



CONTRACT #2086R

**NORTH JERSEY DISTRICT
WATER SUPPLY COMMISSION**

One F.A. Orechio Drive
Wanaque, New Jersey 07465

Notice to Bidders,
Information for Bidders, Form of Bid,
Sample Contract, Exhibit A, B, C, Appendix #1 and Appendix #2, Technical Specifications
Certification & Disclosure Form, Access Approval Form
Covid-19 Visitor Questionnaire
Confidentiality and Non-Disclosure Agreement
Disclosure of Investment Activities in Iran

POT PERM SYSTEM REHABILITATION

Howard L. Burrell)
Chairman)
)
Charles P. Shotmeyer)
Vice Chairman)
)
Alan S. Ashkinaze)
)
Jerome P. Amedeo)
)
Donald C. Kuser)
)
Robert C. Garofalo)
)
James L. Cassella)

Commissioners
of the

**NORTH JERSEY DISTRICT
WATER SUPPLY COMMISSION**

Prepared
February 2022

ALL DOCUMENTS CONTAINED HEREIN SHALL BE CONSIDERED PART OF THIS CONTRACT

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NOTICE TO BIDDERS

The **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION** (the "Commission") is Soliciting proposals from Contractors that have expertise in the single design/supply/manufacture of the Pot Perm Feed System.

The existing Pot Perm storage and feed system consists of two complete, independent, feed trains including two separate silos. The only component shared between the two trains is the splitting/mixing tank.

Work consists of rehabilitating both feed trains with new equipment. The only component of the existing system to be reused is the storage silos.

The major components of the new system for each train consist of the following items:

- Storage Silos with bin vent filters (Existing silos will be reused)
- Knife Gate on silo outlet
- Volumetric Feeder
- Wetting Cone
- Splitter Arrangement to deliver Pot Perm to two application points
- Control System including Motor Controls

A complete and operating system with two feed trains shall be supplied and installed and is to include all mechanical, electrical, instrumentation & controls, piping, civil, structural components as necessary, and Start-Up & Commissioning.

Additional items to be included in Scope of Work:

- Demolition and disposal of existing system
- All materials and components are to be supplied as part of the scope of supply and work.

The Owner is not supplying any of the system components (except the existing silos).

NOTE: PLEASE SEE APPENDIX #1 – SPECIAL INSTRUCTIONS TO BIDDERS AT THE END OF CONTRACT DOCUMENT TO BE COMPLETED DURING THE BID PHASE. THESE SPECIAL INSTRUCTIONS OUTLINE THE CHANGES MADE TO CONTRACT #2086 FOR ISSUANCE OF THIS CONTRACT #2086R.

The single designer/supplier/manufacture of the feed system shall have a minimum of 15 years of experience in providing similar equipment in municipal installations. In addition, the firm must own and maintain a local office within 100 miles of the Commission.

The project will be constructed under a single prime contract. The Selected Contractor shall be a licensed in the State of New Jersey.

For the convenience of the bidders, the Commission has annexed a draft Contract herein. Please be advised that the Contract annexed hereto is a draft only, and the Commission

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reserves the right to alter or amend the terms set forth therein prior to the awarding of the bid.

Sealed bids for performing the work described herein will be received by the Commission and a contract awarded in accordance with the requirements of the Commission. However, the Commission reserves the right to reject a bidder based upon a prior negative experience or upon any other grounds permitted by law.

Sealed bids must be received before **11:00 AM on Thursday, March 31, 2022** at the **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION** in its offices at One F.A. Orechio Drive, Wanaque, New Jersey 07465, at which point they will be publicly opened and read for:

BID #2086R POT PERM SYSTEM REHABILITATION

Bid Specifications are obtainable beginning **FRIDAY, FEBRUARY 11, 2022** through emailing Margaret M. Maddalena, the Commission's Contract Administrator, via email at mmaddalena@njdwsc.com. All bids must be made on the blank forms supplied by the Commission.

A **non-mandatory pre-bid meeting** will be held at the Wanaque Treatment Plant located at One F.A. Orechio Drive, Wanaque, New Jersey 07465 in the **Chemical Building** at **10:00 a.m. on Thursday, February 24, 2022**. While attendance is not mandatory, all bidders are **strongly recommended** to attend this pre-bid meeting and site visit. Failure to attend the Pre-Bid meeting does not relieve the Bidder of any obligations or requirements. Bidder can be held to have knowledge that would have been gained if the Bidder attended the Pre-Bid Meeting. The Commission will be practicing Social Distancing 6 ft. apart and require all respondents to wear a face mask.

The Commission and/or its employees do not express or imply any statements regarding existing conditions beyond what may be stated herein.

All bids must be made on the blank forms supplied by the Commission.

Access Approval and Covid-19 Visitor Questionnaire Forms should be submitted, via email to Security, with a copy of a photo ID, twenty-four (24) hours in advance of arrival on site. Please note, a new **Access Approval and Covid-19 Visitor Questionnaire Forms** must be submitted to Security for every visit to the Commission. **Access Approval and Covid-19 Visitor Questionnaire Forms** may be found in **Attachment #1** of the Bid Package.

The Selected Contractor will be required to sign a Confidentiality and Non-Disclosure Agreement at the time of the Contract award and it shall be incorporated as an Attachment into the final Contract.

The Commission and/or its employees do not express or imply any statements regarding existing conditions beyond what may be stated herein. Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1 et seq. and all other

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applicable statutes, laws or regulations concerning discrimination in employment of workers on public works projects. If awarded a contract your company/firm will be required to comply with requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1 et seq.

Bidders are required to submit a valid Business Registration Certificate from the State of New Jersey, Department of Treasury, Division of Revenue with their bid. Failure to submit proof of registration prior to the award of a contract shall be cause for rejection of the bid without further consideration.

Sealed Bids: Each bid submission must be enclosed in a sealed envelope addressed to:

**North Jersey District Water Supply Commission
One F.A. Orechio Drive
Wanaque, New Jersey 07465
Attention: Margaret Maddalena, Contract Administrator**

The information below must be clearly shown on the outside envelope of all bids:

CONTENTS: SEALED PUBLIC BID

BID NUMBER: #2086R

BID TITLE: POT PERM SYSTEM REHABILITATION

BID TIME AND DATE: 11:00 A.M. – THURSDAY, MARCH 31, 2022

QUESTION CUT OFF DATE: WEDNESDAY, MARCH 2, 2022

BIDS FORWARDED VIA OVERNIGHT SERVICES SHALL INDICATE THAT A SEALED BID IS CONTAINED THEREIN AND IDENTIFY CONTRACT #2086R. THE COMMISSION WILL NOT ACCEPT BIDS SUBMITTED VIA FAX OR EMAIL AND THE SAME WILL BE REJECTED.

The Commission will assume no responsibility for bids, which are not properly labeled, whether delivered by the bidder or the bidder's representative, or sent by mail or courier service. The Commission **will not** accept any bids submitted via fax or email. Bidders are advised not to call the Commission for information. All inquiries must be submitted via email to mmaddalena@njdwsc.com.

Bid Security: Each bid shall be accompanied by a certified check, cashier's check or bid bond for ten (10%) percent of the contract price (not to exceed \$20,000) as a guarantee of execution of contract and the provision of performance security.

All bid securities, except the securities of the apparent three (3) lowest responsible bidders, will be, unless requested by the bidder, returned within ten (10) days after the opening of the bids (Saturdays, Sundays and holidays excepted). The bids of such bidders, other than the apparent three (3) lowest responsible bidders, shall then be considered officially

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withdrawn. Within three (3) days after the awarding of the Contract **and** the approval of the Contractor's Performance Bond (if required in the terms of this Contract), the bid securities of the remaining unsuccessful bidders shall be returned to them (Saturdays, Sundays and holidays excepted).

Surety's Consent: Every bid must be accompanied by the consent in writing of a surety company (or surety companies) qualified to do business in the State of New Jersey, who shall, at the time of submission of such bid, qualify as to its (or their) responsibility in an amount equal to ONE HUNDRED PERCENT (100%) of the contract price of such bid, and, furthermore, bind itself (or themselves) in such form as shall comply with the requirements of the Statutes of the State of New Jersey in respect to Bonds of Contractors on Public Works, N.J.S.A. 2A:44-143 to 2A:44-147, as amended and supplemented.

All bidders should use the Surety Consent Form provided by the Commission for the reasons stated on the bottom of the form.

New Jersey Prevailing Wage Act (N.J.S.A 34.11-56.25 et seq.): The Contractor is put on notice that it must pay all of its employees rendering service under this Contract in compliance with the prevailing wage rates promulgated by the New Jersey Department of Labor, a copy of which is on file at the Commission's Administrative Offices in Wanaque, New Jersey, and is hereby made a part of this Contract. In addition, the Contractor shall conform to all other labor laws and statutes established in this State.

All bidders are considered to have full knowledge of the conditions and requirements, including the physical characteristics of the site and the project, which are necessary for an accurate bid. The Commission assumes no responsibility with respect to ascertaining for the Bidder the facts of these physical characteristics, other than the facilitation of the Pre-Bid Meeting and Site Tour. The Bidder shall be held to be aware of the Commission's Requirements prior to the time of submitting bids and to have appraised all conditions under which the Contract is to be performed.

By order of the **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION.**

DR. HOWARD L. BURRELL
Chairman

ATTEST: **KIM DIAMOND**
Commission Secretary

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Note: The use of the masculine herein shall include the feminine, and the use of the plural shall include the singular, and vice versa.

Form to be Used: All bids must be made on the blank form "Bid" attached hereto and in accordance with the directions on the form.

Bid in Words and Figures: The price shall be printed in ink in both words and figures. Any bid which fails to name a price both in words and in figures per unit for each and every item, wherein quantities are given, may be held to be non-responsive and may be rejected. In case of any discrepancy or conflict, the price written in words will take precedence over the price written in figures, unit prices will take precedence over price extension, and the sum of individual items, including unit prices multiplied by estimated quantities, and/or individual lump sum and/or allowance amounts will take precedence over the total bid price or alternate bid price.

Bids Not to be Withdrawn: No bid will be permitted to be withdrawn for any reason whatsoever after it has been submitted (except as permitted by N.J.S.A. 40A:11-23.3).

Sealed Bids: Each bid submission must be enclosed in a sealed envelope addressed to:

**North Jersey District Water Supply Commission
One F.A. Orechio Drive
Wanaque, New Jersey 07465
Attention: Margaret Maddalena, Contract Administrator**

The information below must be clearly shown on the outside envelope of all bids:

CONTENTS - SEALED PUBLIC BID

BID NUMBER: #2086R

BID TITLE: POT PERM SYSTEM REHABILITATION

BID TIME AND DATE: 11:00 A.M. on THURSDAY, MARCH 31, 2022

QUESTION CUT OFF DATE: WEDNESDAY, MARCH 2, 2022

BIDS FORWARDED VIA OVERNIGHT SERVICES SHALL INDICATE THAT A SEALED BID IS CONTAINED THEREIN.

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The Commission will assume no responsibility for bids which are not properly labeled, whether delivered by the bidder or the bidder's representative, or if sent by mail or courier service. The Commission will not accept any bids submitted via fax or email. Bidders are also advised not to call the Commission for information. All inquiries must be submitted via email to Margaret M. Maddalena at mmaddalena@njdwsc.com.

Bid Security:

Each bid shall be accompanied by a certified check, cashier's check or bid bond for ten (10%) percent of the contract price (not to exceed \$20,000), as a guarantee of execution of contract and the provision of performance security.

All bid securities, except the securities of the apparent three (3) lowest responsible bidders will be, unless requested by the bidder, returned within ten (10) days after the opening of the bids (Saturdays, Sundays and holidays excepted). The bids of such bidders, other than the apparent three (3) lowest responsible bidders, shall then be considered officially withdrawn. Within three (3) days after the awarding of the contract **and** the approval of the Contractor's Performance Bond (if required in the terms of this Contract), the bid securities of the remaining unsuccessful bidders shall be returned to them (Saturdays, Sundays and holidays excepted).

Default:

In the case of winning bidder's default, the Commission shall apply said bidder's bid security to the expenses incurred by the Commission in (i) rebidding the Contract and (ii) payment of any difference between the bid price and the price the Commission may be required to pay upon awarding this Contract to a subsequent bidder.

Surety's Consent:

Every bid must be accompanied by the consent in writing of a surety company (or surety companies) qualified to do business in the State of New Jersey, who shall, at the time of submission of such bid, qualify as to its (or their) responsibility in the amount of such bid, and, furthermore, bind itself (or themselves) in such form as shall comply with the requirements of the Statutes of the State of New Jersey in respect to Bonds of Contractors on Public Works, N.J.S.A. 2A:44-143 to 2A:44-147, as amended and supplemented, as follows:

That upon the awarding of the said Contract to the person (or persons) making the bid, the said surety company (or surety companies) shall become surety, firstly, for the faithful performance of the said work, and secondly, for the protection of all persons performing labor, or furnishing labor or materials. Therefore, as required by law, said performance bond is to be in an amount equal to **ONE HUNDRED PERCENT (100%)** of the contract price.

All bidders should use the Surety Consent Form provided by the Commission for the reasons stated on the bottom of the form.

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Payment and Performance Bond:

The Contractor to whom the Contract is awarded shall give a bond for **ONE HUNDRED PERCENT (100%)** of the Contract price in satisfactory legal form of a surety company or companies authorized to do business by and operating in accordance with the laws of the State of New Jersey, and to be approved by the Commission for the faithful performance of all provisions of the contract relating to work included in these specifications, including the safeguarding against infringement of any or all patents; and said bond to be canceled upon the performance of the conditions therein specified and upon the payment for final delivery of material under these specifications. In addition this bond shall protect all persons furnishing materials or labor to the Contractor or any subcontractors for the completion of said Contract in accordance with the laws of the State of New Jersey, and shall be in such legal form as shall satisfy the requirements of N.J.S.A. 2A:44-143 to 2A:44-147, and amendments and supplements thereto, and shall not be canceled and returned until such time as the Commission determines that all liability to any and all persons protected by the condition of said bond has been met by the Contractor or person primarily liable for the payment thereof, or by the surety (or sureties) on said bond.

