the site and all adjacent properties in a neat and presentable condition wherever its operations have disturbed conditions existing at the time of the starting of the work.
- 00729** No final or semifinal payment shall be made until the Contractor has executed and delivered a release to PVSC and every member, agent or employee thereof, from all claims and liability to the Contractor for everything and anything done or furnished, or of any person relating to or affecting the work. (Semifinal payment shall mean payment for all work performed under the contract, except retainage held as a guarantee against warrantee claims.)
- 00730** Before final or semifinal payment, the Contractor shall deliver to PVSC an affidavit of payment of all claims of suppliers and subcontractors. In the event that any supplier or subcontractor has not been paid and the claim is disputed by the Contractor, the Contractor shall submit all of the facts in its affidavit and PVSC shall be authorized, in the exercise of its discretion, to withhold from the payment the sum of money sufficient to guarantee payment of the claim. Nothing contained herein, however, shall incur any responsibility by PVSC to any material man or subcontractor, nor shall anything contained herein give rise to a cause of action by any subcontractor or supplier against PVSC.
- 00731** Before final acceptance and final or semifinal payment by PVSC, the Contractor shall deliver to PVSC a complete release of all liens arising out of the contract. Contractor agrees that at no time shall any municipal liens, mechanical liens, notices of intention, or secured instruments be filed against the work and should PVSC be compelled to remove or discharge a municipal lien, mechanics lien, notice of intention or secured instrument, the Contractor shall reimburse PVSC for all costs.
- 00732** Before final or semifinal payment the Contractor shall deliver to PVSC a consent or the Surety to the final payment. Release of final payment shall act to release PVSC of all claims by the Contractor's performance of the contract.
- 00733** **NOT APPLICABLE TO THIS CONTRACT**
- 00734** All payments under the within contract shall be upon the written certification of the Engineer.

To the extent applicable, pursuant to N.J.S.A. 2A:30A-2(f) et seq., disputes regarding whether a party has failed to make payments required pursuant to N.J.S.A. 2A:30A-2 et seq. may be submitted to a process of alternative dispute resolution. Alternative dispute resolution permitted by this section shall not apply to disputes concerning the bid solicitation or award process, or to the formation of contracts or subcontracts. In any civil action brought to collect payments pursuant to this section, the action shall be conducted inside of this State and the prevailing party shall be awarded reasonable costs and attorney fees.

00735 The Commission may order, and the Contractor shall perform, extra work under this contract that is limited to the subject matter of this contract.

On any work done by the contractor, as ordered by the Commission in writing, which is not covered in the contract, the contractor shall be paid as extra work. Extra Work costs shall be arrived at as follows:

- (a) By such applicable unit prices, if any, as are set forth in the contract; or
- (b) If no such unit prices are set forth, and if the parties cannot agree upon prices or lump sum, then for work performed the Contractor shall receive as compensation the actual cost to him, which cost shall include only:
 - 1. Labor, including foreman, but not supervisors.
 - 2. Materials entering permanently into the work.
 - 3. The ownership or rental cost of construction plant and equipment during the time of use on the extra or changed order.
 - 4. Power and consumable supplies for the operation of power equipment during the above time.
 - 5. Insurance.
 - 6. Social Security and old age and unemployment contributions.
 - 7. Plus a fixed fee equal to 15% of the summation of items #1 through #6 above, which fee shall be compensation to cover the cost of supervision, overhead, bond, profit, and any other general expenses. The prime contractor will not be permitted to include both his 15% and any subcontractor's 15% for the items enumerated herein.

00736 In the event that the vendor, unless prevented by strike or strikers, which prevents delivery of parts or services, and shall fail to furnish the materials, or services listed in this contract as per the specifications, and according to all the terms of this contract, the Commission reserve the right to rescind the contract and purchase the materials, or services through the open market, and the vendor agrees to pay the excess costs, if any, between the amount paid for same and the amount calculated at the contract price.

00737 During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such action shall include, but not be limited to the following: employment, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin,

ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the applicable employment goal prescribed by N.J.A.C. 17:27-7.3 et seq.; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the applicable employment goal established in accordance with N.J.A.C. 17:27-7.3 et seq.. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

- (A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to attempt to hire or schedule minority and women workers directly, consistent with the applicable employment goal. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with the applicable employment goal, the contractor or subcontractor agrees to be prepared to hire or schedule minority and women workers directly, consistent with the applicable employment goal, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines or is so notified by the Division that the union is not referring minority and women workers consistent with the applicable employment goal.
- (B) If the hiring or scheduling of a workforce consistent with the employment goal has not or cannot be achieved for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor

agrees to take the following actions consistent with the applicable county employment goals:

- (1) To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
- (2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;
- (3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
- (4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area until such time as the workforce is consistent with the employment goal;
- (5) If it is necessary to lay off some of the workers in a given trade on the construction site, to assure, consistent with the applicable State and Federal statutes and court decisions, that sufficient minority and women employees remain on the site consistent with the employment goal; and to employ any minority and women workers laid off by the contractor on any other construction site on which its workforce composition is not consistent with an employment goal established pursuant to rules implementing N.J.S.A. 10:5-31 et. seq.;
- (6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:
 - (I.) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall determine the qualifications of such individuals and if the contractor's or subcontractor's workforce in each construction trade is not consistent with the applicable employment goal, it shall hire or schedule those individuals who satisfy appropriate qualification standards. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.
 - (II.) If the contractor's or subcontractor's workforce is consistent with the applicable employment goal, the name of any interested women or minority individual shall be maintained on a waiting list for the first

consideration, in the event the contractor's or subcontractor's workforce is no longer consistent with the applicable employment goal.

(III.) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Division.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Division and submitted promptly to the Division upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form AA 201) provided to the public agency by the Division for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Division of Contract Compliance & EEO as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Contract Compliance & EEO for conducting a

compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27)**.

00738 Substantial Completion and Inspections

Substantial Completion

When work (or specified part thereof) has progressed (including and specified operational periods) to a point that the Owner determines that the work is ready for its intended use with contract documents.

Substantial Completion Inspection

At the point that the Contractor feels that substantial completion is satisfied, request in writing to the Owner a substantial completion inspection. At or prior to the time the Contractor requests substantial completion the Contractor shall have previously submitted O&M manuals, spare parts, guarantees, warranties, as-built and record drawings, certifications and other documents necessary for close-out of the work. At the substantial completion inspection, the Owner shall: inspect the work, add to the Contractor's list any other items to be completed or corrected; and, determine whether the work is substantially complete. If the work is not substantially complete, the Contractor shall forthwith complete all the items the owner has determined to be needed for substantial completion. Upon completion of such work the Contractor shall request an inspection of such work. When the Owner determines that the work is substantially complete including all claims and compensation therefore have been satisfied, the (Owner and Contractor) shall each sign the Certificate of Substantial Completion and semi-final payment will be released, which excludes retainage and punch list items (with dollar amounts associated) listed in the Certificate of Substantial Completion.

Final Inspection

Inspection shall be conducted between the Owner and Contractor to determine if deficiencies have been completed and work is acceptable, so that final payment can be released to the Contractor.

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00800 SUPPLEMENTAL CONDITIONS

00821 N.J.R.S. 10:2-1 – Anti-Discrimination

Every contract for or on behalf of the State or any county or municipality or other political subdivision of the State, or any agency of or authority created by any of the foregoing, for the construction, alteration or repair of any public building or public work or for the acquisition of materials, equipment, supplies or services shall contain provisions by which the contractor agrees that:

- a. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall by reason of race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, discriminate against any person who is qualified and available to perform the work to which the employment relates;
- b. No contractor, subcontractor, nor any person on his behalf shall in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation;
- c. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and
- d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

00822 N.J.R.S. 14A:13-3 – Foreign Corporations

1. No foreign corporation shall have the right to transact business in this State until it shall have procured a certificate of authority to do so from the Secretary of State. A foreign corporation may be authorized to do in this State any business which may be done lawfully in this State by a domestic corporation, to the extent that it is authorized to do such business in the jurisdiction of its incorporation, but no other business.
2. Without excluding other activities which may not constitute transacting business in this State, a foreign corporation shall not be considered to be transacting business in this State, for the purposes of this act, by reason of carrying on in this State any one or more of the following activities:
 - a. Maintaining, defining or otherwise participating in any action or proceeding, whether judicial, administrative, arbitative or otherwise, or effecting the settlement thereof or the settlement of claims or disputes;
 - b. Holding meetings of its directors or shareholders;
 - c. Maintaining bank accounts or borrowing money, with or without security, even if such borrowings are repeated and continuous transactions and even if such security has a situs in this State;

- d. Maintaining offices or agencies for the transfer, exchange and registration of its securities, or appointing and maintaining trustees or depositaries with relation to its securities.
3. The specification in subsection 14A:13-3(2) does not establish a standard for activities which may subject a foreign corporation to service of process or taxation in this State.