Corporate Acknowledgment:

In the event that a bidder is a corporation in which all offices are held by a ***single individual***, then any documents or instruments presented to the Commission in connection with bid shall be executed by said individual only as executive officer, and said officer's signature shall be authenticated and witnessed by a Notary Public licensed to act in such capacity under the laws of the State of New Jersey. This requirement shall apply only to those corporations satisfying the "single individual" criteria set forth above.

Compliance with All Laws:

The successful bidder will be required to keep itself informed and to comply with all Federal, State, County and Local laws, ordinances, and regulations as such may apply.

Non-Collusion:

Bidders are required to give their names together with the address of their places of business. If a bidder is a corporate entity, then any affidavit submitted in conjunction with a bid for this Contract must be signed by a corporate officer. If the Commission discovers that a person or persons submitting a bid is interested, in any manner, in any other bid for the same piece of work, both bids shall be deemed nonconforming and shall be immediately rejected. This provision shall not prevent a party from quoting prices on materials or equipment to more than one bidder. Every bid to be conforming must be in all respects fair and without collusion or fraud and Bidders shall expressly represent that the Bidder is the only person interested in said bid; that it is made without any connection with any person submitting another bid for the same Contract; that the bid is in all respects fair and without collusion, fraud or mental reservation; that no official of the Commission or any person in the employ of the Commission is directly or indirectly interested in said bid or in the supplies or work to which it relates, or in any portion of the profits thereof.

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Bidders will be required to submit a fully executed Affidavit of Non-Collusion as part of the bid submission.

Balanced Bidding:

Any bid which, in the opinion of the Commission, is unbalanced, may be rejected in the sole discretion of the Commission.

Authorized to Reject Bids:

The Commission reserves the right to abandon the bid process or reject all bids and re-advertise and award the Contract in the regular manner if, in its judgment, such action will best serve the interest of the Commission.

The Commission reserves the right to reject any or all bids which may be non-responsive or the acceptance of which, in the sole judgment of the Commission, may be detrimental to its interests.

The Commission also reserves the right to reject a bidder based upon a prior negative experience or upon any other grounds permitted by law.

Time within which Contract is to be Executed:

The successful bidder shall execute this Contract and give to the Commission the required security within seven (7) working days from the date that the said contract has been awarded to him. Upon failure to do so, said bidder will be considered as having abandoned this Contract.

Buy American Acts:

Any successful bidder and his subcontractors, if any, must comply with all "Buy American" statutes or regulations, including N.J.S.A. 52:33-1 et seq.

The Commission reserves the right to accept non-domestic materials under this Contract in accordance with N.J.S.A. 52:33-2 and 52:33-3 in the event: (i) it determines the use of domestic materials is "impractical" or "inconsistent with the public interest"; (ii) it determines that the cost of using domestic materials is "unreasonable"; or (iii) domestic materials of the class or kind sought are not mined, produced, or manufactured, as the case may be, in the United States in commercial quantities and of a quality satisfactory to the Commission.

Brand Name or Equivalent:

Wherever a brand name is designated in the bid documents, it shall mean "brand name or equivalent." Bidders will be required to demonstrate, to the sole satisfaction of the Commission, that equivalent products are both compatible and effective.

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Award of Contract:

The Contract will be awarded to the lowest responsible and responsive bidder, who, in the judgment of the Commission, is qualified to do the work. The Commission reserves the right to reject any and all bids, and to waive minor or non-material bid defects.

Worker and Community Right-to-Know Act (N.J.S.A. 34:5A-1 et seq.; N.J.A.C. 7:1G):

This Act requires employers to label all containers of hazardous substances. All goods offered for purchase to the Commission must be labeled in compliance with the provisions of this Act.

Material Safety Data Sheets also must be supplied as is required by law.

Bidder's Qualifications:

Only those bidders thoroughly experienced in quality work of the type required herein and in the installation of materials, as specified herein, may apply.

Bidders are put on notice that their previous experience and performance record will be carefully considered prior to award of contract. Bidders must also own and maintain a local office within one hundred (100) miles of the Commission.

Interpretations and Addenda:

No interpretations of the meanings of any portion of the bid documents will be made to any prospective bidder orally. Every request for an interpretation or correction shall be made in writing addressed to **MARGARET M. MADDALENA, CONTRACT ADMINISTRATOR, NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION** and submitted via email to mmaddalena@njdwsc.com. **Requests for interpretations received later than WEDNESDAY, MARCH 2, 2022 will be considered untimely, and, at the sole discretion of the Commission, will not be considered.** Notice of corrections and any supplemental instructions in the form of written addenda to the bid documents will be published in a legal newspaper, faxed and/or mailed to bidders at their respective addresses furnished for such purposes, certified, not later than seven (7) days (Saturdays, Sundays and Holidays excepted) prior to the date fixed for the opening of bids. The failure of any bidder to receive any such addenda or interpretations shall not release said bidder from any obligations under his bid as submitted.

All addenda so issued shall become part of the bid documents. Only the written interpretations, corrections, and addenda so given by **MARGARET M. MADDALENA**, shall be binding, and the prospective bidders are warned that no other officer, agent or employee of the Commission is authorized to give information concerning, or to explain or interpret, the bid documents.

Each bidder is required to submit with its bid a completed ***"Acknowledgment of Receipt of Changes to Bid Documents Form"*** (Page I-32), included with these Specifications. In the event no notices, revisions, or addenda to the bid advertisement, Technical

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Specifications, or bid documents are received by the bidder, the bidder shall indicate **“none”** on that form, which must still be completed, acknowledged, signed and submitted with its bid.

Affirmative Action:

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. (P.L. 1975, c.127) and N.J.A.C. 17:27-1.1 et seq. Construction Contracts.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the Commission's compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, 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 Dept. of LWD, Construction EEO Monitoring Program, and to the Commission's compliance officer.

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 ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, 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 equal employment opportunity shall include, but not be limited to the following: employment, upgrading, 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 will send to each labor union, with which it has a collective bargaining agreement, 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

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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 targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, 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 Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2.

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 afford equal employment opportunities minority and women workers directly, consistent with this chapter. 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 affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, 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 that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met 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:

(1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, 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

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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;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contractor or subcontractor shall interview the referred minority or women worker. 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 in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. 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 Dept. of LWD, Construction EEO Monitoring Program. 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) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(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

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a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

- (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 Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program 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 targeted 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 Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, 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 Dept. of LWD, Construction EEO Monitoring Program, 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 Dept. of LWD, Construction EEO Monitoring Program as may be requested by the

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Dept. of LWD, Construction EEO Monitoring Program 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 Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

Patent Infringement:

No specification or specifications provided to the Contractor shall constitute a warranty, express or implied, against any claims for infringement for patents, copyrights, or trademarks and the Commission shall not be responsible to the Contractor, as indemnitor or otherwise, for or on account of any such claim or liability.

Contractor guarantees that the sale or use of its products will not infringe any United States or foreign patent, copyright, or trademark, and Contractor shall indemnify the Commission against all judgments, decrees, costs and expenses resulting from such alleged infringement, and covenants that Contractor will upon request of the Commission and at the Contractor's own expense, defend, or assist in the defense of, any suit or action which may be brought against the Commission or those selling or using any product or service of the Commission by reason of any alleged infringement of any patents, copyrights, or trademarks in the sale or use of the Commission's products or services.

Working Hours:

Contractor shall be permitted to perform work on Commission property during the hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, non-holiday periods.

Time for Completing Work:

All work shall be completed within **Four Hundred – Twenty (420) Calendar Days** from the issuance of the Notice to Proceed, to the Contractor by the Commission.

Liquidated Damages:

If the Contractor shall not complete the work within the same time herein specified, or any proper extension thereof granted by the Commission then the Contractor does hereby agree, as part consideration for the awarding of this contract, to pay the Commission **Five Hundred Dollars (\$500.00) per calendar day**, commencing on the **1st day of non-completion, (or 421st calendar day of non-completion)**, not as a penalty, but as a liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the **BID** for completing the work.

The Commission shall have the right to offset from monies owed the Contractor under this Contract any and all monies owed the Commission as Liquidated Damages.

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Campaign Contributions and Expenditure Reporting:

In order to safeguard the integrity of the Commission's procurement process, the Commission has imposed restrictions to insulate the award of contracts from political contributions that pose the risk of improper influence, purchase of access, or the appearance thereof. The terms and conditions set forth in this section are material terms of any contract resulting from this Bid.

a. Definitions.

For the purposes of this section, the following shall be defined as follows:

(i) Contribution – means a contribution reportable by the recipient under “The New Jersey Campaign Contributions and Expenditures Reporting Act”, N.J.S.A.10:44A-1 et seq., and implementing regulations set forth at N.J.A.C. 19:25-7 and N.J.A.C. 19:25-10.1 et seq. Currently, contributions in excess of \$300 during a reporting period are deemed “reportable” under these laws.

(ii) Contractor – means any natural or legal person, business corporation, professional service 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. It also includes (a) all principals who own or control more than ten percent (10%) of the profits or assets of the Contractor or ten percent (10%) of the stock in the case of a contractor that is a corporation for profit, as appropriate; (b) any subsidiaries directly or indirectly controlled by the Contractor; (c) any political organization organized under 26 U.S.C.A. 527 that is directly or indirectly controlled by the Contractor, other than a candidate committee, election fund, or political party committee; and (d) if the Contractor is a natural person, that person's spouse or child, residing in the same household.

b. Breach of Contract.

It shall be a breach of the terms of any contract for the Contractor to (i) make or solicit a contribution in violation of the terms of this section, (ii) knowingly conceal or misrepresent a contribution given or received; (iii) make or solicit contributions through intermediaries for the purpose of concealing or misrepresenting the source of the contribution; (iv) make or solicit any contribution on the condition or with the agreement that it will be contributed to a campaign committee or any candidate or holder of the public office of Governor, or to any State or county party committee; (v) engage or employ a lobbyist or consultant with the intent or understanding that such lobbyist or consultant would subject that entity to the restrictions of this section; (vi) fund contributions made by third parties, including consultants, attorneys, family members, and employees; (vii) engage in any exchange of contributions to circumvent the intent of this section; or (viii) directly or indirectly through or by any other person or means, do any act which would subject that entity to the restrictions of this section.

c. Certification and Disclosure Requirements.

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(i) The Commission is prohibited from entering into a contract with any Contractor for services or any material, supplies or equipment, or to acquire, sell or lease any land or building, where the value of the transaction exceeds \$17,500, if that Contractor has solicited or made any contribution of money, or pledge of contribution, including in-kind contributions to a candidate committee and/or election fund of any candidate for or holder of the public office of Governor, or to any State or county political party committee: (i) within the eighteen (18) months immediately preceding the commencement of negotiations for the contract or agreement; (ii) during the term of office of a Governor, in the case of contributions to a candidate committee or election fund of the holder of that office, or to any State or county political party committee of a political party nominating such Governor in the last gubernatorial election preceding the commencement of such term; or (iii) within the eighteen (18) months immediately preceding the last day of the term of office of Governor, in which case such prohibition shall continue through the end of the next immediately following term of the office of Governor, in the case of contributions to a candidate committee or election fund of the holder of that office, or to any State or county political party committee of a political party nominating such Governor in the last gubernatorial election preceding the commencement of the latter term. Effective November 15, 2008, Executive Order No. 117 extends the above prohibition to contributions made to a candidate committee or election fund of any candidate for or holder of the office of Lieutenant Governor, and to contributions made to a legislative leadership committee or a municipal political party committee.

(ii) At the time of the submission of its Bid, a Bidder shall report all contributions the Contractor made during the preceding four (4) years to any political organization organized under 26 U.S.C.A. 527 of the Internal Revenue Code that also meet the definition of a "continuing political committee" within the meaning of N.J.S.A. 19:44A-3(n) and N.J.A.C. 19:25-1.7. **The required forms and instructions are included in this Bid Specification package and must be returned with a bidder's bid fully completed. Failure to submit the fully completed Certification and Disclosure(s) with a Bid may result in the rejection of the Bid, as well as preclude future contract opportunities.**

(iii) Further, the Contractor is required, on a continuing basis, to report any contributions it makes during the term of the Contract, and any extension(s) thereof, at the time any such contribution is made. The required form and instructions are available for review on the Purchase Bureau website at <http://www.state.nj.us/treasury/purchase/forms.shtml> and shall be provided to the intended awardee with the Notice of Intent to Award.

d. Disclosure Review.

The Commission shall ensure that the completed Certification and Disclosure(s) submitted pursuant to this section, as well as any other pertinent information concerning the contributions or reports thereof by the Successful Bidder, or by the Contractor during the term of the Contract are reviewed by the appropriate authorities. If

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it is determined that any contribution or action by the Contractor constitutes a breach of contract that poses a conflict of interest in the awarding of the Contract under this solicitation, the Commission shall disqualify the Contractor from award of such Contract.

Business Registration Act:

- A. Business Registration: Pursuant to N.J.S.A. 52:32-44, **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION** is prohibited from entering into a contract with an entity unless the bid/proposal/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of Treasury.
- B. Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).
- C. Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order or other contracting documents is awarded or authorized.
- D. During the course of contract performance:
 - (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
 - (2) the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.
 - (3) the contractor and any subcontractors providing goods or performing services under a contract, and each affiliates, shall collect and remit to the Director of Division of Taxation in the Department of Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et.seq.) on all sales of tangible personal property delivered to the State. Any questions in this regard can be directed to the Division of Taxation at (609)2925-6200. Form NJ-REG can be filled out at www.state.nj.us/treasury/revenue/busregcert.html.
- E. Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete list of all subcontractors and their addresses.