00823 N.J.R.S. 34:11-56.27 – Prevailing Wages

Every contract in excess of \$2,000 for any public work to which any public body is a party or for public work to be done on property or premises leased or to be leased by a public body, shall contain a provision stating the prevailing wage rate which can be paid (as shall be designated by the commissioner) to the workers employed in the performance of the contract and the contract shall contain a stipulation that such workers shall be paid not less than such prevailing wage rate. Such contract shall also contain a provision that in the event it is found that any workers, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract the public body or lessor may terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable to the public body or lessor for any excess costs occasioned thereby.

N.J.S.A. 34:11-56.26(5) et seq. has added to the existing prevailing wage requirements off-site workers who custom fabricate plumbing, heating, cooling, ventilation, or exhaust duct systems and mechanical insulation as part of a public works project.

N.J.S.A. 34:11-56.25 et seq., requires that all public works employers shall submit a certified payroll record to the public body or lessor which contracted for the public work project each payroll period within ten (10) days of the payment of wages. The public body shall receive, file and make available for inspection during normal business hours the certified payroll records. A copy of the certified payroll form may be obtained by contacting the New Jersey Department of Labor, Division of Workplace Standards, Public Contracts Section, CN 389, Trenton, New Jersey 08625-0389.

NOTE: Prevailing wage rates will not apply or be applicable to any contract unless an appendix from the New Jersey Department of Labor which includes the "Prevailing Wage Rate Determination," listing the prevailing wage levels is attached to the contract.

00824 N.J.R.S. 52:25-24.2 – Statement of Ownership

No corporation or partnership shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies, the cost of which is to be paid with or out of any public funds, by the State, or any county, municipality or school district, or any subsidiary or agency of the State, or of any county, municipality or school district, or by any authority, board, or commission which exercises governmental functions, unless prior to the receipt of the bid or accompanying the bid, of said corporation or said partnership, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own 10% or more of its stock, of any class or of all individual partners in the partnership who own a 10% or greater interest therein, as the case may be. If one or more such stockholder or partner is itself a corporation or partnership, the stockholders holding 10% or more of that corporation's stock, or the individual partners owning 10% or greater interest in that partnership, as the case may be, shall also be listed. The disclosure shall be continued until all names and addresses of every noncorporate stockholder, and individual partner, exceeding the 10% ownership criteria established in this act, has been listed.

00825 N.J.R.S. 52:33-2 and -3 – Use of Domestic Materials

52:33-2 Notwithstanding any inconsistent provision of any law, and unless the head of the department, or other public officer charged with the duty by law, shall determine it to

be inconsistent with the public interest, or the cost to be unreasonable, only domestic products and materials shall be acquired or used for any public work. This requirement is specifically set forth in N.J.S.A. 40A:11-18 and is incorporated herein by reference and made a part hereof.

This section shall not apply with respect to domestic materials to be used for any public work, if domestic materials of the class or kind to be used are not mined, produced or manufactured, as the case may be, in the United States in commercial quantities and of a satisfactory quality.

- 52:33-3** Every contract for the construction, alteration, or repair of any public work in this state shall contain a provision that in the performance of the work the contractor and all subcontractors shall use only domestic materials in the performance of the work; but if the head of the department or other public officer authorized by law to make the contract shall find that in respect to some particular domestic materials it is impracticable to make such requirement or that it would unreasonably increase the cost, an exception shall be noted in the specifications as to that particular material, and a public record made of the findings which justified the exception.

00826 Hazardous Materials

All hazardous material whether sold, delivered, and/or used to perform a service on the PVSC site, shall be properly labeled in accordance with the New Jersey Worker and Community Right to Know Act (P.L. 1983, c315, N.J.S.A. 34:5A-1 et seq.). The bidder shall include with his bid proposal the Material Safety Data Sheets, for all the products that he intends to deliver to the PVSC under this bid. The vendor shall comply with these terms otherwise his bid will be disqualified.

Hazardous material not complying with this act will cause the PVSC to reject shipments or deny the use of such materials on its site. The vendor shall be responsible for any cost incurred for materials found not to be in compliance with the act. The PVSC will make the sole determination if this act is being violated, and the vendor shall abide by this decision. Violation of this act may be considered an abandonment of the contract, and the Commission may seek redress under the Default Article of the contract.

00827 Certified Payroll

Effective February 18, 1992 Regulation N.J.A.C. 12:60 and 6.1 of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq., requires that all public works employers shall submit a certified payroll record to the public body or lessor which contracted for the public work project each payroll period within ten (10) days of the payment of wages. The public body shall receive, file and make available for inspection during normal business hours the certified payroll records.

A copy of the certified payroll form may be obtained by contacting the New Jersey Department of Labor, Division of Workplace Standards, Public Contracts Section, CN 389, Trenton, New Jersey 08625-0389, telephone (609) 292-2259.

00828 Set-Aside Contract Compliance

Contractor shall comply with the New Jersey Regulations governing minority and female contractor and subcontractor participation on construction contracts as required by N.J.S.A. 52:32-17 et seq. The regulations, which are more specifically set forth in N.J.A.C. 17:14-1.1 et seq., are incorporated herein by reference and made a part hereof.

00829 NOT APPLICABLE TO THIS CONTRACT

00830 N.J.S.A. 40A:11-17 – Number of Working Days Specified

All specifications for the doing of any public work for a contracting unit shall fix the date before which the work shall be completed, or the number of working days to be allowed for its completion; and every such contract shall contain a provision for a deduction, from the contract price, or any wages paid by the contracting unit to any inspector or inspectors necessarily employed by it on the work, for any number of days in excess of the number allowed in the specifications.

00831 N.J.S.A. 40A:11-19 – Liquidated Damages

Any contract or agreement made pursuant to this act may include liquidated damages for the violation of any of the terms and conditions thereof or the failure to perform said contract or agreement in accordance with its terms and conditions, or the terms and conditions of this act.

00832 N.J.S.A. 52:15C-14(d)– Authority to Audit or Review Contract Records

Effective November 15, 2010 pursuant to N.J.A.C. 17:44-2.2 et seq., the awarded contractor shall maintain all documentation related to products, transactions, or services under this contract for a period of five (5) years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

00900 PUBLIC LAW 2005, CHAPTER 51 FORMERLY: EXECUTIVE ORDER 134

Background Information

On September 22, 2004, then-Governor James E. McGreevey issued Executive Order 134, the purpose of which was to insulate the negotiation and award of State contracts from political contributions that posed a risk of improper influence, purchase of access or the appearance thereof. To this end, Executive Order 134 prohibited State departments, agencies and authorities from entering into contracts exceeding \$17,500 with individuals or entities that made certain political contributions. Executive Order 134 was superseded by Public Law 2005, c. 51, signed into law on March 22, 2005 ("Chapter 51").

On September 24, 2008, Governor Jon S. Corzine issued Executive Order No. 117 ("E.O. 117"), which is designed to enhance New Jersey's efforts to protect the integrity of procurement decisions and increase the public's confidence in government. The Executive Order builds upon the provisions of Chapter 51.

Two-Year Certification Process

Upon approval by the State, the Certification and Disclosure of Political Contributions form (CH51.1R1/21/2009) is valid for a two (2) year period. Thus, if a vendor receives approval on Jan 1, 2009, the certification expiration date would be Dec 31, 2011. Any change in the vendor's ownership status and/or political contributions during the two-year period will require the submission of new Chapter 51/EO117 forms to the State Review Unit. **Please note that it is the vendor's responsibility to file new forms with the State should these changes occur.**

Prior to the awarding of a contract, the agency should first send an e-mail to CD134@treas.state.nj.us to verify the certification status of the vendor. If the response is that the vendor is NOT within an approved two-year period, then forms must be obtained from the vendor and forwarded for review. If the response is that the vendor is within an approved two-year period, then the response so stating should be placed with the bid/contract documentation for the subject project.