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- F. Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contract agency.

Public Works Contractor Registration Act:

N.J.S.A. 34:11-56.48 et seq., required that a general or prime contractor and any listed subcontractors named in the contractor's bid proposal shall possess a certificate at the time the bid proposal is submitted. After bid proposal are received and prior to award of contract, the successful contractor shall submit a copy of the contractor's certification along with those of all listed subcontractors. All non-listed subcontractors and lower tier subcontractors shall be registered prior to starting work on the project. It is the general contractor's responsibility that all non-listed subcontractors at any tier have their certificate prior to starting work on the job.

Under the law a "contractor" is "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 (N.J.S.A. 34:11-56.25, et seq.) It applies to contractors based in New Jersey or any other state.

To register, a contractor must provide the State Department of Labor with a full and accurately completed application form. The form is available online at www.state.nj.us/labor/lasse/lspubcon.html. N.J.S.A. 34:11-56.55 specifically prohibits accepting applications for registration as a substitute for a certificate of registration.

New Jersey Anti-Discrimination

Pursuant to N.J.S.A. 10:2-1, if awarded a contract, 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 material, 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, gender identity or expression, affectional or sexual orientation or sex, 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 engage in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or

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services to be acquired under such contract, on account or race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

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 which such a 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 to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the public agency of any prior violation of this section of the contract.

American with Disabilities Act 1990

The contractor and the owner do hereby agree that the provisions of Title 11 of the Americans with Disabilities Act of 1990 (the "Act") (*42 U.S.C. S121 01 et seq.*), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the act. In the event that the contractor, its agents, servants, employees, subcontractors violate or are alleged to have violated the act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to the act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind of nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or in connection therewith. In any and all complaints brought pursuant to the owner's grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim, if any action or administrative proceeding is brought against the owner or any of its agents, servants, employees, the owner shall expeditiously forward to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its

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representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless to the pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the owner from taking any actions available to it under any other provisions of the Agreement or otherwise at Law.

Disclosure of Investment Activities in Iran:

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division's website at:

<http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>.

Bidders must review this list prior to completing the below certification. Failure to complete the certification will render a bidder's proposal non-responsive. If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

Diane B. Allen Equal Pay Act

Pursuant to N.J.S.A. 34:11-56.14, a contractor performing "qualifying services" or "public work" to the State or any agency or instrumentality of the State shall provide the Commissioner of Labor and Workforce Development a report regarding the compensation and hours worked by employees categorized by gender, race, ethnicity, and job category. For more information and report templates see <https://nj.gov/labor/equalpay/equalpay.html>.

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Prompt Payment of Construction Contracts Act:

On September 1, 2006, the New Jersey Legislature passed the Prompt Payment of Construction Contracts Act, N.J.S.A. 2A:30A-1 et seq.

N.J.S.A. 2A:30A-1 et seq. provides, in part, as follows: "If a prime contractor has performed in accordance with the provisions of a contract with the owner and the billing for the work has been approved and certified by the owner or the owner's authorized approving agent, the owner shall pay the amount due to the prime contractor for each periodic payment, final payment or retainage monies not more than thirty (30) calendar days after the billing date, which for a periodic billing, shall be the periodic billing date specified in the contract. The billing shall be deemed approved and certified twenty (20) days after the owner receives it unless the owner provides, before the end of the 20-day period, a written statement of the amount withheld and the reason for withholding payment, except that in the case of a public or governmental entity that requires the entity's governing body to vote on authorizations for each periodic payment, final payment or retainage monies, the amount due may be approved and certified at the next scheduled public meeting of the entity's governing body, and paid during the entity's subsequent payment cycle, provided this exception has been defined in the bid specifications and contract documents."

As a public entity that requires the authorization of its governing body for periodic or final payments, and payments for change orders or release of retainage, the Commission hereby places the prime contractor on notice that it not subject to the twenty (20) day period for the approval and certification of billings and, consistent with N.J.S.A. 2A:30A-1 et seq., in the event that the Commission is unable to obtain formal consideration and approval of any billing for work performed by a prime contractor as the basis for a periodic or final payment, or payments for change orders or retainage within the thirty (30) day time period mandated by N.J.S.A. 2A:30A-1 et seq., the Commission shall place the billing for work performed on its next regularly scheduled meeting of its Board of Commissioners and, should such billing for work performed be approved, pay the approved amount to the prime contractor during the Commission's subsequent payment cycle.

New Jersey Prevailing Wage Act (N.J.S.A 34.11-56.25 et seq.):

Contractors on projects for public work shall adhere to all requirements of the New Jersey Prevailing Wage Act. The contractor shall be required to submit a certified payroll record to the Commission within (10) days of the payment of wages. In the event that is found that any worker, employed by the contractor or any subcontractor has been paid a rate of wages less than the prevailing wage required to be paid, the Commission may terminate the contractor's or subcontractor's right to proceed with work, or such part of work as to which there has been a failure to pay required wages and prosecute the work to completion.

The contractor is also responsible for obtaining and submitting all subcontractors' certified payroll records within the aforementioned time period. The contractor shall submit said certified payrolls in the form set forth in N.J.A.C 12:60-6.1(c). It is the contractor's

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responsibility to obtain any additional copies of the certified payroll for to be submitted by contacting the New Jersey Department of Labor and Workforce Development, Division of Workplace Standards. Additional information is available at http://lwd.dol.state.nj.us/labor/wagehour/wagerate/pwr_construction.html.

The Contractor is hereby put on notice that it must pay all of its employees rendering service under this Contract in compliance with the prevailing wage rates promulgated by the New Jersey Department of Labor, a copy of which is on file at the Commission's Administrative Offices in Wanaque, New Jersey, and is hereby made a part of this Contract. In addition, the Contractor shall conform to all other labor laws and statutes established in this State.

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BID FORM

TO: THE NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION

FOR: CONTRACT #2086R POT PERM SYSTEM REHABILITATION

MADE THIS _____ DAY OF _____ 2022

BY: _____

ADDRESS: _____

Bidder's Declaration: The party above named, as bidder, declares that the only person or persons interested in this bid as principal or principals is or are named above, and that no other person than hereinabove named has any interest in this Bid or in the Contract proposed to be taken; that this Bid is made without any connection with any other person or persons making a Bid for the same purposes; that the bid is in all respects fair and without collusion or fraud and that no officer or employee of the Commission is, shall be, or become, directly or indirectly, interested as contracting party, partner, stockholder, surety, or otherwise in the performance of the Contract, or in the supplies, work or business to which it relates or in any portion of the profits thereof; that he has had an opportunity to examine the site of the work; that he has examined the form of Contract, Technical Specifications and Plans, therein referred to, and has read the Information for Bidders hereto attached; and he proposes and agrees, if this Bid be accepted, that he will contract in the form provided, to perform all the work and furnish all material(s) mentioned in said form of Contract and Specifications, and that he will accept in full payment therefore the following sum, to wit:

BASE BID FOR THE POT PERM SYSTEM REHABILITATION for the North Jersey District Water Supply Commission, including labor, equipment, materials and warranty and all work described in the Technical Specifications (Exhibit "A"), as well as what is identified in the Supplemental Specifications (Exhibit "B"), and Special Instructions (APPENDIX #1) for the lump sum price of

_____ dollars and _____ cents (\$_____)

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BID FORM

OPTION PRICING

Option pricing shall be provided by the bidder. The North Jersey District Water Supply Commission may select some options or none at all.

Contract award will be made to the lowest, responsible bidder based on the total for the Base Bid plus any other Options that may be selected by the Commission at the time of award.

OPTION #1 – EMPTYING SILOS

The silo on the train being worked on needs to be empty. The silo on the other train, not being worked on, will remain in service. NJDWSC cannot guarantee that the silos will be empty at the start of construction. It has been determined that all of the Pot Perm in the two silos will fit into one silo. The requirement to provide additional storage no longer exists.

The quantity of material in each silo is as follows.

East silo	20,000 lbs. or 200 cu-ft.
West silo	24,000 lbs. or 240 cu-ft.

Therefore, the total quantity of material to be moved is approximately 64,000 lbs. or 640 cu-ft.

Bidders are requested to explain in their bid the method of moving the Pot Perm from one silo to the other. The description should include the type of equipment involved and the expected transfer rate. If air is utilized as the conveying method then the following information shall be provided:

- Source: Compressor, PD Blower, Fan, etc.
- Pressure
- Will the air be oil free?
- Dew point of compressed air if over 15 psig at the compressor discharge

Be advised that the Pot Perm shall not be exposed to any oil or moisture as it will damage the Pot Perm.

The transfer method shall be totally enclosed and not create a dust condition in the Pot Perm room.

The silo fill lines used for truck unloading may be used as part of the method employed. If used, these lines need to be returned to their original condition.

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BID FORM

FOR THE POT PERM TRANSFER FROM SILO TO SILO the North Jersey District Water Supply Commission, including labor, equipment, materials and warranty and all work described in **OPTION 1** for the lump sum price of

dollars and _____ cents (\$_____)

OPTION #2 – SILO INTERIOR PAINTING

Bidders shall provide a price to paint both silo interiors in accordance with Painting Specification # 090100.

dollars and _____ cents (\$_____)

OPTION #3 – DISPOSAL OF WASHDOWN WATER –THIS ITEM IS INTENTIONALLY DELETED

OPTION #4 – EXTENDED WARRANTY

Provide pricing for an extended warranty as follows:

2 Years from acceptance

dollars and _____ cents (\$_____)

OPTION #5 – REBUILD SILO BIN VENT FILTERS

Provide a price to rebuild the existing two silo bin vent filters in place.

dollars and _____ cents (\$_____)

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BID FORM

OPTION #6 – SUPPLY AND INSTALL NEW SILO BIN VENT FILTERS

Provide a price to supply and install two new silo bin vent filters, including a pulse jet cleaning system.

dollars and _____ cents (\$_____)

OPTION #7 – POT PERM ROOM PAINTING

dollars and _____ cents (\$_____)

OPTION #8 – STRUCTURAL STEEL PAINTING

dollars and _____ cents (\$_____)

OPTION #9 – SILO EXTERIOR PAINTING

dollars and _____ cents (\$_____)

OPTION #10 – SPARE PARTS

dollars and _____ cents (\$_____)

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BID FORM

NOTE: The price shall be printed in ink both words and figures. Any bid which fails to name a price both in words and in figures per unit and every item, wherein quantities are given, may be held to be non-responsive and may be rejected. In case of any discrepancy or conflict, the price written in words will take precedence over the written in figures.

What the Price is to Cover: The price is to include and cover the furnishing of the necessary shop drawings, machinery, tools, apparatus and other means of construction and all material and labor called for by said Contract and specifications for the work, necessary to complete the work in the manner and within the time set forth in said Contract and specifications.

Time within which Contract is to be Executed: The Successful Bidder shall execute this Contract and give to the Commission the required security within seven (7) working days from the date that said Contract has been awarded to him. Upon failure to do so, said Bidder will be considered as having abandoned the Contract.

Bidder acknowledges that the Commission reserves the right to reject any or all Bids which may be non-responsive or the acceptance of which, in the sole judgment of the Commission, may be detrimental to its interests.

Bidder acknowledges that they have read and understood the Special Instructions to Bidders included in APPENDIX #1 of this Contract #2086R.

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BID FORM

Respectfully submitted,

BIDDER

SIGNATURE OF AUTHORIZED AGENT

TYPE OR PRINT NAME

TITLE

TELEPHONE NUMBER

E-MAIL ADDRESS

WITNESS (IF INDIVIDUAL, PARTNERSHIP OR OTHER BUSINESS ENTITY)

ATTEST: (CORPORATION)

SECRETARY

NOTE: AFFIX CORPORATE SEAL

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EXPERIENCE STATEMENT

TO: NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION

We hereby certify that we have performed the work listed below to the satisfaction of the Governing Bodies or Public Entities listed below. We further certify that we have never defaulted under any contract with a Municipality, County, or State, or any other Public Entity.

Note: Include no less than five (5) references.

Give name of Public Entity or Unit of Government, nature of work, amount of work performed, when completed, and name and telephone number of party in charge of work.

WITNESS

NAME OF COMPANY

ADDRESS

DATE

BY: _____
SIGNATURE

PRINT NAME AND TITLE

CONTRACT #2086R

EQUIPMENT STATEMENT

TO: NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION

We hereby certify that we are fully prepared with the necessary capital, material, and machinery to conduct the work as herein specified, and we further certify that the equipment required for the proper execution of this contract in the time specified is available as follows:

BY: _____
SIGNATURE

PRINT NAME AND TITLE

WITNESS

COMPANY NAME

DATE

ADDRESS

CONTRACT #2086R
LISTING OF SUBCONTRACTORS TO BE USED

Each Bidder shall submit to the Commission with its Bid, the List of Subcontractors proposed to be employed by the Contractor, complete with the names of all such Subcontractors, Suppliers, and other individuals and entities and the percentage of work to be performed by each Subcontractor. The list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity, for each Subcontractor's work that is proposed to exceed ten (10) percent of the Bid price. If, after due investigation, the Commission has reasonable objection to any proposed Subcontractor, Supplier, or other individual or entity, the Commission may, before the Notice of Award is given, request the apparent Successful Bidder to submit an acceptable substitute Subcontractor without an increase in the Bid Price.

If the apparent Successful Bidder declines to make any such substitution, the Commission may award the Contract to the next lowest responsible and responsive Bidder that proposes to use acceptable Subcontractors, Suppliers, and other individuals and entities. Declining to make requested substitutions will not constitute grounds for sacrificing the bid security of any Bidder. Any Subcontractor, Supplier, or other individual or entity so listed and against which the Commission makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to the Commission, subject to revocation of such acceptance after the Effective Date of the Contract.

Should a Contractor utilize a substitute Subcontractor, Contractor shall immediately submit a revised form to the Commission, with the requisite information and documentation relating to the substitute Subcontractor.

WORK CATEGORY	SUBCONTRACTOR NAME	SUBCONTRACTOR ADDRESS

(Attach additional pages as required)

NOTE: Submission of the names and addresses of the Subcontractors is essential and non-waivable. Also, proof of registration pursuant to Public Works Contractors Registration Act for all named subcontractors is required to be provided prior to the award of a contract. Where **more than one** Subcontractor is named for a trade category, the bidder must identify, in the Bid, the scope of work that is to be performed by each subcontractor. Failure to comply with these requirements will result in the Bid being deemed nonresponsive.

CONTRACT #2086R

NON-COLLUSION AFFIDAVIT

STATE OF }
 S.S.:
COUNTY OF }

I _____ of the city of _____ in the
County of _____ and the State of _____ of full age, being
duly sworn according to the law on my oath depose and say that: I am
of the firm of _____
(Title)

the Bidder making the Bid for the above named project, and that I executed the said Bid with
authority so to do; that said Bidder has not, directly or indirectly, entered into any agreement,
participated in any collusion, or otherwise taken any action in restraint of free, competitive
bidding in connection with the above-named project; and that all statements contained in
the said Bid and in this Affidavit are sure and correct, and made with full knowledge that the
NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION relies upon the truth of the
statements contained in said Bid and in the statements contained in this Affidavit in awarding
the Contract for the said project.

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

NAME OF CONTRACTOR

OFFICER'S SIGNATURE

(Original signature only, stamped signature not accepted)

Subscribed and sworn
to before me this ____ day
of _____ 2022.

Notary Public of the State of _____.

My Commission expires _____, _____.

Affix notary stamp or print name below signature.

NOTARY'S SIGNATURE

BIDDER DISCLOSURE STATEMENT

NOTE: IF YOU FAIL TO PROPERLY OR CLEARLY COMPLETE THIS BIDDER DISCLOSURE STATEMENT, OR IF YOU FAIL TO INCLUDE IT WITH YOUR BID, YOUR BID WILL BE REJECTED.

N.J.S.A. 52:25-24.2, requires that all corporate and partnership bidders for public contracts submit a list of names and addresses of all stockholders owning 10% or more of any class of their stock or 10% or more of the stock of a corporate bidder; or, in the case of partnership, the names and addresses of those partners owning 10% or greater interest in the partnership. Furthermore, the Commission requires a statement from all bidders which, regardless of business form, must likewise indicate all principals of the bidder.

Therefore, this Bidder Disclosure Statement must be fully and accurately completed. If no entity or person owns 10% or more of any class of stock of your corporation, or of an interest in your partnership or other business entity, write the word "**NONE**" below and execute this document as indicated.

I. **BUSINESS FORM:**

INDICATE THE BUSINESS FORM BY PLACING AN "X" IN THE APPROPRIATE SPACE:

{ } CORPORATION
 { } PARTNERSHIP
 { } OTHER, SPECIFY _____

II. **PRINCIPALS:**

	<u>NAME</u>	<u>HOME ADDRESS</u>	<u>TITLE</u>	<u>% OF OWNERSHIP</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

If one or more of the owners of the bidder is itself a corporation, partnership or other business entity, then for that owner, you must set forth the name, home address, title and percentage of ownership of every person who is an owner of 10% or more of that corporation, partnership or other business entity.

CONTRACT #2086R

BIDDER DISCLOSURE STATEMENT

	<u>NAME</u>	<u>HOME ADDRESS</u>	<u>TITLE</u>	<u>% OF OWNERSHIP</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

ATTEST (FOR CORPORATION)

BY: _____

NAME: _____

TITLE: _____

WITNESS (FOR PARTNERSHIP OR OTHER BUSINESS ENTITY)

BY: _____

NAME: _____

TITLE: _____

BY: _____

NAME: _____

TITLE: _____

NOTE: **If the bidder is a corporation, the corporation's corporate seal must be affixed.**

CONSENT OF SURETY

KNOW ALL MEN BY THESE PRESENTS, THAT _____,
a corporation of the State of _____ having its principal office at _____
being (a) surety
company(ies) qualified to do business in the State of New Jersey, in consideration of the
premises, and of one dollar to it (them) in hand paid by the Commission, and of other good
and valuable consideration the receipt whereof is hereby acknowledged, do(es) consent
and agree, that if the Contract for which the preceding bid is made be awarded to the person
or persons making the same; it (they) will, upon award of such Contract, become surety,
first, for the full and faithful performance of said work, and, secondly, for the protection of all
persons in the performance of said Contract in the form required by N.J.S.A. 2A:44-143 to
2A:44-147 and the amendments thereof and supplements thereto; the performance bond
and the labor, material and supply obligations each to be conditioned so as to indemnify the
Commission against loss due to the failure of the Contractor to meet the stipulations of the
respective bonds; said bond to be in the amount of 100% of the Contract price.

IN WITNESS WHEREOF, the said _____ has
(have) caused its (their) corporate seal(s) to be hereto affixed and these presents to be
signed by its (their) _____ and attested to by its (their)
_____ this _____ day of

Two Thousand and Twenty-two.

Corporate Seal

By: _____

(as Surety)

ATTEST:

**THE CONSENT OF SURETY FORM ABOVE CONTAINS THE LANGUAGE THE COMMISSION FINDS
ACCEPTABLE.**

**WE SUGGEST THE ABOVE BE COMPLETED BY YOUR SURETY COMPANY(IES) AND SUBMITTED
WITH YOUR BID IN LIEU OF SUBMITTING THE SURETY'S OWN FORM.**

**BY DOING THIS, YOU REDUCE THE RISK OF YOUR BID BEING REJECTED FOR HAVING
SUBMITTED A CONSENT OF SURETY WHICH CONTAINS INCORRECT AND UNSATISFACTORY
LANGUAGE.**

**NOTE: THE INDIVIDUAL EXECUTING THE SURETY CONSENT ON BEHALF OF THE SURETY
MUST SUPPLY WITH THE CONSENT, WRITTEN EVIDENCE THAT HE OR SHE IS
AUTHORIZED TO BIND THE SURETY AS OF THE DATE OF THE EXECUTION OF THE
CONSENT.**

**ACKNOWLEDGMENT OF RECEIPT OF CHANGES
TO BID DOCUMENTS FORM**

(Name of Contracting Unit)

(Name of Construction/Public Works Project)

(Project or Bid Number)

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 Commission's record of Notice to Bidders shall take precedence and that failure to include provisions of changes in a Bid may be subject for rejection of the Bid. In the event that no notices, revisions or addenda to the bid advertisement, specifications or bid documents are received by the Bidder, the Bidder must indicate ***"none"*** in the space below. ***Failure to submit "Acknowledgment of Receipt of Changes to Bid Documents Form" shall be deemed a material and non-waivable defect, and shall be cause for rejection of the Bid without further consideration.***

Commission's Reference Number or Title of Addendum/Clarification	How Received (mail, fax, pick-up, etc.)	Date Received

Acknowledgment by Bidder:

Name of Bidder: _____

By Authorized Representative: _____

Signature: _____

Printed Name and Title: _____

Date: _____

SAFETY TRAINING ACKNOWLEDGMENT

(Name of Contracting Unit)

(Name of Construction/Public Works Project)

(Project or Bid Number)

All equipment and work methods utilized in this Contract shall comply with OSHA and all other applicable local, state and/or federal safety standards and regulations. Contractor and all subcontractors shall be required to attend a Contractor Safety Orientation prior to beginning construction.

Acknowledgment by Bidder:

Name of Bidder: _____

By Authorized Representative: _____

Signature: _____

Printed Name and Title: _____

Date: _____

SECURITY MEASURES ACKNOWLEDGMENT

(Name of Contracting Unit)

(Name of Construction/Public Works Project)

(Project or Bid Number)

The undersigned Bidder hereby acknowledges that he/she is familiar with the Commission's security requirements for this project and agrees to abide by same. The Contractor shall be responsible for insuring that all subcontractors for this project abide by these security measures as well.

Contractors and all subcontractors shall be required to comply with said requirements prior to beginning construction on this Contract.*

Acknowledgment by Bidder:

Name of Bidder: _____

By Authorized Representative: _____

Signature: _____

Printed Name and Title: _____

Date: _____

***As required by the New Jersey Office of Counter Terrorism's Best Management Practices, Contractors must provide evidence that it has previously conducted a background check on all Contractor's employees who will be entering onto Commission property. Contractors shall provide the Commission with a corporate letter, on appropriate letterhead, stating the names of all employees who will require access to the Commission's property, and indicating that such background checks have, in fact, been performed. All subcontractors are also required to provide such employee list, and confirmation of background checks.**

BID #2086R

BID CHECKLIST

ALL ITEMS LISTED BELOW MUST ACCOMPANY THIS BID UNLESS OTHERWISE INDICATED. PLEASE CHECK ALL ITEMS BEFORE SUBMITTING:

A) FAILURE TO PROVIDE OR PROPERLY COMPLETE OR SIGN ANY OF THESE ITEMS BELOW WILL RESULT IN A MANDATORY REJECTION OF THE BID.

- ___ (1) SECURITY IN THE FORM OF:
- ___ A BID BOND IN AN AMOUNT EQUAL TO 10% OF THE TOTAL AMOUNT OF THIS BID, NOT TO EXCEED \$20,000.
- OR
- ___ A CERTIFIED CHECK IN THE AMOUNT OF 10% OF THIS BID, BUT NOT IN EXCESS OF \$20,000.
- OR
- ___ A CASHIER'S CHECK IN THE AMOUNT OF 10% OF THIS BID, BUT NOT IN EXCESS OF \$20,000.
- ___ (2) SURETY COMPANY CONSENT (IN ADDITION TO SECURITY IN ITEM #1 ABOVE).
- ___ (3) BIDDER DISCLOSURE STATEMENT
- ___ (4) ACKNOWLEDGMENT OF RECEIPT OF CHANGES TO BID DOCUMENTS

B) FAILURE TO PROVIDE OR PROPERLY COMPLETE OR SIGN ANY OF THE ITEMS BELOW MAY RESULT IN A REJECTION OF THE BID.

- ___ (1) BUSINESS REGISTRATION CERTIFICATE FOR CONTRACTOR OR ANY SUBCONTRACTORS
- ___ (2) PROOF OF PUBLIC WORKS CONTRACTOR REGISTRATION OR ANY SUBCONTRACTORS
- ___ (3) LIST OF SUBCONTRACTORS
- ___ (4) EXPERIENCE STATEMENT
- ___ (5) EQUIPMENT STATEMENT
- ___ (6) NON-COLLUSION AFFIDAVIT
- ___ (7) SAFETY TRAINING ACKNOWLEDGMENT
- ___ (8) SECURITY MEASURES ACKNOWLEDGMENT
- ___ (9) COMPLETED CONTRIBUTION CERTIFICATION AND DISCLOSURE(S) (ATTACHMENT #2)
- ___ (10) DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

(CONTRACTOR)

BY: _____
SIGNATURE

PRINT NAME AND TITLE

CONTRACT #2086R

EXECUTION OF CONTRACT

**NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION
WANAQUE, NEW JERSEY**

THIS AGREEMENT, made and entered into on the date set forth herein by and between the **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION**, party of the first part, hereinafter designated as the Commission and _____ party of the second part, hereinafter designated as the Contractor.

COVENANTS: WITNESSETH, that the parties to these presents each in consideration of the undertakings, promises and agreements on the part of the other herein contained, have undertaken, promised and agreed, and do hereby undertake, promise and agree, the party of the first part for itself, its successors and assigns, and the party of the second part for heirs, executors and administrators, or successors and assigns, as follows:

PRICE FOR WORK: The Commission will pay and the Contractor shall receive as full compensation for furnishing all the shop drawings, materials and labor and for performing and completing all the work which is necessary or proper to be furnished or performed in order to complete the entire work in this Contract described and specified in said technical specifications and plans, described and shown; and also for all losses or damages arising out of the nature of the work aforesaid, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work; and for all expenses incurred by or in consequence of the suspension or discontinuance of the work as herein specified, the prices stipulated as follows:

BASE BID FOR THE POT PERM SYSTEM REHABILITATION for the North Jersey District Water Supply Commission, including labor, equipment, materials and warranty and all work described in the Technical Specifications (Exhibit "A"), as well as what is identified in the Supplemental Specifications (Exhibit "B"), and Special Instructions (APPENDIX #1) for the lump sum price of

_____ dollars and _____ cents (\$_____)

CONTRACT #2086R

EXECUTION OF CONTRACT

OPTION PRICING

OPTION #1 – EMPTYING SILOS

The silo on the train being worked on needs to be empty. The silo on the other train, not being worked on, will remain in service. NJDWSC cannot guarantee that the silos will be empty at the start of construction. It has been determined that all of the Pot Perm in the two silos will fit into one silo. The requirement to provide additional storage no longer exists.

The quantity of material in each silo is as follows.

East silo	20,000 lbs. or 200 cu-ft.
West silo	24,000 lbs. or 240 cu-ft.

Therefore, the total quantity of material to be moved is approximately 64,000 lbs. or 640 cu-ft.

Bidders are requested to explain in their bid the method of moving the Pot Perm from one silo to the other. The description should include the type of equipment involved and the expected transfer rate. If air is utilized as the conveying method then the following information shall be provided:

- Source: Compressor, PD Blower, Fan, etc.
- Pressure
- Will the air be oil free?
- Dew point of compressed air if over 15 psig at the compressor discharge

Be advised that the Pot Perm shall not be exposed to any oil or moisture as it will damage the Pot Perm.

The transfer method shall be totally enclosed and not create a dust condition in the Pot Perm room.