Instructions for Completing the Forms

NOTE: Please refer to the next section, "Useful Definitions for Purposes of Ch. 51 and E.O. 117," for guidance when completing the forms.

Part 1: VENDOR INFORMATION

Business Name -- Enter the full name of the Vendor, including trade name if applicable.

Business Type -- Select the vendor's business organization from the list provided.

Address, City, State, Zip and Phone Number -- Enter the vendor's street address, city, state, zip code and telephone number.

Vendor Email -- Enter the vendor's primary email address.

Vendor FEIN -- Please enter the vendor's Federal Employment Identification Number.

Part 2: PUBLIC LAW 2005, Chapter 51 / EXECUTIVE ORDER 117 (2008) DUAL CERTIFICATION

Read the following statements and verify that from the period beginning on or after October 15, 2004, no contributions as set forth at subsections 1(a)-(c) have been made by either the vendor or any individual whose contributions are attributable to the vendor pursuant to Executive Order 117 (2008).

NOTE: Contributions made prior to November 15, 2008 are applicable to Chapter 51 only.

Part 3: DISCLOSURE OF CONTRIBUTIONS MADE

Check the box at top of page 2 if no reportable contributions have been made by the vendor.

If the vendor has no contributions to report, this box must be checked.

Name of Recipient Entity – Enter the full name of the recipient entity.

Address of Recipient Entity – Enter the recipient entity's street address.

Date of Contribution – Indicate the date of the contribution.

Amount of Contribution – Enter the amount of the reportable contribution.

Type of Contribution – Select the type of contribution from the list provided.

Contributor Name – Enter the full name of the contributor.

Relationship of Contributor to the Vendor -- Indicate relationship of the contributor to the vendor, e.g. officer or partner of the company, spouse of officer or partner, resident child of officer or partner, parent company of the vendor, subsidiary of the vendor, etc.

NOTE: If form is being completed electronically, click "Add a Contribution" to enter additional contributions. Otherwise, please attach additional pages as necessary.

Part 4: CERTIFICATION

Check box A if the person completing the certification and disclosure is doing so on behalf of the vendor and all individuals and/or entities whose contributions are attributable to the vendor.

Check box B if the person completing the certification and disclosure is doing so on behalf of the vendor only.

Check box C if the person completing the certification and disclosure is doing so on behalf of an individual and/or entity whose contributions are attributable to the vendor.

Enter the full name of the person authorized to complete the certification and disclosure, the person's title or position, date and telephone number.

USEFUL DEFINITIONS FOR THE PURPOSES OF Ch. 51 and E.O. 117

- **"Vendor"** means the contracting entity.
- **"Business Entity"** means any natural or legal person, business corporation, professional services corporation, limited liability company, partnership, limited partnership, business trust, association or any other legal commercial entity organized under the laws of New Jersey or any other state or foreign jurisdiction. The definition also includes (i) if a business entity is a for-profit corporation, any officer of the corporation and any other person or business entity that owns or controls 10% or more of the stock of the corporation; (ii) if a business entity is a professional corporation, any shareholder or officer; (iii) if a business entity is a general partnership, limited partnership or limited liability partnership, any partner; (iv) if a business entity is a sole proprietorship, the proprietor; (v) if the business entity is any other form of entity organized under the laws of New Jersey or any other state or foreign jurisdiction, any principal, officer or partner thereof; (vi) any subsidiaries directly or indirectly controlled by the business entity; (vii) any political organization organized under 26 U.S.C.A. § 527 that is directly or indirectly controlled by the business entity, other than a candidate committee, election fund, or political party committee; and (viii) with respect to an individual who is included within the definition of "business entity," that individual's spouse or civil union partner and any child residing with that person.¹
- **"Officer"** means a president, vice-president with senior management responsibility, secretary, treasurer, chief executive officer, or chief financial officer of a corporation or any person routinely performing such functions for a corporation. Please note that officers of non-profit entities are

excluded from this definition.

- **“Partner”** means one of two or more natural persons or other entities, including a corporation, who or which are joint owners of and carry on a business for profit, and which business is organized under the laws of this State or any other state or foreign jurisdiction, as a general partnership, limited partnership, limited liability partnership, limited liability company, limited partnership association, or other such form of business organization.
- **“Reportable Contributions”** are those contributions, including in-kind contributions, in excess of \$300.00 in the aggregate per election made to or received by a candidate committee, joint candidates committee, or political committee; or per calendar year made to or received by a political party committee, legislative leadership committee, or continuing political committee.
- **“In-kind Contribution”** means a contribution of goods or services received by a **candidate committee, joint candidates committee, political committee, continuing political committee, political party committee, or legislative leadership committee**, which contribution is paid for by a person or entity other than the recipient committee, but does not include services provided without compensation by an individual volunteering a part of or all of his or her time on behalf of a candidate or committee.
- **“Continuing Political Committee”** includes any group of two or more persons acting jointly, or any corporation, partnership, or any other incorporated or unincorporated association, including a political club, political action committee, civic association or other organization, which in any calendar year contributes or expects to contribute at least \$4,300 to aid or promote the candidacy of an individual, or the candidacies of individuals, for elective public office, or the passage or defeat of a public questions, and which may be expected to make contributions toward such aid or promotion or passage or defeat during a subsequent election, provided that the group, corporation, partnership, association or other organization has been determined by the Commission to be a continuing political committee in accordance with N.J.S.A. 19:44A-8(b) et seq.
- **“Candidate Committee”** means a committee established by a candidate pursuant to N.J.S.A. 19:44A-9(a), for the purpose of receiving contributions and making expenditures.
- **“State Political Party Committee”** means a committee organized pursuant to N.J.S.A. 19:5-4.
- **“County Political Party Committee”** means a committee organized pursuant to N.J.S.A. 19:5-3.
- **“Municipal Political Party Committee”** means a committee organized pursuant to N.J.S.A. 19:5-2.
- **“Legislative Leadership Committee”** means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly, or the Minority Leader of the General Assembly pursuant to N.J.S.A. 19:44A-10.1 for the purpose of receiving contributions and making expenditures.
- **“Political Party Committee”** means:
 1. The State committee of a political party, as organized pursuant to N.J.S.A. 19:5-4;
 2. Any county committee of a political party, as organized pursuant to N.J.S.A. 19:5-3; or
 3. Any municipal committee of a political party, as organized pursuant to N.J.S.A. 19:5-2.

Agency Submission of Forms

The agency should submit the completed and signed Two-Year Vendor Certification and Disclosure forms, together with a completed Ownership Disclosure form, either electronically to cd134@treas.state.nj.us or regular mail at Chapter 51 Review Unit, P.O. Box 039, 33 West State Street, 9th Floor, Trenton, NJ 08625. Original forms should remain with the Agency and copies should be sent to the Chapter 51 Review Unit.

Questions & Answers

Questions regarding the interpretation or application of Public Law 2005, Chapter 51 (N.J.S.A. 19:44A-20.13) or Executive Order 117 (2008) may be submitted electronically through the Division of Purchase and Property website at <http://www.state.nj.us/treasury/purchase/execorder134.shtml>. Responses to previous questions are posted on the website, as well as additional reference materials and forms.

NOTE: *The Chapter 51 Q&A on the website **DOES NOT** address the expanded pay-to-play requirements imposed by Executive Order 117. The Chapter 51 Q&A are only applicable to contributions made prior to November 15, 2008. There is a separate, combined Chapter 51/E.O. 117 Q&A section dealing specifically with issues pertaining to contributions made after November 15, 2008, available at: <http://www.state.nj.us/treasury/purchase/execorder134.shtml#state>.*

¹ Contributions made by a spouse, civil union partner or resident child to a candidate for whom the contributor is eligible to vote or to a political party committee within whose jurisdiction the contributor resides are permitted.

DIVISION 1 - GENERAL REQUIREMENTS

01010 SCOPE OF WORK

The work of this contract shall consist of furnishing all supervision, labor, equipment, materials and supplies necessary to furnish and install new replacement electric feeder cables throughout PVSC. This includes known failed cables and any that may fail in the next two (2) years.