The silo fill lines used for truck unloading may be used as part of the method employed. If used, these lines need to be returned to their original condition

FOR THE POT PERM TRANSFER FROM SILO TO SILO the North Jersey District Water Supply Commission, including labor, equipment, materials and warranty and all work described in **OPTION 1** for the lump sum price of

dollars and _____ cents (\$_____)

CONTRACT #2086R
EXECUTION OF CONTRACT

OPTION #2 – SILO INTERIOR PAINTING

Bidders shall provide a price to paint both silo interiors in accordance with Painting Specification # 090100.

dollars and _____ cents (\$_____)

OPTION \$3 [INTENTIONALLY OMITTED]

OPTION #4 – EXTENDED WARRANTY

Provide pricing each for an extended warranty as follows:

2 Years from acceptance

dollars and _____ cents (\$_____)

OPTION #5 – REBUILD SILO BIN VENT FILTERS

Provide a price to rebuild the existing two silo bin vent filters in place.

dollars and _____ cents (\$_____)

OPTION #6 – SUPPLY AND INSTALL NEW SILO BIN VENT FILTERS

Provide a price to supply and install two new silo bin vent filters, including a pulse jet cleaning system.

dollars and _____ cents (\$_____)

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OPTION #7 – POT PERM ROOM PAINTING

dollars and _____ cents (\$_____)

OPTION #8 – STRUCTURAL STEEL PAINTING

dollars and _____ cents (\$_____)

OPTION #9 – SILO EXTERIOR PAINTING

dollars and _____ cents (\$_____)

OPTION #10 – SPARE PARTS

dollars and _____ cents (\$_____)

NOTE: The price shall be printed in ink both words and figures. Any bid which fails to name a price both in words and in figures per unit and every item, wherein quantities are given, may be held to be non-responsive and may be rejected. In case of any discrepancy or conflict, the price written in words will take precedence over the written in figures.

WHAT THE PRICE IS TO COVER: The price is to include and cover the furnishing of the necessary shop drawings, machinery, tools, apparatus and other means of construction and all material and labor called for by the said Contract and specifications for the work, necessary to complete the work in the manner and within the time set forth in said Contract and specifications.

CONTRACT #2086R

GENERAL CONDITIONS

Article I - DEFINITIONS:

- Commission:** the **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION**, (the "Commission") Wanaque, New Jersey; the party of the first part to this Contract.
- Contractor:** the party of the second part to this Contract.
- Contract:** this Agreement covering the performance of the project and payments therefore, including the general conditions, the Bid Specifications for **Contract #2086R** (including any addendums/Clarifications) and all sheets, forms or documents attached to the Bid Specifications or hereto.
- Engineer:** Commission's Engineering Staff.
- Specifications:** the Technical Specifications included at the end of this Contract, (Exhibit "A", Exhibit "B" Exhibit C, Appendix #1 & Appendix #2), incorporated herein by reference.
- Proposal:** the proposal submitted by the Contractor, dated _____, 2022, incorporated herein by reference.

Article II - RIGHTS AND DUTIES OF THE ENGINEER:

- A. The Engineer shall, subject to the provision of Articles III and IV, give all orders and directions contemplated under this Contract and determine in all cases the amount, quality, acceptability and fitness of the work and materials which are to be paid for by the Commission to the Contractor.
- B. The Engineer shall have the right to reject any or all work which does not conform to the plans and specifications of this Contract, or is not completed in a workmanlike manner. He shall also have the right to reject materials which do not meet the specifications herein contained, have become damaged, rendered unsatisfactory, or have been supplied without evidence of quantity and/or quality such as labels, bills of lading, etc.
- C. The Engineer shall have the free access to the work whenever and wherever it is in progress, for purposes of inspection. If any work should be covered up with prior approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination at the Contractor's expense.
- D. The Engineer shall have the right to stop the work whenever such stoppage may be necessary for protection of the reservoir, for emergency conditions, or to prevent potential damage to property, equipment, or facilities and/or personal injury.
- E. The Engineer shall provide the Contractor with such basic lines, grades and points as are needed from which the Contractor shall establish such other points as he may

CONTRACT #2086R

GENERAL CONDITIONS

need, unless otherwise specified.

Article III - REVIEW BY COMMISSION:

Notwithstanding anything herein contained, the Contractor shall have the right to appeal to the Commission, in accordance with Article XXII, concerning any matter in dispute and the Commission's decision on such appeal shall be final.

Article IV - CHANGES:

- A. Notwithstanding anything herein contained, no departure from or substitution, change or alteration in the terms, provisions or requirements of this Contract and the specifications thereof, shall be made without the prior order of the Commission as duly executed by its Chairman.
- B. The Engineer, however, shall have the right to make minor changes in the specifications during the conduct of the work if necessary in keeping with good engineering practice if such changes are consistent with the purpose, intent and/or conditions of the contract and shall not result in significant extra costs to the Contractor.
- C. Authorization for any additional work or materials (extras) requiring compensation not provided for in this Contract, or change orders, must be obtained in writing from the Commission. The Commission will not pay the Contractor for additional services or materials based on verbal agreements or conversations with a Commission employee.

Article V - OBLIGATIONS OF THE CONTRACTOR:

- A. The Contractor shall do all the work and furnish all the labor, supervision, transportation, materials, tools, equipment, etc., (except as herein otherwise provided) necessary and proper for safety in accordance with the specifications contained herein and labeled "**SPECIFICATIONS**", and/or the direction of the Engineer. The Contractor shall complete said work to the total satisfaction of the Engineer at a price agreed upon and fixed by the terms of this Contract.
- B. It is understood that the Contractor shall have had an opportunity to carefully examine the areas and/or facilities involved in this Contract prior to entering into this Contract and that he has fully satisfied himself as to the nature and location of the work, subsurface conditions, the character of equipment and facilities needed, the time and labor requirements, and all such matters which can affect the work to be performed. The Commission will not be responsible for additional expenses incurred by the Contractor as a result of obtaining information from any person or employee of the Commission in lieu of personal inspection or investigation.
- C. The Contractor shall carefully preserve bench marks, reference points and stakes provided by the Engineer, and shall be responsible for any delays or mistakes that

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GENERAL CONDITIONS

may be caused by their unnecessary loss or disturbance. The Contractor shall also carefully preserve all permanent property corners and bench marks, such as pipes, monuments, etc., and if lost or disturbed shall be responsible for resetting same, through the services of a licensed Land Surveyor whose services shall be paid for by the Contractor.

- D. The Contractor shall continuously provide adequate protection at the work site to prevent the possibility of injury to any and all persons or property whether of the Commission or not. The Contractor shall secure the work site at any time when work is temporarily halted by reason of weather, time, etc., by providing adequate barricades, fences, lighting, personnel, etc., so as to prevent injury to persons or property. All such damage, injury or loss, except as may be due to errors in the Contract or caused by employees of the Commission, shall be made good by the Contractor.
- E. The Contractor shall, during the progress of the work, attend the work site personally or through a competent English-speaking superintendent authorized to receive and carry out instructions.
- F. The Contractor will be required to check all dimensions and quantities on any drawings or specifications given to him by the Engineer. In case of error or omission, the Contractor will not be allowed to benefit thereby, and instead should report same to the Engineer to obtain special instructions.
- G. The Contractor shall be responsible for all materials, tools, equipment, etc., to be stored at or near the job site.
- H. The Contractor shall, upon completion of the work, and to the complete satisfaction of the Engineer, remove from all Commission and/or private property, at its own expense, all temporary structures, rubbish, spillage, waste materials, drums, etc., which have resulted from the Contractor's operations. Final inspection and/or acceptance of the project by the Engineer for payment will not be made until all work has been completed and all final cleaning operations have been performed.

Article VI - TIME FOR COMPLETING WORK, EXTENSION OF TIME, AND LIQUIDATED DAMAGES:

- A. The Contractor shall complete the work specified herein within the time for completion stated in the **BID SPECIFICATIONS** for this Contract. Work shall be completed within **Four Hundred Twenty (420) Calendar Days** from the date indicated on the Notice to Proceed, issued by the Commission, to the Contractor.
- B. Working hours shall be between **7:00 a.m. to 5:00 p.m.** No work shall be permitted on Saturdays, Sundays and legal holidays without special prior consent of the Engineer.

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- C. Written approval of an extension of time, obtained by the Contractor from the Engineer, shall be the sole and exclusive remedy to the Contractor as a result of delays in the commencement, prosecution or completion of the work, resulting from, but not limited to:
1. acts or omissions of the Commission or Engineer or other Contractor employed by the Commission, with respect to late drawings, plans or specifications, changes in sequence, lack of decision, lack of access, interference, errors, lack of approvals, erroneous bid specifications, lack of payments, issuance of change orders;
 2. differing site conditions, strikes, labor or material shortages, unusual delays in transportation and acts of God, such as tornadoes, earthquakes or extreme weather.
- D. The date of beginning and the time for completion, as specified herein, are **ESSENTIAL CONDITIONS** of this Contract; and it is agreed that the work embraced in this Contract shall be commenced within seven (7) days from the issuance of the Notice to Proceed. The work set forth in this Contract shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as shall insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Commission, that the time for the completion of the work described herein is a reasonable time for the completion of the same taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.
- E. **LIQUIDATED DAMAGES**
- If the Contractor shall not complete the work within the time herein specified, or any proper extension thereof granted by the Commission, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Commission **Five Hundred Dollars (\$500.00) per calendar day**, commencing on the **1st day of non-completion, (or 421st calendar day of non-completion)**, not as a penalty, but as a liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the **BID**, and paragraph A of this Section, for completing the work. The Commission shall have the right to offset any and all monies owed the Contractor under this Contract as **LIQUIDATED DAMAGES**.
- F. Time is of the essence for each and every portion of work required herein. Where additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence under this Contract.
- F. The Contractor will not be charged with liquidated damages when, in the opinion of the Engineer, the delay in completion of the work is due to unforeseeable cause beyond the control and without the fault or negligence of the Contractor, such as but not restricted to, differing site conditions, strikes, labor or material shortages, unusual

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delays in transportation and acts of God, such as tornadoes, earthquakes or extreme weather.

Article VII - CONTRACTOR'S INSURANCE AND INDEMNIFICATION REQUIREMENTS

- A. The Contractor shall, at all times during the term of this Agreement, obtain and maintain continuously, at its own expense, and file with the North Jersey District Water Supply Commission (the Commission) and its insurance broker evidence of coverage as enumerated below.

1. Commercial General Liability Insurance:

Commercial General Liability Insurance, written on an industry standard occurrence form (CG 00 01), 1207 Edition or Equivalent

The Contractor shall maintain Products Completed Operations liability coverage for a period of at least 24 months following the Final Project Completion Date.

Such policy (ies) must provide the following minimum limits:

\$2,000,000	General Aggregate - Applies Per Project
\$1,000,000	Products & Completed Operations Aggregate
\$1,000,000	Personal & Advertising Injury
\$1,000,000	Each Occurrence Limit
\$ 100,000	Fire Damage Legal Liability

Any deductible or self-insured retention must be disclosed and is subject to approval by the Commission. The Cost of any claim payments falling within the deductible shall be the responsibility of the Company.

2. Business Automobile Liability:

Including coverage for owned, non-owned, leased or hired vehicles, written on an industry standard form (CA 00 01) or equivalent. Such policy (ies) must provide the following minimum limits:

\$1,000,000 Combined Single Limit (Bodily Injury & Property Damage)

Should include endorsement CA 9948 Pollution Endorsement

3. Worker's Compensation:

Worker's Compensation Limits: Statutory
Employer's Liability:

\$1,000,000	Each Accident
\$1,000,000	Disease – Policy Limit

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GENERAL CONDITIONS

\$1,000,000 Disease – Each Employee

4. Excess/Umbrella Insurance:

Schedule of Underlying to include: General Liability, Employers Liability and Auto Liability as outlined above.

Minimum Limit of Liability: \$3,000,000 Per Occurrence
\$3,000,000 Aggregate

5. Professional Liability:

Minimum Combined Limit of Liability: \$3,000,000 Each Incident
\$3,000,000 Policy Aggregate

Definition of Covered Services: Includes all services performed by the insured for a fee.

The Selected Respondent shall maintain this Insurance for a period of at least twenty-four (24) months following the expiration of the contract term and/or termination of service.

6. Builders Risk:

Prior to delivery of any materials by Contractor or any Subcontractor of insurable values to the Project Site, Contractor shall obtain and thereafter at all times during performance of the Work, maintain, or cause to be maintained, Builder's All-risk Insurance as described below. Such builder's all-risk insurance shall insure as additional insured, the Commission. Builder's all-risk insurance shall cover all property in the course of transit, in temporary storage, used in construction, buildings and structures, machinery, fixtures, and other properties constituting a part of the Project, from physical loss or damage caused by perils covered by a builder's all-risk form or equivalent coverage. Such insurance shall include "extended coverage" including earthquake, flood, collapse, and subsidence, mechanical and electrical breakdown during testing and commissioning and cover the Project and the Commission's property. The property limit to be purchased shall be the full replacement cost of the Work, no less than the full construction contract amount. Coverage will be written on a "special" form cause of loss and include an agreed amount endorsement containing no co-insurance provisions or deduction for depreciation with deductible of no more than \$25,000 and include a limit for loss of business income due to delay in start-up. The Builder's all risk insurance policy shall not contain exclusion for resultant damage caused by faulty workmanship, design or materials. The deductibles shall not exceed \$25,000 and any required payments of

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the deductibles for builder's all-risk insurance shall be the responsibility of the Contractor. Such insurance shall provide for a waiver of the underwriters' right to subrogation against Commission, the Contractor and all Subcontractors.

7. Evidence of Insurance:

The following documents must be provided in conjunction with a Certificate of Insurance:

- A copy of the endorsement naming the Commission as an Additional Insured, on Form CG2010 or equivalent on all policies except Worker's Compensation.
- A copy of an endorsement stating that the coverages provided by this policy to the Commission shall not be terminated, reduced or otherwise materially changed without providing at least thirty (30) days prior written notice to the Commission.
- A waiver of subrogation in favor of the Commission should apply under all the policies outlined in this section except for Worker's Compensation.
- General Contractor and Subcontractors "if any" are required to maintain the same level of coverage as outlined in section 1 and provide Certificates of Insurance and copies of supporting endorsements.

All policies must be rated A-VII or higher in the A.M. Best's Key Rating Guide and licensed to do business in the State of New Jersey or are an eligible Surplus Lines Insurer or are an acceptable Joint Insurance Fund.

Acceptance by the Commission of deficit evidence of insurance does not constitute a waiver of contract requirement as provided by conditions of the contract.

B. Indemnification

The Contractor hereby agrees to fully indemnify, defend and hold harmless the Commissioners, their members, directors, officers, agents, servants, employees and successors and assigns from and against all losses, fines, penalties, damages, lawsuits, claims, causes of action, liabilities, demands, obligations to Contractor, and expenses, including attorneys' fees in connection with the loss of life, personal injury, bodily injury, and/or property damage, if occasioned in whole or in part by any negligent act or omission of the Contractor or the Contractor's agent's, servants, employees, and subcontractors in the performance of services and provision of goods under this contract. This obligation shall include the provision of a defense for the Commission at all stages of the claims or judicial process and together with all losses, fines, penalties, costs and expenses relating to any of the foregoing, including but not limited to, court costs and reasonable attorneys' fees arising out of this Contract and to enforce this

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indemnification provision.

Article VIII - LAWS, REGULATIONS AND PERMITS:

- A. The Contractor shall keep itself fully informed of all laws, ordinances and regulations or decrees which in any manner would affect persons or materials in any way used, engaged or employed in the work or which affect the conduct of the work.

If any discrepancy or inconsistency should be discovered in this Contract, or in the drawings or specifications herein referred to, in relation to any such law, ordinance, regulation, order of decree, the Contractor shall forthwith report the same in writing to the Commission.

- B. The Contractor shall at all times observe and comply with and shall cause all its agents and employees to observe orders and decrees, and shall protect, indemnify and save harmless the Commission and its officers and agents against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by the Contractor, its employees or agents.
- C. Permits and/or licenses of a temporary nature which are necessary for the prosecution of the work shall be secured and paid for by the Contractor prior to commencement of such work as would require permits and/or licenses.

Article IX - ASSIGNMENT:

- A. The Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract, as a whole; or his right, title or interest in or to the same or any part thereof, without the previous consent in writing of the Commission endorsed herein or hereto attached; and it shall not assign, by power of attorney or otherwise, any of the monies to become due and payable under this Contract, unless by and with the like consent signified in like manner.
- B. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet, or otherwise dispose of this Contract, or of its right, title or interest therein, or any of the monies to become due hereunder, this Contract may, at the option of the Commission, be revoked and annulled, and the Commission shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor and to its assignee or transferee; and the Commission shall be in nowise deprived of or restricted in its right to sue for and recover damages for any breach of this Contract.

Article X - PATENTS:

The Contractor shall hold itself responsible for claims made against the Commission for infringement of patents by the use of patented articles in the construction and completion of the work, or in any process connected with the work agreed to be performed under this Contract or with the materials used upon the said work, and shall indemnify and save

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harmless the Commission for all costs, expenses and damages which the Commission shall be obliged to pay by reason of any infringement of patents used in the construction and completion of the work, including attorney's fees.

Article XI - NEW JERSEY PREVAILING WAGE ACT (N.J.S.A 34.11-56.25 et seq.):

- A. The Contractor is put on notice that it must pay all of its employees rendering services under this Contract in compliance with the prevailing wage rates promulgated by the New Jersey Department of Labor, a copy of which is on file at the Commission's Administrative Offices in Wanaque, New Jersey, and is hereby made a part of this Contract. In addition, the Contractor shall conform to all other labor laws and statutes established in this State.
- B. In the event it is found that any employee of the Contractor or Subcontractor covered by this Contract has been paid a rate of wages less than the prevailing wages required to be paid by the Contractor or Subcontractor, this Commission shall have the right to terminate the Contract, or such part of the Contract as to which there has been a failure to pay the required wages and to prosecute the Contract to completion or otherwise. The Contractor and its sureties shall be liable to the Commission for any excess costs occasioned thereby.

Article XII - PAYMENTS:

The Contractor will be entitled to payment upon final inspection and acceptance of the Work by the Commission's Engineer, less any retainage held by the Commission, within sixty (60) days after (a) all portions of Project Work have been fully completed as required by the Contract to the satisfaction of the Engineer; and (b) the Engineer has certified such completion to the Commission.

The Contractor agrees that he shall indemnify and save the Commission harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen and furnishes of machinery and parts thereof, equipment power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. The Contractor shall, at the Commission's request, furnish satisfactory evidence that all obligations of the nature hereinabove designed have to be paid, discharged, or waived. If the Contractor fails to do so, then the Commission may, after having served written notice on the said Contractor, either pay unpaid bills, of which the Commission has written notice, directly or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor will be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Commission to the Contractor.

In paying any unpaid bills of the Contractor, the Commission shall be deemed the agent of the Contractor, and any payment, so made by the Commission, shall be considered as a

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payment made under the Contract by the Commission to the Contractor, and the Commission shall not be liable to the Contractor for such payment made in good faith.

A. Payment:

1. Upon receipt of written notice from the Contractor that the project is complete, the Engineer will make a final inspection and will notify the Contractor in writing of any particulars in which this inspection reveals that the work is defective. The Contractor shall immediately make such corrections as are necessary to remedy such defects.
2. When the Contractor has completed all such corrections to the satisfaction of the Engineer and delivered all maintenance and operating instructions, schedules, as-built drawings, guarantees, bonds, certificates and other documents, all as required by the Contract Documents, he may make application for final payment. The Engineer will review actual as-built field measurements, the amount of the work by the Contractor, and the value of such work pursuant to the terms of the Contract to determine whether to issue a final acceptance of the work. Upon final acceptance of the work, the Engineer will process the final payment upon receipt of a Maintenance Bond as described in these Specifications.
3. The acceptance by the Contractor of Final Payment shall be and shall operate as a release to the Commission of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act or neglect of the Commission and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from any obligation set forth in the Contract Documents, including any applicable performance, payment, maintenance bond or other type of bid security.

B. Partial Payment:

1. Prior to the start of the Work, the Contractor shall submit a project schedule to the Engineer which shall be sufficiently detailed to permit the Engineer, in his sole discretion, to determine when the Work is fifty percent (50%) complete. Partial payment is not guaranteed, but may be approved at the sole discretion of the Project Engineer and approval by the Board of Commissioners, in accordance with the Commission's standard payment process.
2. No claim by the Contractor for additional payment based on any error in any periodic estimate will be recognized.
3. The Commission may withhold payment for any of the following:
 - a. Failure to submit a revised progress schedule, which has been

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- approved by the Engineer, with each partial payment request.
- b. Defective work not corrected.
 - c. Claims filed or responsible evidence indicating a reasonable probability of claims being filed.
 - d. Failure of the Contractor to make proper payments to Subcontractor or for material or labor.
 - e. Unpaid damages by the Contractor to Subcontractor, the Commission, or any other agency or person.
 - f. In the judgment of the Engineer the project is not proceeding in accordance with the Contract or the Contractor is not complying with the requirements of the Contract Documents.
 - g. The Contractor is found in to be in default under the terms of the Contract.
4. No payment voucher shall protect the Contractor, and no claims shall be founded thereof by the Contractor in case of overpayment, or in case it shall at any time appear that the project or any part thereof has not been constructed, completed and maintained in strict accordance with the Contract Documents.
5. No interim voucher shall be held to signify the approval of permanent work, materials, or other things to which such certificate relates and the Contractor shall not be relieved by any such certificates from any risks of liability to which he may be subject under the Contract until final payment hereinafter referred to has been granted to it.
6. Errors in any monthly measurements or bill, on being discovered, will be rectified by the Engineer in subsequent measurements and bills.
7. If any work, the value of which has been included in any interim bill is damaged or destroyed and has to be removed or reconstructed by the Contractor, an amount representing the value of the work so damaged or destroyed, less any insurance monies therefore received by the Commission, will be deducted by the Engineer in succeeding partial payments until such time as work has been renovated or reconstructed.
8. State law requires that all claims for payments be approved by the governing body of the Commission. The Contractor shall allow six (6) to eight (8) weeks for receipt of partial payment after the payment has been approved by the Engineer.

Article XIII - MONEY MAY BE RETAINED:

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The Commission may keep any monies which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefore, to the payment of any expenses, losses or damages, as determined by the Engineer, incurred by the Commission which, pursuant to this Contract or the specifications shall be borne by the Contractor, and may retain until all claims shall have been settled so much of such monies as the Commission shall be of the opinion will be required to settle all claims against the Commission and its officers and agents and all claims for labor on the work, and also all these claims for materials.

Article XIV – REPAIRS, BONDS, MAINTENANCE AND RETAINAGE:

The Contractor shall at its own cost, upon notification from the Commission or Engineer, promptly make good any and all defects, in its work, or that of any subcontractor employed by it hereunder, which may occur or appear during the progress of the work.

- A. If, within ten (10) days after the delivery or mailing of notice in writing to the Contractor, or its agents, of the occurrence or appearance of any such fault in the work, the Contractor fails to remedy same, the Commission may remedy the same or cause it to be remedied without previous notice and/or in case of any emergency where, in the opinion of the Engineer, delay would cause serious loss or damage.
- B. The cost of any defects so remedied or caused to be remedied by the Commission shall be borne solely by the Contractor, and any sum expended, or any expense so incurred by the Commission shall be deducted from any money then due or thereafter growing due from the Commission to the Contractor.
- C. In order to secure the performance of the above, the Contractor shall furnish a **Performance and Payment Bond to the Commission** at the time of execution of this Contract, in the sum of one hundred percent (100%) of the Contract price. Said bond shall be in form and content satisfactory to the Commission.
- D. The Commission shall retain **five percent (5%)** of the total contract amount of money due for a period of **six (6) months** from the date of final acceptance of all of the work by the Commission, to be applied to any defects not remedied by the Contractor by the end of the six-month period.

Article XV - TERMINATION OF LIABILITY:

Upon acceptance by the Contractor, or his authorized agents, of the final payment under the provisions of this Contract, the project shall be considered completed and the Contractor shall have no further interest or claim whatever against the Commission or any of its officers or agents, except for amounts kept or retained or otherwise specifically provided herein.

Article XVI - STATUTORY COMPLIANCE:

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The Contractor is required to comply with all applicable laws, regulations and ordinances.

Article XVII - BUY AMERICAN ACTS:

Any successful bidder and his subcontractors, if any, must comply with all "Buy American" statutes or regulations, including N.J.S.A. 52:33-1 et seq.

The Commission reserves the right to accept non-domestic materials under this contract in accordance with N.J.S.A. 52:33-2 and 52:33-3, in the event: (i) it determines the use of domestic materials is "impractical" or "inconsistent with the public interest"; (ii) it determines that the cost of using domestic materials is "unreasonable"; or (iii) domestic materials of the class or kind sought are not mined, produced, or manufactured, as the case may be, in the United States in commercial quantities and of a quality satisfactory to the Commission.

Article XVIII - AFFIRMATIVE ACTION:

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1 et seq.

The Successful Bidder shall complete and submit an Initial Project Workforce Report Form AA-201 upon notification of the contract award. Proper completion and submission of this report shall constitute evidence of the Successful Bidder's compliance with the regulations. The Successful Bidder shall also submit a copy of the Monthly Project Workforce Report Form AA-202 once a month thereafter for the duration of the Contract to the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts in the Department of Treasury and to the Commission.

Additionally, 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, 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, upgrading, 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.

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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. However, if a subcontractor has a total workforce of four (4) or fewer employees or if the Contractor or subcontractor is performing under an existing Federally approved or sanctioned affirmative action program, the contract shall contain only the mandatory language required by N.J.A.C. 17:27-3.8(a).

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. 17:27-7.2; provided, however, that the Division may, in its discretion, exempt the 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. 17:27-7.2.

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 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. 10:531 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 (5) days prior to the commencement of construction work, the Contractor or subcontractor agrees to attempt to hire minority and women workers directly, consistent with the applicable employment goal. If the Contractor's or,

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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's or subcontractor's 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 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 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 so 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

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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, the 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.

iv. The Contractor or subcontractor shall interview the referred minority or women workers.

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

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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.

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 at N.J.A.C. 17:27-1 et seq.

Article XIX - WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (N.J.S.A. 34:5A-1 et seq.; N.J.A.C. 7:1G):

This Act requires employers to label all containers of hazardous substances. All goods offered for purchase to the Commission must be labeled in compliance with the provisions of this Act.

Material Safety Data Sheets also must be supplied as is required by law.

Article XX - SAFETY:

All equipment and work methods utilized in this contract shall comply with O.S.H.A. and any other applicable local, State and Federal safety standards and regulations.

Article XXI – TAX EXEMPTION:

Purchases made by the Commission are exempt from payment of state sales taxes, and such tax shall not be included in the bid price.

Article XXII – DISPUTE RESOLUTION:

A. **NOTICE** – Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the Contractor to the Commission's Executive Director promptly (but in no event later than thirty (30) days) after the start of the event giving rise thereto. Notice of the amount or extent of the claim, dispute, or other matter with supporting data shall be delivered to the Commission's Executive Director within sixty (60) days after the start of such event (unless the Executive Director allows additional

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time to submit additional or more accurate data in support of such Claim, dispute, or other matter). Any claim for an adjustment in Contract Price and/or Contract Time shall be prepared in accordance with the provisions of an official change order or contract amendment approved by the Board of Commissioners. Each Claim shall be accompanied by the Contractor's written statement that the adjustment claimed is the entire adjustment to which the Contractor believes it is entitled as a result of said event. The Commission will respond to the Contractor within sixty (60) days after receipt of the Contractor's last submittal.