01011 ERRORS OR OMISSIONS OF DETAILS IN SPECIFICATIONS

Errors in the specifications which are purely typographical shall be interpreted as would be the logical conclusion or brought to the attention of the Owner for interpretation.

- The Contractor is required to check all dimensions and quantities on any drawings or schedules made available by the Owner, and shall notify the Owner of all errors therein which he may discover by such examination.

01025 PAYMENT

The contractor's estimate will be based upon work completed and certified by the Plant Engineer on the eighteenth (18th) day before the Passaic Valley Sewerage Commission meeting date. A schedule of meeting dates will be furnished to the Contractor. The estimate must be submitted to PVSC's Plant Engineer within two (2) working days of the above cutoff date. Payment will be made to the contractor during the week following the Passaic Valley Sewerage Commission meeting.

A vendor invoice shall be submitted for every item of material purchased for this contract for which payment is being requested plus a 10% mark-up fee. The hypothetical material cost in Section 00400 Supplement to Bid Forms is strictly hypothetical. The Contractor will get paid only for the actual invoices for materials purchased on the project.

The cost of Hi-Pot tests of medium voltage cables performed by an Independent Testing Firm shall be submitted under a vendor invoice and will be treated as material cost.

Overtime hourly work (if approved) will be billed at a cost of 1.5 times the T&M schedule rate.

To assure timely payment, bills must be received by the PVSC Plant Engineering Department not less than (18) days prior to the Commission's meeting date. (Meeting dates will be provided by PVSC.)

01037 REPLACEMENTS

In the event of damage to any PVSC property or equipment, immediate necessary repairs and/or replacements shall be made subject to the approval of the Engineer, and at no additional cost to the Owner.

In the event of damage to any equipment critical to the Sewerage Treatment Plant, repairs will be made by PVSC and the cost will be backcharged to the Contractor.

01038 CARE AND PROTECTION OF PROPERTY AND MATERIALS

From the commencement of the work until its completion, the Contractor shall be solely responsible for damages caused to the property of the Owner, for the care, protection and security of the work covered by the contract, and for all materials delivered to the site or incorporated in the work.

01040 CONCURRENT WORK AND OTHER CONTRACTORS

The right is reserved by the Owner to do work using its own forces or other contractors and to permit public utility companies and others to do work during the progress and within the limits of or adjacent to the Project, and the Contractor shall conduct his work and cooperate with such other parties so as to cause as little interference as possible with such other work, as the Owner may direct.

If, in the judgment of the Owner, the joint occupation of the site of the work by the Owner or by two (2) or more contractors working on different contracts at the same time actually impedes progress in the work herein described, the Owner may extend the time for the completion of the work and in an amount which accords with and compensates for the delays so caused.

01046 WORKING HOURS

Contractor will have access to the site and work of this contract during normal PVSC working hours (7:45 a.m. to 4:15 p.m.), five (5) days per week, with the exception of PVSC Holidays. Other hours require PVSC consent and approval. A list of PVSC Holidays will be provided to the contractor.

01048 SUBCONTRACTS AND SUBCONTRACTORS

The Contractor shall, within ten (10) days after "Notice to Proceed" notify the Engineer in writing of the names, addresses and experience records of subcontractors (if any) he proposes for principal parts of the work. PVSC reserves the right to review the qualifications of all subcontractors and to reject any deemed not qualified to perform the work required. Subcontractors must be covered by insurance as required in the General Conditions, Section 00727.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for acts and omissions of persons directly employed by him. He further agrees that he will bind his subcontractors to each and every part of the Contract Documents.

Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

01049 WORK BY PVSC PERSONNEL

The right is reserved by the owner to do work using its own forces and/or other contractors to do work during the progress and within the limits of or adjacent to the work of this contract, and this contractor shall conduct his work and cooperate with such other parties so as to cause as little interference as possible with such other work.

01300 SUBMITTALS

The Contractor shall submit for the Owner's review and approval, Shop Drawings showing the details of all materials, equipment and installations which the Contractor proposes to furnish in conformance with the Specifications. The Shop Drawings shall be reviewed for conformance with all the Contract Documents.

The Shop Drawings shall consist of catalog cuts, manufacturer's details, text, drafted drawings, layout drawings, assembly drawings, floor plans and any other documents which describe the item being submitted.

Shop Drawings shall give all ratings, configurations, dimensions and ancillary items in sufficient detail to enable the Owner to pass on the suitability of the equipment, materials or layout for the purpose intended. The drawings shall, where needed for clarity, include outline and sectional views, and detailed dimensions and designations of the kind of material. Drawings for

submission shall be coordinated by the Contractor with the drawings previously approved and with the existing space, equipment, structure, and all other requirements of the Contract.

The Contractor shall submit four (4) copies of all Shop Drawings for approval. The Owner shall retain two (2) copies for his records, and return two (2) to the Contractor.

01310 SCHEDULING

Within ten (10) days from receiving the Notice to Proceed from PVSC, the contractor shall meet with the PVSC Plant Engineer to receive a schedule from PVSC.

It is understood and agreed that the contractor will not be penalized for delays when the Owner determines that the contractor is without fault and the contractor's reasons for requesting a time extension to complete the service work is acceptable to the Owner.

The contractor shall report to the site with adequate workforce to perform all service work requested or to make necessary repairs commencing within three (3) days of receiving notice from PVSC by telephone, e-mail, US mail and/or fax.

01400 QUALITY CONTROL

NOT IN THIS CONTRACT

01410 TEST REPORTS

The contractor shall submit complete test reports for the equipment that was tested in a timely manner. As a minimum, the test reports shall include the following:

- Filled out Cable Test Forms and Graph Plots for Megger Tests and Hi-Pot Tests
- List of Test Equipment

The cost of hi-Pot tests of medium voltage cables to be performed by an Independent Testing Firm shall be submitted under a vendor invoice and will be treated as material cost.

01420 INSPECTION AND ACCEPTANCE

Inspection of materials by the Commissioners' personnel shall not relieve the vendor of any obligations to fulfill the terms of this contract, and any defective part found at the time of installation shall be made good. All unsuitable materials shall be rejected notwithstanding that such part and materials have been previously overlooked by the Engineer and accepted.

01421 DEFECTIVE WORK, EQUIPMENT OR MATERIALS

If the Contractor shall fail or neglect to replace any defective work or to discard condemned materials within two (2) days after the service by the Owner of an order to replace such defective work or discard such equipment or materials, or to prove to the satisfaction of the Owner that he is initiating effective efforts to replace defective materials, the Owner may cause such defective work to be replaced or the condemned materials to be discarded, and acceptable materials provided. The expense thereof shall be deducted from the monies as are or may become due under this contract; or if such monies are not sufficient to meet said expense, the additional monies shall be furnished by the contractor or his Surety. If, during the warranty period provided for hereinafter, any work done in accordance with that article shall be found defective before the end of the warranty period, such defective work shall be made good in the same manner as provided herein. The Owner will have the option at all times to allow the defective or improper work to stand and to accept an equitable deduction from the contract price therefore.

01422 OWNER'S RIGHT TO DO WORK AND THREE-DAY CLAUSE

If the Contractor or his subcontractors should neglect to prosecute the work properly or fail to perform any provisions of the contract documents, the Owner, after three (3) days written notice to the Contractor may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

01602 TOOLS, EQUIPMENT AND UTILITIES

All tools, and equipment, required to perform the work described in the contract shall be provided by the Contractor. Test equipment shall be NIST (National Institute of Standards and Technology) calibrated with certification.

01603 SAFETY

The Contractor is solely responsible for the safety of its employees, subcontractors, suppliers and representatives, including but not limited to the development and implementation of effective safety practices and programs in accordance with Federal, State and Local requirements, including the requirements of PVSC's Construction Safety & Health Manual for Contractors:

<http://www.nj.gov/pvsc/home/forms/pdf/ConstructionSafetyHealthManualforContractors08272012.pdf>

Prior to commencing any work at the site the Contractor shall designate in writing to PVSC the name of the person who is their on-site safety officer. The Contractors designated on-site safety officer shall be in charge of all of the safety programs of the Contractor and will be responsible to ensure the proper development, implementation and enforcement of all necessary and appropriate safety practices. The Contractor's designated on-site safety officer shall be on site **at all times** that work is being conducted, and shall be solely responsible for supervision of the Contractor's employees, subcontractors, suppliers and representatives for safety.

The Contractor throughout the work of this contract shall comply with the PVSC Safety Rules, as well as the Federal Occupational Safety and Health Act and the applicable New Jersey Department of Labor Administrative Codes. The Contractor will be provided with a copy of the PVSC Safety Rules, these rules, including the wearing of protective head gear, shall be strictly enforced by the Contractor in respect to his own employees, subcontractor's employees, and other personnel engaged in business with the Contractor on PVSC's property.

Contractor's (and subcontractor's) personnel when on PVSC property shall prominently display the Company Name or Logo on their safety helmet (hard hat).

The Contractor is advised of the 15 MPH speed limit on all plant roads, and will be held responsible for his employees (and subcontractors) compliance with this and all rules for traffic safety in the plant.

All Contractors' personnel shall wear OSHA approved hard hats and shall display a clearly visible Company Logo on the hat.

The Contractor's attention is directed toward several OSHA Safety and Health Standards and New Jersey Labor Department Administrative Codes that influence the conduct of his work in specific areas.

1. OSHA Confined Space Standard, 29 CFR 1910.146 – Work in Confined Spaces
2. OSHA Control of Hazardous Energy (Lockout/Tagout) Standard, 29 CFR 1910.147 (Electrical energy lockout and other energy sources such as steam, air, liquids.)

3. NJAC 7:31-1-6 – Toxic Catastrophe Prevention Act
4. NFPA 70E – Standard for Electrical Safety in the Workplace

Before any work commences on PVSC property, the Contractor's Superintendent shall contact the PVSC Facility Supervisor at the site. The PVSC Supervisor will inform the Contractor of the PVSC emergency plant evacuation plan and where he is to assemble his personnel.

The Contractor shall instruct and show his personnel where to assemble, at the sound of the PVSC emergency evacuation siren. The Facility Supervision will notify the Contractor's personnel of the emergency evacuation route they are to follow. At the assembly point, the Contractor's person in charge shall account for all his personnel, supply transportation, and see that they utilize the prescribed evacuation route.

Every third Wednesday of each month at 11:00 a.m. the evacuation siren is put through a test cycle. The Contractor should check with PVSC each month shortly before that time to confirm the test is going to be performed. If so, it is not required to assemble for the test cycle.

Where portions of the work of the contract fall under the authority of these Administrative Codes for Public Employees, the Contractor shall at all times maintain safety standards for his employees at least as comprehensive as that imposed by the Codes. This includes, for example (and not limited to), monitoring of air in confined spaces with appropriate instrumentation for noxious or toxic gases % oxygen, and lockout and tagout of hazardous energy such as electrical, steam, air or liquids under pressure.

The Contractor shall be responsible for providing first aid, and emergency medical assistance for any of his employees injured on the work site. The Contractor shall be responsible for arranging emergency assistance with local hospitals, and/or EMT services. The Contractor's arrangements shall be submitted in writing, with required telephone numbers to PVSC's Security Department. PVSC Security will summon the Contractor's emergency personnel, if the Contractor calls PVSC Security from any in plant telephone.

Contractor's personnel will not be treated in the PVSC Dispensary for minor injuries, cuts or services.

01604 MATERIALS HANDLING AND STORAGE

Material storage and staging area shall be approved by the Owner. All equipment and materials to be incorporated in the work shall be so placed as not to injure the work or the Owner's property as so that free access may be had at any time to all parts of the work, and to all utility installations in the vicinity of the work.

Materials and equipment shall be kept neatly piled and compactly and conveniently stored so as to inconvenience as little as possible travel in the area. Contractor shall obtain approval of PVSC for storage of his materials and equipment.

All loss, injury, or damage to the work or materials from whatever cause, shall be made good at the Contractor's expense.

Contractor shall be responsible for daily cleanup.

All removed materials, rubbish and other things not required to be incorporated in the work shall be promptly removed from the property.

The Contractor will be responsible for the security of his tools, equipment and all his materials.

Any spillage caused by the Contractor, his subcontractors, suppliers or his equipment, while on PVSC property, shall be the Contractor's responsibility to properly clean up at the Contractor's expenses. The clean up shall meet all Federal and State requirements, including proper documentation as may be required.

01630 DOMESTIC PRODUCTS AND MATERIALS

In accordance with N.J.S.A. 40A:11-18, only products and materials produced, mined or manufactured in the United States which will ultimately become the property of the PVSC may be used in this contract.

This section shall not apply with respect to domestic materials, if domestic materials of the class or kind to be used are not mined, produced or manufactured, as the case may be, in the United States in commercial quantities and of a satisfactory quality or in respect to some particular domestic materials it is impracticable to make such requirement or that it would unreasonably increase the cost, an exception shall be permitted. Any request for exception of this requirement shall be in writing and shall be approved by the Engineer.

01710 QUALIFICATION OF CONTRACTOR

The Contractor and his personnel must be experienced in the type of work specified herein.

The Contractor shall be certified to make splicing and terminations of cables rated above 600 volts. This includes 5 kV and 15 kV rated conductors.

The Contractor shall submit his Electrical Contractor's License Certification with his bid.

The Contractor shall supply certification of this experience by furnishing at least three (3) customers (with names and addresses and telephone numbers) where he had performed work of a similar nature and the dates the work was performed. Reference Section 00401 – Supplement to Bid Forms.

01720 TRADE PRACTICE/SUPERVISION

The Contractor shall retain skilled craftsmen for the duration of the job and shall provide continual supervision to insure that good trade practices, including safety, are adhered to.

Further, the Contractor's Supervisor and/or trade Foreman shall be available for consultation with regard to work performed under this specification, to the PVSC designated representative, throughout each day for the duration of the contract.

Contractor will be held responsible for the conduct of his personnel on site, and shall promptly remove individuals who are drunk, disorderly, or found with controlled substances, when requested by the Owner.

Parking for Contractor trucks and employees vehicles with the plant is at the Commission convenience. Parking shall be where designated by the Commission and is subject to change.

01730 WARRANTY AND QUALITY ASSURANCE

Contractor shall warrant all work to PVSC for one (1) year against defective materials and workmanship. Warranty to begin with date of acceptance by PVSC.

Inspection of work and materials by the Owner shall not relieve the Contractor of any obligations to fulfill the terms of this contract, and any defective work found at the time of installation shall be made good. All unsuitable materials shall be rejected notwithstanding that such materials have been previously overlooked by the Owner and accepted.

The work site shall remain open to the Owner for purposes of inspection. The Owner reserves the right to halt progress as he deems the specifications or the intent of the specifications are not being adhered to. The terms Owner, Engineer or Plant Engineer, shall be construed to be interchangeable in this Contract.

DIVISION 16 - ELECTRICAL

1.0 SCOPE OF WORK

The work of this contract shall consist of furnishing all supervision, labor, equipment, materials and supplies necessary to furnish and install new replacement electric feeder cables throughout PVSC. This includes known failed cables and any that may fail in the next two (2) years. The feeder cables that would require replacement consist of feeders rated at 15 kV, 5 kV and 600V for existing 13.8 kV, 4.16 kV and 480V circuits respectively.

The Contractor shall be certified to make splicing and terminations of cables rated above 600 volts. This includes 5 kV and 15 kV rated conductors. The Contractor shall make all the required splices and terminations described herein.

2.0 GENERAL

The Passaic Valley Sewerage Commission (PVSC) wastewater treatment plant electrical power is supplied by Public Service Electric and Gas (PSEG) through two service feeders at 138 kV, three-phase, 60 hertz. Substation No. 1 receives the incoming 138 kV services and steps the voltage down to 13.8 kV using two substation transformers T1 and T2, each rated from 25 MVA (self-cooled at 55°C) up to 46.75 MVA (forced-air, forced-oil cooled at 65°C). The two (2) transformers feed bus A and B in the 13.8 kV Switchgear "A" with main-tie-main arrangement in Substation No. 1, which distributes power throughout the plant. Furthermore, the distribution is dual fed with Bus A and B feeders to each facility where the voltage is stepped down to 4160 volts and 480 volts.