B. APPEAL FROM BOARD OF COMMISSIONER'S DECISION – The Contractor may appeal the Board of Commissioner's decision rendered pursuant to the above Notice by delivering to the Commission within thirty (30) days after the date of such decision, a written notice of intention to appeal. The date of receipt of such notice by the Board of Commissioner's shall be the date upon which the time periods in these dispute resolution proceedings are calculated.

C. WORK CONTINUANCE AND PAYMENT – Unless otherwise agreed in writing, the Contractor shall continue to work, furnish required equipment and maintain the Schedule of the Work as outlined in the contract specifications during any dispute resolution proceedings. If Contractor continues to perform per the contract specifications, the Commission shall continue to make payments in accordance with this Agreement.

D. INITIAL DISPUTE RESOLUTION – Upon issuance of a written notice of intention to appeal, the parties shall endeavor to settle the dispute first through direct discussions. The senior executives of the parties, who for the Contractor shall have the authority to settle the dispute and for the Commission shall be the Executive Director, shall meet within twenty-one (21) days after the date of receipt by the Commission of the notice of intention to appeal. If the dispute is not settled within thirty (30) days from the referral of the dispute to the senior executives, the parties shall submit the dispute to mediation in accordance with Paragraph E.

E. MEDIATION – If the dispute cannot be settled pursuant to Paragraph D, the parties shall endeavor to settle the dispute by mediation under the current Construction Industry Mediation Rules of the American Arbitration Association before recourse to any other dispute resolution procedures. Once one party files a request for mediation with the other party and with the American Arbitration Association, the parties agree to conclude such mediation within one hundred twenty (120) days of filing of the request.

The Commission and the Contractor shall cooperate with American Arbitration Association and with each other in selecting a mediator from American Arbitration Association, panel of neutrals and in scheduling the mediation proceedings. The Commission and the Contractor shall participate in the mediation in good faith, and shall share equally in its costs. All communications, documents, and other materials, whether written or oral, made in the course of or relating to the mediation by the Commission or

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the Contractor, or their agents, employees, experts or attorneys, or by the mediator or American Arbitration Association, employees, are confidential and privileged, and inadmissible for any purpose in any court, administrative, or other proceeding, provided that evidence that is otherwise admissible or discoverable shall not be rendered inadmissible or nondiscoverable as a result of its use in the mediation. This agreement to mediate and any other agreement or consent to mediate entered into in accordance herewith as provided herein will be specifically enforceable under the laws of the State of New Jersey.

Either party may terminate the mediation at any time after the first session but the decision to terminate shall be delivered in person by the party's representative to the other party's representative and the mediator.

F. MULTIPARTY PROCEEDINGS – All parties necessary to resolve a claim or dispute shall be parties to the same dispute resolution proceeding. Appropriate provisions shall be included in all other contracts relating to the Work to provide for the consolidation of such dispute resolution procedures.

G. CONCLUSION OF MEDIATION – In the event that mediation is concluded without a resolution of the dispute, Contractor and Commission may exercise such rights and remedies as either may otherwise have under the Contract Documents or by applicable law in respect of any dispute.

H. If, in the sole opinion of the Commission, a dispute arises which imperils the timely completion of the work, an excessive increase in costs, a substantial risk of harm to the public health or welfare, or an emergency or exigency which must be addressed immediately, then the Commission may institute court, administrative, or other proceedings without prior compliance with the dispute resolution provisions contained in this Contract.

ARTICLE XXIII – COMPLIANCE WITH COMMISSION CONTRACT AWARD POLICIES:

Contractor represents and warrants that it has not made any contribution that would bar the Commission from awarding the Contractor this Contract pursuant to the contract award policies adopted by the Commission and set forth in the Commission's Accounting Policies and Procedures Manual. Contractor shall have a continuing duty to report any contribution it makes during the term of this Contract. Consistent with the requirements of the Commission's contract award policies, the Contractor acknowledges that it is prohibited from being awarded this Contract if Contractor has solicited or made any contribution of money, or pledge of contribution, including in-kind contributions to a candidate committee and/or election fund of any candidate or holder of the public office of Governor, or to any State or county political party committee: (i) within the eighteen (18) months immediately preceding the commencement of negotiations for the contract or agreement; (ii) during the term of office of a Governor, in the case of contributions to a candidate committee and/or election fund of the holder of that office, or to any State or

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county political party committee of a political party nominating such Governor in the last gubernatorial election preceding the commencement of such term; or (iii) within the eighteen (18) months immediately preceding the last day of the term of office of Governor, in which case such prohibition shall continue through the end of the next immediately following term of the office of Governor, in the case of contributions to a candidate committee and/or election fund of the holder of that office, or to any State or county political party committee of a political party nominating such Governor in the last gubernatorial election preceding the commencement of the latter term.

It shall be a breach of the terms of this contract for Contractor to: (i) make or solicit a contribution in violation of either this subsection or the Commission's contract award policies; (ii) knowingly conceal or misrepresent a contribution given or received; (iii) make or solicit contributions through intermediaries for the purpose of concealing or misrepresenting the source of the contribution; (iv) make or solicit any contribution on the condition or with the agreement that it will be contributed to a campaign committee of any candidate or holder of the public office of Governor, or to any State or county party committee; (v) engage or employ a lobbyist or consultant with the intent or understanding that such lobbyist or consultant would make or solicit any contribution, which if made or solicited by the business entity itself, would subject that entity to the restrictions of this subsection; (vi) fund contributions made by third parties, including consultants, attorneys, family members, and employees; (vii) engage in any exchange of contributions to circumvent the intent of this subsection or Executive Order; or (viii) directly or indirectly, through or by any other person or means, do any act which would subject that entity to the restrictions of this subsection.

Contractor is advised of the responsibility to file an annual statement on political contributions with the New Jersey Election Law Enforcement Commission pursuant to N.J.S.A. 19:44A-20.13 (P.L. 2005, c.271, s.3) if the Contractor receives contracts in excess of \$50,000 from public entities in a calendar year. It is the Contractor's responsibility to determine if filing is necessary. Additional information on this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

Article XXIV – BUSINESS REGISTRATION CERTIFICATE

- A. Business Registration: Pursuant to N.J.S.A. 52:32-44, **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION** is prohibited from entering into a contract with an entity unless the bid/proposal/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of Treasury.
- B. Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).

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- C. Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order or other contracting documents is awarded or authorized.
- D. During the course of contract performance:
- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
 - (2) the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.
 - (3) the contractor and any subcontractors providing goods or performing services under a contract, and each affiliates, shall collect and remit to the Director of Division of Taxation in the Department of Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et.seq.) on all sales of tangible personal property delivered to the State. Any questions in this regard can be directed to the Division of Taxation at (609)2925-6200. Form NJ-REG can be filled out at www.state.nj.us/treasury/revenue/busregcert.html.
- E. Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete list of all subcontractors and their addresses.
- F. Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contract agency.

Article XXV – PUBLIC CONTRACTOR REGISTRATION

N.J.S.A. 34:11-56.48 et seq., required that a general or prime contractor and any listed subcontractors named in the contractor's bid proposal shall possess a certificate at the time the bid proposal is submitted. After bid proposal are received and prior to award of contract, the successful contractor shall submit a copy of the contractor's certification along with those of all listed subcontractors. All non-listed subcontractors and lower tier subcontractors shall be registered prior to starting work on the project. It is the general contractor's responsibility that all non-listed subcontractors at any tier have their certificate prior to starting work on the job.

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Under the law a “contractor” is “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 (N.J.S.A. 34:11-56.25, et seq.) It applies to contractors based in New Jersey or any other state.

To register, a contractor must provide the State Department of Labor with a full and accurately completed application form. The form is available online at www.state.nj.us/labor/lssc/lspubcon.html. N.J.S.A. 34:11-56.55 specifically prohibits accepting applications for registration as a substitute for a certificate of registration.

ARTICLE XXVI – NEW JERSEY ANTI-DISCRIMINATION

Pursuant to N.J.S.A. 10:2-1, if awarded a contract, 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 material, 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, gender identity or expression, affectional or sexual orientation or sex, 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 engage in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account or race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;
- 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 which such a 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 to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the public agency of any prior violation of this section of the contract.

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Article – XXVII AMERICAN WITH DISABILITIES ACT 1990

The contractor and the owner do hereby agree that the provisions of Title 11 of the Americans with Disabilities Act of 1990 (the "Act") (*42 U.S.C. S121 01 et seq.*), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the act. In the event that the contractor, its agents, servants, employees, subcontractors violate or are alleged to have violated the act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to the act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind of nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or in connection therewith. In any and all complaints brought pursuant to the owner's grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim, if any action or administrative proceeding is brought against the owner or any of its agents, servants, employees, the owner shall expeditiously forward to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless to the pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall

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they be construed to relieve the contractor from any liability, nor preclude the owner from taking any actions available to it under any other provisions of the Agreement or otherwise at Law.

Article XXVIII – DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division's website at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Bidders must review this list prior to completing the below certification. Failure to complete the certification will render a bidder's proposal non-responsive. If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

Article XXIX - DIANE B. ALLEN EQUAL PAY ACT

Pursuant to N.J.S.A. 34:11-56.14, a contractor performing “qualifying services” or “public work” to the State or any agency or instrumentality of the State shall provide the Commissioner of Labor and Workforce Development a report regarding the compensation and hours worked by employees categorized by gender, race, ethnicity, and job category. For more information and report templates see <https://nj.gov/labor/equalpay/equalpay.html>.

Article XXX – SAFETY MEASURES

All equipment and work methods utilized in this Contract shall comply with OSHA and all other applicable local, state and/or federal safety standards and regulations. Contractor and all subcontractors shall be required to attend a general Contract Safety Orientation prior to beginning construction.

Article XXXI – SECURITY MEASURES

The following measures must be adhered to as it relates to this contract:

1. The Contractor shall furnish a complete description of all equipment and vehicles that will enter onto Commission property. All equipment and vehicles will have ID or plate/tag numbers easily visible.

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2. As required by the New Jersey Office of Counter Terrorism's Best Management Practices, Contractors must provide evidence that it has previously conducted a background check on all Contractor's employees who will be entering onto Commission property. Contractors shall provide the Commission with a corporate letter, on appropriate letterhead, stating the names of all employees who will require access to the Commission's property, and indicating that such background checks have, in fact, been performed. All subcontractors are also required to provide such employee list, and confirmation of background checks.

NO ONE WILL BE ALLOWED ONTO COMMISSION PROPERTY WITHOUT PRIOR APPROVAL.

3. No specialized individuals will be allowed onto Commission Property without being previously approved. This includes mechanics, fuel deliveries, sanitary facility maintenance, etc. The **"Access Approval Form to Commission Facilities and Covid -19 Visitor Questionnaire"** (Attachment #1) must be filled out completely, with a copy of **GOOD QUALITY PHOTO ID**, and submitted to the Commission at least **twenty-four (24) hours** prior to arrival. This form **MUST** be completed for **every** visit or delivery. Liquid delivery may be subject to sampling prior to entering onto Commission property. The Contractor shall make no claim against the Commission for loss of time associated with complying with this requested time frame.
4. Only the approved Contractor's employees and employees of any subcontractor listed by the Contractor on **page (I-25)** of the Bid Documents, and approved equipment will be allowed on Commission property.
5. Vehicles entering onto Commission property shall be subject to search.

NOTE: THE COMMISSION SHALL HAVE THE RIGHT TO EXPAND SECURITY REQUIREMENTS AND CONTRACTOR SHALL MAKE NO CLAIMS AGAINST THE COMMISSION FOR INCREASED SECURITY REQUIREMENTS MADE DURING THE LIFE OF THIS CONTRACT.

Article XXXII – PROMPT PAYMENT OF CONSTRUCTION CONTRACTS ACT

On September 1, 2006, the New Jersey Legislature passed the Prompt Payment of Construction Contracts Act, P.L. 2006, c.96.

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P.L. 2006, c.96, provides, in part, as follows: "If a prime contractor has performed in accordance with the provisions of a contract with the owner and the billing for the work has been approved and certified by the owner or the owner's authorized approving agent, the owner shall pay the amount due to the prime contractor for each periodic payment, final payment or retainage monies not more than thirty (30) calendar days after the billing date, which for a periodic billing, shall be the periodic billing date specified in the contract. The billing shall be deemed approved and certified twenty (20) days after the owner receives it unless the owner provides, before the end of the 20-day period, a written statement of the amount withheld and the reason for withholding payment, except that in the case of a public or governmental entity that requires the entity's governing body to vote on authorizations for each periodic payment, final payment or retainage monies, the amount due may be approved and certified at the next scheduled public meeting of the entity's governing body, and paid during the entity's subsequent payment cycle, provided this exception has been defined in the bid specifications and contract documents."

As a public entity that requires the authorization of its governing body for periodic or final payments, and payments for change orders or release of retainage, the Commission hereby places the prime contractor on notice that it not subject to the twenty (20) day period for the approval and certification of billings and, consistent with P.L. 2006, c. 96, in the event that the Commission is unable to obtain formal consideration and approval of any billing for work performed by a prime contractor as the basis for a periodic or final payment, or payments for change orders or retainage within the thirty (30) day time period mandated by P.L. 2006, c.96, the Commission shall place the billing for work performed on its next regularly scheduled meeting of its Board of Commissioners and, should such billing for work performed be approved, pay the approved amount to the prime contractor during the Commission's subsequent payment cycle.

Article XXXIII – CONFIDENTIALITY & NON-DISCLOSURE REQUIREMENTS:

The Contractor shall hold in trust and not reveal to any third party, except as provided in this Contract, between the Commission and the Contractor, any and all confidential or "Security Related" information as defined herein. The Contractor shall require its employees and sub-contractors to comply with the provisions of this Contract, if applicable, as it pertains to confidentiality. This Section must be included in all subcontracts entered into by The Contractor. Confidential or "Security Related" information shall include:

- Any and all financial, statistical, personnel and/or technical data supplied to the Contractor.
- Any and all data, technical information, material gathered, originated, developed, prepared, used or obtained in the performance of this Contract, including results and opinions of the Contractor.
- Any and all communications between the Commission and the Contractor and the

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Contractor and any third party regarding the performance of this Contract.