3.0 CONTRACTOR'S WORK FORCE

The Contractor shall employ a sufficient work force to maintain the schedule established by the Plant Engineer. The contractor is not expected to maintain a full-time workforce on-site unless work is available to maintain such workforce. There will be no guaranteed minimum utilization of the Contractor's services by PVSC under this contract, except that for any given task assigned the minimum billable time shall be four (4) hours. However, the contractor shall report to the site with adequate workforce to perform all work requested and to make necessary repairs with adequate workforce to perform all work requested or to make necessary repairs commencing within three (3) days of receiving notice from PVSC by telephone, e-mail, US mail and/or fax. Depending on the amount of work assigned, this may require the Contractor to retain additional resources.

4.0 WORK PERFORMED BY PVSC

Contractor shall not include any of the services provided by PVSC in his cost.

5.0 SUBMITTALS

- A. As specified under Section 01300, shop drawings shall be submitted for all materials, equipment, apparatus, and other items as required by the Engineer.
- B. Shop drawings shall be submitted for, but shall not be limited to, the following equipment:
 - 1. Single conductor EPR Shielded Power Cable Rated 5,000 Volts through 35,000 Volts Type MV-105
 - 2. Single Conductors Rated 600 Volts
 - 3. Raceways, Boxes and Fittings
 - 4. Splicing

5. Grounding Hardware and Connections

6.0 **STANDARDS / HOUSEKEEPING**

All electric equipment, materials, and installation shall be in accordance with the National Electric Code (NEC) (2011 Edition) and with the latest edition of the following codes and standards:

NESC	National Electric Safety Code
OSHA	Occupational Safety and Health Act
NFPA	National Fire Protection Association
NEMA	National Electrical Manufacturers Association
ANSI	American National Standards Institute
ICEA	Insulated Cable Engineers Association

All electrical equipment and materials shall be listed by Underwriters Laboratories, Inc., and shall bear the appropriate U.L. listing mark or classification marking.

HOUSEKEEPING:

The Contractor shall at all times keep the working area(s) in a clean and workmanlike manner.

At each completion milestone, the old/damaged cables which were removed shall be turned over to the Owner (PVSC). The cables shall be placed in a location designated by the Owner (PVSC) and shall be cut into pieces to allow them to be bundled and taped. They will then be taken off site by PVSC for copper reimbursement at a local scrapyard.

7.0 **SINGLE CONDUCTOR EPR SHIELDED POWER CABLE RATED 5,000 VOLTS THROUGH 35,000 VOLTS TYPE MV-105**

SCOPE:

This specification covers single conductor shielded power cable insulated with an ozone and discharge-free, flexible, thermoset NO LEAD Ethylene Propylene Rubber (EPR) dielectric.

The cable shall be suitable for use in wet and dry locations in conduit, underground duct systems, direct buried and aerial installations. The cable shall be rated 105°C for normal operation, 140°C for emergency overload operation, and 250°C for short circuit conditions. Emergency overload operation may occur for periods up to 100 hours per year and no more than five such periods during the life of the cable.

OPERATING EXPERIENCE

The medium voltage power cable shall have a performance record demonstrating a minimum of twenty (20) years successful operating experience in utility and industrial power cable applications.

BASIC CONSTRUCTION

Compressed copper or aluminum conductor, triple tandem extruded thermoset semi-conductive ethylene ethyl acrylate (EEA) copolymer resin conductor shield, No Lead EPR insulation, thermoset semi-conductive ethylene vinyl acetate (EVA) copolymer resin insulation shield, copper tape shield and an overall polymeric jacket. All sizes 1/0 AWG and larger shall be rated for cable tray use.

INDUSTRY STANDARDS

Cable shall be manufactured in accordance with the latest editions of UL 1072 (Medium-Voltage Power Cables) and ICEA S-93-639/NEMA WC 74 (Standard for Shielded Power Cables Rated 5-46kV), where applicable. Cable shall also meet or exceed the latest editions of the following industry specifications. In the event testing requirements differ, the specification with the most stringent requirements shall serve as the governing specification.

ASTM B-3: Soft or Annealed Copper

ASTM B-8: Concentric-Lay-Stranded Copper Conductors

UL 1685: UL Flame Exposure Test (Applicable to Sizes AWG 1/0 and Larger)

AEIC CS8: Specification for Extruded Dielectric, Shielded Power Cables Rated 5-46kV

QUALIFICATION TESTS

Cable construction shall meet the qualification testing requirements of AEIC CS-8, demonstrating the manufacturer's ability to furnish high quality cable. The qualification tests shall adhere to the following:

The qualifying cable construction shall be produced by the cable manufacturer at the plant from where the purchased product will be supplied.

The tests shall be performed at the manufacturer's own testing facility.

Upon the customer's request, the manufacturer shall furnish a certified copy of the qualification test results that represents the cable construction being purchased.

CONDUCTOR

Uncoated soft-drawn round concentric-lay-stranded compressed Class B copper or uncoated soft-drawn round concentric-lay-stranded compact Class B 8000 series aluminum conductor available in sizes up to 2000 kcmil. Compact conductors are available upon request.

Conductors shall meet the electrical resistance requirements of UL 1072.

As an alternate construction, the conductor may be filled with a semi-conductive compound to prevent possible water migration along the conductor during installation or operating service life. The surface of the conductor shall be clean and free of any strand-filling compound.

CONDUCTOR SHIELD

The conductor shield shall be an extruded layer of black-colored, semi-conductive ethylene ethyl acrylate copolymer resin having allowable operating temperatures equal to or higher than those of the insulation. The volume resistivity of the conductor shield shall not exceed 1000 ohm-meter at the maximum normal operating temperature of 105°C and the emergency operating temperature of 140°C.

The conductor shield shall be compatible with the insulation and the conductor. It shall be free stripping from the conductor and firmly bonded to the overlying insulation.

The minimum acceptable thickness of the extruded conductor shield shall be 0.006 inches (6 mils). The thickness of the shield is measured and controlled by means of a laser micrometer.

INSULATION

The insulation shall be a discharge-free no lead EPR, a white colored flexible thermosetting dielectric based on an ethylene propylene elastomer. The insulation shall meet the electrical and physical characteristics shown in Appendix A. All ingredients will be mixed, screened through a fine mesh screen pack and then treated with the cross-linking agent to insure complete blending and uniformity of the final compound.

The minimum and maximum thickness of the insulation shall be as specified in Table 1, as referenced from UL 1072.

The no lead PR insulation shall be triple-tandem extruded with the conductor and insulation shield to prevent interfacial contamination. X-ray technology and laser scanning devices shall be used to allow real-time data collection and immediate, precise adjustments to cable eccentricity, ovality, and desired thickness for each extruded layer. No foreign substances such as insulation shield release agents shall be applied to the insulation to promote easier removal of the insulation shield. Such materials shall be considered as contamination.

Table 1

Rated Circuit Voltage Phase-to-Phase Volts ^a	Conductor Size (AWG or kcmil)	Insulation Level (mils)				Factory ac(rms) Test Voltage (kV)	
		100 Percent		133 Percent		100 Percent Insulation Level	133 Percent Insulation Level
		Minimum	Maximum	Minimum	Maximum		
2001-5000	8-1000	85	120	85	120	18	18
	1001-2000	135	170	135	170	28	28
5001-8000	6-1000	110	145	135	170	23	28
	1001-2000	165	205	165	205	35	35
8001-15000	2-1000	165	205	210	250	35	44
	1001-2000	210	250	210	250	44	44
15001-25000	1-2000	245	290	330	375	52	64
25001-28000	1-2000	265	310	330	375	56	69
28001-35000	1/0-2000	330	375	400	450	69	84

^aThe actual operating voltage shall not exceed the rated circuit voltage by more than (a) 5 percent during continuous operation or (b) 10 percent during emergencies lasting not more than 15 minutes.

INSULATION SHIELD

The insulation shield shall be an extruded semi-conductive ethylene vinyl acetate copolymer resin. It shall have a maximum volume resistivity of 500 ohm-meters at the maximum rated operating temperature of 105°C and at 110°C.

The extruded shield shall be clean stripping and removable from the insulation with an applied tension not less than 3 pounds and not greater than 24 pounds. It shall be removable in the field at temperatures from -10°C to 40°C as performed in accordance

with UL 1072. The removal of the insulation shield shall not damage or impart conductivity of the underlying insulation. This compound shall have a minimum elongation of 100% after an air oven test at 136°C for 168 hours and a brittleness temperature not warmer than -25°C.

The thickness of the extruded shield shall be as shown in Table 2:

Table 2

Calculated Minimum Diameter over Insulation (Inches)	Minimum Thickness at any Point (Inches)
0 - 1.000	0.024
1.001 - 1.500	0.032
1.501 - 2.500	0.040
Over 2.500	-----

Note: The minimum point is applicable at all locations under the metallic shield/sheath.

The outer surface of the insulation shield shall be continuously printed with white ink "Semiconducting--Remove before Terminating or Splicing"

METALLIC SHIELD

The extruded shield shall be covered with a 5 mil bare copper tape. It shall be applied helically with a 25% nominal overlap.

JACKET

The overall jacket shall be black no lead polyvinyl-chloride and shall meet the requirements shown in Appendix B.

A design option is available on special order to furnish a black CPE (Chlorinated Polyethylene) or black no lead SOLONON (Low-Smoke, Non-Halogen) jacket, which shall meet the requirements shown in Appendix C.

The jacket thickness shall be as shown in Table 3.

Table 3

Calculated Diameter Under Jacket (Inches)	Minimum Thickness at any Point (Inches)
0.700 or less	0.055
0.701 - 1.500	0.070
1.501 - 2.500	0.100
2.501 - larger	0.125

IDENTIFICATION

The following identifying legend shall be printed on the jacket repeated at no more than two (2) foot intervals with unmarked surfaces not exceeding six inches.

- (A) (B) (C) EPR (D) SHLD. (E) KV (F) % INSUL. LEVEL (G) MILS (UL) MV-105
(A) Manufacturer and Plant Number

- (B) Conductor Size – either AWG or kcmil
- (C) AL or COMPRESSED CU
- (D) Jacket Type (PVC)
- (E) Voltage
- (F) 100 or 133
- (G) Insulation Thickness

The lightning bolt-buried cable identifier shall be indented into the PVC jacket in accordance with the NESC, Article 350.

All cables sizes 1/0 AWG and larger shall be rated and marked for Cable Tray Use.

PRODUCTION TESTS

Conductors shall meet the electrical resistance requirements of UL 1072.

Insulation Resistance test shall be performed in accordance with the requirements of UL 1072.

Each cable shall have an insulation resistance constant not less than that corresponding to the insulation resistance constant of 20,000 megohms – 1000 ft. at 15.6°C.

A high voltage ac test is performed in accordance with UL 1072 at the ac test voltage given in Table 1.

Corona Test: Each reel of completed shielded power cable shall comply with the maximum partial discharge of 5 picocoulombs at 200 volts/mil (7.9 kV/mm). The partial discharge test shall be performed in accordance with the procedures given in UL 1072 and an X – Y graph will be recorded showing the corona test results.

Water Block Test: A water penetration production test for filled strand cable construction is performed on a sample from each master length of insulated conductor. The test procedure shall be in accordance with ICEA T-31-610.

INSULATION AND JACKET PROPERTIES

The Physical and electrical properties of the insulation and jacket shall meet the guaranteed values set forth in the attached appendices.

QUALITY ASSURANCE

The Medium Voltage Cable shall be manufactured and tested under the control of a Quality Assurance system, which conforms to the requirements of ISO 9001.

The Quality Assurance system shall demonstrate compliance with the above criteria by having passed yearly quality audits conducted by outside independent organizations.

MANUFACTURER(S)

Acceptable manufacturers are Southwire, General Cable, Okonite, Pirelli Cable or an approved equal.

8.0 600 VOLT RATED SINGLE CONDUCTORS

SINGLE CONDUCTOR CABLE

Power and control circuit conductors and insulated equipment grounding conductors shall be moisture and heat resistant, thermosetting, crosslink polyethylene type XHHW-2. The conductor shall be rated for 600 volts and 90 degree centigrade conductor temperature in dry or wet locations.

Acceptable manufacturers are Southwire, General Cable, Okonite, Pirelli Cable or an approved equal.

INSTALLATION OF CABLE UNDER 600 VOLTS

Pulling in conduit – Inside of conduit shall be dry and clean. Use care in pulling wire to avoid damage. Use approved compounds. Do not pull thermoplastic wire at temperatures below 35°F.

Pulling in duct banks – Rod all individual conduits mechanically and install a pull line. A wire brush with diameter ½" greater than conduit bore diameter shall be drawn through each conduit. If all obstructions cannot be removed by this method, advise Engineer. Leave nylon pull line in each blank conduit.

Splices and termination for the following circuit types shall be made in the indicated enclosure type using the indicated method.

1. Feeder power circuits:

a. Junction and pull boxes and wireways:

- 1) Compression, mechanical screw or terminal block or terminal strip type connectors for use on No. 6 AWG and larger wire.

b. Manholes or handholes:

- 1) Watertight compression or mechanical screw type connectors for use on No. 6 AWG and larger wire.

Terminations – All terminations shall be made to approved terminals and terminal blocks suitable for use with the type wire being used.

CIRCUITING AND IDENTIFICATION

The outer finish of conductor insulation on each three phase, 3 or 4 wire systems shall be color coded as follows:

	<u>460 & 480 VAC</u>
Phase A	Brown
Phase B	Orange
Phase C	Yellow
Neutral	Grey
Equipment Ground	Green
Isolated Ground	Green/Yellow
Intrinsically Safe	Light Blue

Phase conductors on a 4-wire delta connected system, where the midpoint of one phase is grounded; that phase conductor having the higher voltage to ground shall be identified with an outer insulation finish that is orange in color.

The phase arrangement on three phase terminal lugs shall be A, B, C from front to back, top to bottom, or left to right as viewed from the front of the equipment enclosure. The B phase shall be that phase having the higher voltage to ground on 3 phase, 4-wire delta connected systems.

9.0 RACEWAYS, BOXES AND FITTINGS

Rigid steel conduit shall be used at all locations (outdoors and within structures) as raceways for all wiring.

Rigid metal conduit shall be for use under the provisions of N.E.C. Article 344 and U.L. Approved.

Rigid steel conduit interior and exterior shall be hot-dipped galvanized after threading and be as manufactured by the Allied Tube and Conduit Corp., Wheatland Tube So., Triangle PWC Inc., or approved equal.

Terminal boxes, junction boxes, pull boxes, wireways, etc., shall be NEMA 4X stainless steel (316 alloy) in wet/corrosive areas. Boxes shall have continuously welded seams. Welds shall be ground smooth. Box bodies shall be flanged and shall not have holes or knockouts. Box bodies shall not be less than 14 gauge metal and covers shall not be less than 12 gauge metal. Covers shall be gasketed and fastened with stainless steel screws. Terminal boxes shall be furnished with hinged doors, terminal mounting straps and brackets. Boxes shall be as manufactured by Hoffman Engineering Co., or approved equal.

Conduit wall seals for new concrete walls below grade shall be O.Z./Gedney Co. Type WSK, or approved equal.

Conduit wall and floor seals for sleeved openings shall be type CSMI as manufactured by the O.Z./Gedney Co., Spring City Electrical Mfg. Co., or approved equal.

Combination expansion-deflection fittings shall be Type XD as manufactured by the Crouse-Hinds Co., O.Z./Gedney Co., Spring City Electrical Mfg. Co., or approved equal.

Conduit sealing bushing shall be O.Z./Gedney Type CSB, or approved equal.

Conduit Mounting Equipment – In all areas, hangers, rods, backplates, beam clamps, channel, etc. shall be hot-dipped galvanized iron or steel.

Wall and floor slab openings shall be sealed with "FLAME-SAFE" as manufactured by the Thomas and Betts Corp., or approved equal.

The ends of all conduits shall be tightly plugged to exclude dust and moisture while the buildings are under construction.

Conduit supports shall be spaced at intervals of 8 ft. or less, as required to obtain rigid construction.

Conduit hangers shall be attached to structural steel by means of beam or channel clamps. Where attached to concrete surfaces, concrete inserts of the spot type shall be provided.

All conduits on exposed work shall be run at right angles to and parallel with the surrounding wall and shall conform to the form of the ceiling. No diagonal runs will be allowed. Bends in parallel conduit runs shall be concentric. All conduit shall be run perfectly straight and true.

Conduits containing equipment grounding conductors and terminating in sheet steel boxes shall have insulated throat grounding bushings.

10.0 GROUNDING, MATERIALS AND INSTALLATION

GROUNDING

Furnish all labor, materials, equipment and incidentals required and install a complete grounding system in strict accordance with Article 250 of the National Electrical Code and as hereinafter specified.

MATERIALS

Conduit shall be as specified under Section 9.0.

Wire shall be as specified under Sections 7.0 and 8.0.

Where required, ground rods shall be 3/4 inch X 10 foot copper clad steel. Ground rods shall be Copperweld or be an approved equal product.

Grounding conduit hubs shall be malleable iron type similar to Thomas and Betts Co. Cat. No. 3940 (3/4 inch conduit size) or approved equal by Burndy, O.Z./Gedney Co., or approved equal, and of the correct size for the conduit.

Buried grounding connections shall be by Cadweld process, or approved equal exothermic welding system.

INSTALLATION

Where required, grounding electrode conductors shall be run in rigid steel conduits. The protecting conduits shall be bonded to the grounding electrode conductors at both ends.

All underground conductors shall be laid slack and where exposed to mechanical injury, shall be protected by pipes or other substantial guards. If guards are iron pipe or other magnetic material, conductors shall be electrically connected to both ends of the guard. Connections shall be electrically connected to both ends of the guard. Connections shall be made as hereinbefore specified.

Care shall be taken to insure good ground continuity, in particular between the conduit system and equipment frames and enclosures. Where necessary, jumper wires shall be installed.

APPENDIX A
PHYSICAL & ELECTRICAL CHARACTERISTICS OF EPR (ETHYLENE
PROPYLENE RUBBER) INSULATION

Material technical data specification sheet for MV-105 EPR insulation compound.

Properties tested for control of product

Physical Requirements – Unaged

Tensile Strength, psi, minimum

@ Room Temperature

1400 psi

Elongation, % minimum

260%

100% Modulus 800 psi

Aging Requirements after 168 hours at 136°C.

Tensile Strength, % of unaged, typical

106%

Elongation, % of unaged, typical

98%

Aging Requirements after 168 hours at 150°C.

Tensile Strength, % of unaged, typical

103%

Elongation, % of unaged, typical

95%

Insulation Resistance

Constant (K) minimum

50,000

Ozone Resistance

After 24 hours @ 0.025 to 0.03%

No cracks

Electrical Characteristics

SIC at 80 V/mil, 90°C water immersion:

--after 24 hours

2.34

--after 7 days

2.35

--after 14 days

2.36

--after 21 days

2.38

--after 28 days

2.38

--after 56 days

2.53

%Power Factor, 90°C water immersion:

--after 24 hours

0.34

--after 7 days

0.41

--after 14 days

0.44

--after 21 days

0.43

--after 28 days

0.50

--after 56 days

0.54

Mechanical Water Absorption

7 days at 70°C, maximum

8.0 mg./in.

APPENDIX B

PHYSICAL CHARACTERISTICS OF PVC (POLYVINYL CHLORIDE) JACKET

When tested in accordance with the ICEA and UL requirements the PVC jacket shall meet the guaranteed values presented below:

Properties tested for control of product.	Guaranteed Values
A. Physical Requirements – Unaged	
Tensile strength, minimum	1800 psi (12.5 N/mm ²)
Elongation at Rupture, % minimum	200
B. Aging Requirements	
Air Oven Test at 121°C for 168 hours	
Tensile Strength, % of unaged value, minimum	90
Elongation, % of unaged value, minimum	70
Oil Immersion, at 70°C for 4 hours (IRM 902)	
Tensile Strength, % of unaged value, minimum	80
Elongation, % of unaged value, minimum	70
Properties, demonstrated by qualification testing, that are inherent to the formulation.	
C. Aging Requirements	
Air Oven Test at 100°C for 168 hours	
Tensile Strength, % of unaged value, minimum	90
Elongation, % of unaged value, minimum	70
Oil Immersion, at 70°C for 18 hours (IRM) 902)	
Tensile Strength, % of unaged value, minimum	70
Elongation, % of unaged value, minimum	60
D. Cold Bend	
1 hour at -35°C, minimum	No cracks
E. Heat Distortion	
1 hour at 121°C, % maximum	40
F. Gravimetric Water Absorption	
7 days at 70°C, maximum	20 mg./in. ² (3.08 mg/cm ²)
G. Loss of Mass	
168 hours at 100°C	1.5 mg/cm ²

APPENDIX C

PHYSICAL AND ELECTRICAL CHARACTERISTICS OF SOLONON (LOW SMOKE NON HALOGEN) JACKET

When tested in accordance with the ICEA S-93-639 specification, unless otherwise noted, the thermoplastic

SOLONON jacket shall meet the following values:

PHYSICAL PROPERTIES

Property	Method	Unit	Typical Value
Density @ 23°C	D 1505	g/cm	1.50
Tensile Strength @ break	D 638	PSI/Mpa	1800/11.0
Elongation @ break	D 638	%	150
Retained Aged Tensile/Elongation:	D 638		
@ 100°C, 10 days		%	96/70
@ 121°C, 7 days		%	111/63
Tear Strength	D 470	lb/in	35
Durometer Hardness	D 2240	Shore A	88
Hot Deformation @ 100°C	UL 1581	%	5.2
Hot Deformation @ 121°C	UL 1581	%	49
Low Temperature Brittleness	D 746	°C	-20.5
Abrasion Test, 1000 Cycles	D 1044	%	1.4
Mechanical Water Absorption			
@ 70°C	UL 1581	mg/in ²	14.3
Shrinkback, 100°C, 4 hours	REA-89	%	5.3
Environmental Stress Cracking 30 days (5% IGP)			No crack
UV Sunlight Resistance after 720 hours	UL 1581		Pass

ELECTRICAL PROPERTIES

Property	Method	Unit	Typical Value
Dielectric Constant			
Dissipation Factor	ASTM D 150		
@ 60 Hz			3.72/0.0050
@ 100 kHz			3.63/0.0072
@ 1 MHz			3.56/0.0132
Volume Resistivity @ 23°C	ASTM D 257	Ω-cm	3.94 x 10 ¹⁴
Insulation Resistance Constant @ 18.2°C Water	ASTM D 470	MΩ/Mile	694
Track Resistance	ASTM D 2132		Pass @ 240 hr.

FLUID RESISTANCE PROPERTIES

Property	% Retained	
	Tensile	Elongation
Diesel Fuel, MIL-F-16884, 24 hours, 35°C	76	112
Hydraulic Fuel, MIL-H-5606, 24 hours, 49°C	66	98
Hydraulic Fuel, MIL-H-17672, 24 hours, 49°C	72	105
Lubricating Oil, MIL-L-23699, 24 hours, 49°C	80	116
ASTM #2 Oil, 4 hours, 70°C	65	87
UL Oil Resistant I (UL 1581)	Passes	

COMBUSTION PROPERTIES

Property	Method	Unit	Typical Value
Limited Oxygen Index (LOI)	ASTM D2863	%	40
Vertical Ladder	IEEE 1202		Passes
Acid Gas Test			
-International Electrotechnical Commission (IEC)	IEC 754-2	pH	5.2
-Conductivity Change	IEC 754-2		<1
-US Navy	MIL-C-24643	pH	3.3
-Acid by Weight	MIL-C-24643	%	0.43
-Critical Temperature Index	NES-715	°C	>375
-Toxicity Index	NES-713		0.82
-Toxicity	Pittsburgh Toxicity Test	LC50	28
-Smoke Index on 100 mil plaque	NES-711		12
-Smoke Density on 100 mil plaque	ASTM E662	Flaming	Non-Flaming
-D _{1.5} /D _{4.0}		0.4/2.7	0.7/21
-D _m (corrected)		59	178
-Limited Smoke:	UL 1685		
Peak Smoke (0.25 allowed)		M ² /sec	0.01 (passed)
Total Smoke (95 allowed)		m ²	1.9 (passed)

THE PARTICULAR PREVAILING WAGE SCHEDULES
INCLUDED IN THIS CONTRACT ARE NOT REPRINTED HERE
DUE TO SIZE.