The Contractor is required to protect the confidentiality of such data. Any use, copying, distribution, sale or offering of this data in any form by The Contractor, or any individual or entity in The Contractor's charge or employ for purposes not connected with this Contract, will be considered a violation of this Contract and may result in contract termination and The Contractor's suspension or debarment from State contracting. In addition, such conduct may be reported to the State Attorney General for criminal prosecution to the extent allowed by law.

It is further agreed that any information supplied by the Commission to The Contractor and any information developed by The Contractor in satisfaction of the Scope of Work within this Contract is subject to the following conditions and restrictions:

- Information received from or developed for the Commission is to be used solely for the purpose(s) established in this Contract.
- The data confidentiality matters coming within this Contract shall continue beyond the completion of all work involved in this Contract, unless specifically waived in writing by the Commission.

Article XXXIV – GENERAL WARRANTY & GUARANTEE:

A. In addition to other promises and warranties contained herein, the Contractor warrants that the labor and materials to be furnished and installed under this Contract will be new and free from defects in material and workmanship for a period of **one year from the date of completion by the Commission**. This warranty excludes damage or defect cause by abuse, modification, normal wear and tear, or improper maintenance or operation by persons other than the Contractor, its employees, subcontractors, or any other individual the Contractor utilizes to discharge its obligations under this Contract. In the event that the Commission determines, in its sole discretion, that the equipment furnished by the Contractor has failed prematurely or contains a defect in material or workmanship, then the Contractor shall repair or replace said defective free of charge and install said equipment free of charge. The Contractor shall proceed to remedy such defects in material and workmanship within seven (7) days of receipt of written notice from the Commission. All such replacement parts shall be shipped F.O.B., Commission's site.

B. The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of the Work that is not in accordance with the Contract Documents or a release of the Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. Observations by the Commission;

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2. The making of any milestone or final payment;
3. The issuance of a certificate of Substantial Completion;
4. Use or occupancy of the Work or any part thereof by the Commission;
5. Any review and approval of a Submittal;
6. Any inspection, test, or approval by others; or
7. Any correction of defective Construction by the Commission.

Article XXXV– APPLICABLE LAW:

This Agreement shall be governed by the laws of the State of New Jersey without giving effect to principles of conflicts of law.

Article XXXVI – TERMINATION:

This Agreement may be terminated by the Commission, with or without cause, upon three (3) days written notice to the Contractor. In the event of termination of this Agreement, the Commission shall only be responsible to pay the Contractor compensation for the Bridge Services rendered up to the date of the Contractor's receipt of written notice of termination.

Article XXXVII – NOTICES:

All notices, requests, demands and other communication provided for by this Contract shall be in writing and shall be deemed to have been given when mailed at any general branch United States Post Office enclosed in a certified postpaid envelope and addressed to the address of the respective party stated herein or to such changed address as the party may have fixed by notice.

Article XXXVIII– NON-WAIVER:

No delay or failure by either party in exercising any right under this Agreement, and no partial or single exercise of that right, shall constitute a waiver of that or any other right.

Article XXXIX– COUNTERPARTS:

This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

SIGNATURES ON THE FOLLOWING PAGE

CONTRACT #2086R

**CERTIFICATE OF ACKNOWLEDGMENT
FOR CONTRACTOR (CORPORATION)**

IN WITNESS THEREOF, the parties hereto have caused this contract to be duly and properly executed in duplicate this _____ day of _____ in the year of our Lord, Two Thousand and Twenty-two, one copy, thereof to remain with the Commission and one to be delivered to the Contractor.

**NORTH JERSEY DISTRICT
WATER SUPPLY COMMISSION**

BY: _____
DR. HOWARD L. BURRELL, CHAIRMAN

ATTEST:

KIM DIAMOND, COMMISSION SECRETARY

(CONTRACTOR)

BY: _____
(SIGNATURE)

(TYPED SIGNATURE)

(TITLE)

ATTEST/WITNESS:

* _____ ***(*Witness must also complete page C-34)***
(SIGNATURE)

(TYPED SIGNATURE)

(TITLE)

SEAL:

CONTRACT #2086R

CERTIFICATE OF ACKNOWLEDGMENT
FOR CONTRACTOR (CORPORATION)

STATE OF }
 } S.S.
COUNTY OF }

BE IT REMEMBERED, that on this _____ day of _____, in the year of our Lord, Two Thousand and Twenty-two before me, a Notary Public of the State of _____ personally appeared * _____ (Witness), who, being duly sworn, doth depose and make proof to my satisfaction, that he/she well knows the corporate seal of _____ Contractor named in the foregoing contract, that the seal affixed is the proper corporate seal of said Contractor, that the same was so affixed thereto and the said contract signed by _____ who was at the date and execution thereof, the _____ of said company, in the presence of said deponent, as the voluntary act and deed of said company, and that the said deponent thereupon signed the same as subscribing witness.

NOTARY PUBLIC

* _____
WITNESS' SIGNATURE

SWORN AND SUBSCRIBED TO BEFORE

TYPED SIGNATURE

ME THIS _____ DAY OF

_____, 2022.

TITLE

***Please note – this page must be completed by the person who attested/witnessed the execution of the contract on page C-33.**

CONTRACT #2086R

CERTIFICATE OF ACKNOWLEDGEMENT
FOR CONTRACTOR (INDIVIDUAL)

STATE OF }
 S.S.
COUNTY OF }

BE IT REMEMBERED, that on this _____ day of _____ in the year of our Lord, Two Thousand and Twenty-two before me a Notary Public of the State of _____ personally appeared _____ who being by me duly sworn, doth depose and make proof to my satisfaction, that he (she) is the Contractor named in the foregoing contract, and the said contract signed by him (her) voluntary act and deed.

(CONTRACTOR)

(TYPED SIGNATURE)

NOTARY PUBLIC:

SWORN AND SUBSCRIBED TO BEFORE

ME THIS _____ DAY OF

_____ 2022.

CERTIFICATE OF ACKNOWLEDGEMENT
FOR COMMISSION

STATE OF }
 S.S.
COUNTY OF }

BE IT REMEMBERED, that on this _____ day of _____ in the year of our Lord, Two Thousand and Twenty-two before me personally appeared **KIM DIAMOND**, (Commission Secretary) who being by me duly sworn, doth depose and make proof to my satisfaction, that she well knows the corporate seal of the North Jersey District Water Supply Commission, the Commission named in the foregoing contract, that the seal thereto affixed is the proper corporate seal of said Commission, that the same was so affixed thereto and the said contract signed by **DR. HOWARD L. BURRELL**, who was at the date and execution thereof, the Chairman of the North Jersey District Water Supply Commission, in the presence of the said deponent, as the voluntary act and deed of the said Commission, and that the said deponent thereupon signed the same as subscribing witness.

KIM DIAMOND, COMMISSION SECRETARY

NOTARY PUBLIC:

SWORN AND SUBSCRIBED TO BEFORE

ME THIS _____ DAY OF

_____ 2022

APPENDIX #1

SPECIAL INSTRUCTIONS (COMPLETE DURING BID PHASE)

APPENDIX #1

SPECIAL INSTRUCTIONS TO BIDDERS
(Complete During Bid Phase)
(for Re-Bid CONTRACT #2086R)

January 2022

Bidders shall acknowledge on the last page of these Instructions and in the Bid Form that they have read and understood these Special Instructions.

SECTION 1

Changes to “Specification for Supply & Installation Rehabilitation of an Existing Potassium Permanganate Storage & Feed System. Section 111000.

- 1) Section 2.09, Silo Bin vent Filters, page 8 of 18
Supply of Silo Bin Vent Filters is taken out of the base scope and is requested to be provided as two (2) options; Option #5 as a rebuild of the existing unit and Option #6 as a new unit.
- 2) Section 2.10, Exhaust Fan, page 8 of 18.
Delete requirement for Exhaust Fan.
- 3) Section 2.13, Painting, page 10 of 18
Painting items B, C & D are removed from the Base Bid and shall be bid separately as Options #2, #7, #8 and #9.
- 4) Section 2.14, Dehumidification, page 11 of 18
Delete requirement for Dehumidification.
- 5) Section 2.15, Lighting, page 11 of 18
Delete requirement for Lighting.
- 6) Section 2.12, Platforms, Deck, Stairs, page 10 of 18
More detail is being provided to better define this task. Please see Sketch #1 at the end of this Appendix.
- 7) INTRODUCTION, last paragraph, add “except for the minimum time required to install the new splitting tank.” after “at all times”
- 8) Appendix #1 – SPECIAL INSTRUCTIONS DURING CONSTRUCTION PHASE has been changed to SECTION 4.02 in the **Table of Contents** and in PART 4.
- 9) Appendix #2 – SAFETY DATA SHEET for Pot Perm has been changed from Appendix #2 to SAFETY DATA SHEET FOR POT PERM at the end of SECTION 111000.

SECTION 2

Summary of Options

♦ Option #1 – Emptying Silos

This task, as described in the original bid document was to include storage costs if all of the Pot Perm could not be stored in one silo.

It has been determined that all of the Pot Perm in the two silos will fit into one silo. The requirement to provide additional storage no longer exists.

The quantity of material in each silo is as follows:

East silo	20,000 lbs. or 200 cu-ft.
West silo	24,000 lbs. or 240 cu-ft.

The quantity of material to be moved is approximately 64,000 lbs. or 640 cu-ft.

Bidders are now being requested to explain in their bid the method of moving the Pot Perm from one silo to the other. The description should include the type of equipment involved and the expected transfer rate. If air is utilized to be the conveying method then the following information shall be provided.

- Source, compressor, PD Blower, Fan, etc
- Pressure
- Will the air be oil free?
- Dew point of compressed air if over 15 psig at the compressor discharge

Be advised that the Pot Perm shall not be exposed to any oil or moisture as it will damage the Pot Perm.

The transfer method shall be totally enclosed and not create a dust condition in the Pot Perm room. The silos shall not be placed under vacuum or pressure at any time.

The silo fill lines from truck unloading may be used as part of the method employed. If used, these lines need to be returned to their original condition.

♦ Option #2 – Silo Interior Panting

No change from original option #2

♦ Option #3 – Disposal of Wash-Down Water

This option has been DELETED.

The original requirement was to collect and dispose of the wash down water off site. This is changed to the washdown water may be disposed of onsite through the Pot Perm room floor drains.

◆ **Option #4 – Extended Warranty**

This option now only requires a 2 year warranty.

◆ **Option #5 – Rebuild Silo Bin Vent Filter**

No change from original Option #5. See technical details in section 2.09.

The base bid should NOT contain a rebuilt bin vent filter assembly.

Bidders are requested to provide, as an option price, rebuild of the two existing bin vent filters in case sufficient access is not available to install two new bin vent filters.

As a minimum, the following work shall be done to rebuild the existing bin vent filters:

- Inspect and repair housing and tube sheet
- Replace bags. Cartridge type bags can be used but are not mandatory
- Replace door gaskets
- Replace pulse jet cleaning system including controls, compressed air header, venturis, solenoids, poppet valves
- Paint both the interior and exterior housing

◆ **Option #6 – Supply New Silo Bin Vent Filters**

See technical details in section 2.09, page 8 of 18

The base bid should NOT contain a new bin vent filter assembly. Bidders should verify adequate access to get the assembly up onto the roof of the silos. Cartridge type bags can be used to decrease the size of the bin vent filter assembly. A pulse jet cleaning system shall be used for bag cleaning.

The price is to include a fully installed, working bin vent filter taking into account limited access conditions.

◆ **Option #7 – Pot Perm Room Painting**

See technical details in section 2.13 “A” & “B”

◆ **Option #8 – Structural Steel Painting**

See technical details in section 2.13 “A” & “C”

◆ **Option #9 – Silo Exterior Painting**

See technical details in section 2.13 “A” & “D”

◆ **Option #10 – Spare Parts**

The following spare parts shall be part of this option.

- One (1) Feeder Drive Motor
- One (1) PLC processor of each type
- One (1) Screw Feeder Auger

- Two (2) Silo Bin Vent Filter Poppet Solenoid Valves
- One (1) Level Detector of each type on the wetting cone & silo
- One (1) Silo Hopper Vibrator

SECTION 3

Clarifications to Questions which have been issued under Original Bid Contract #2086

Clarifications No. 1 thru 5 apply except were modified above & noted below. The Clarifications are included in Exhibit "C".

1) Clarification No. 1

- Answer #8 regarding "Design Professional Liability Insurance".

Any licensed professional(s) working on the project shall possess Design Professionals Liability Insurance.

- Answer #11 regarding "Builders Risk Insurance".

Builder's Risk Insurance is necessary to cover the work to be performed under this Contract; Contractor shall provide proof of same in accordance with the "Evidence of Insurance" requirements set forth in Paragraph 5 of Article VII.

- Answer #23 is modified as noted above in SECTION 2, Option #1
- Answer #32 is modified as noted above in SECTION 1, Item 6)

2) Clarification No. 2

- No modifications

3) Clarification No. 3

- All Answers are related to SECTION 2, Option #1 above.

4) Clarification No. 4

- No modifications

5) Clarification No. 5

- No modifications

SECTION 4

Reiteration of Special Instructions (to complete during bid phase)

- 1) All bidders shall complete the Questionnaire which is in Appendix # 2.
- 2) The scope of supply & work for this project is expressly noted that the Bidder will deliver an operating system. This includes that the bidder will supply all of the parts & pieces whether they be mechanical, electrical, piping, civil & etc.

Bidder shall review in detail with their subcontractors to insure this requirement is met.

No cost extras will be accepted to provide an operable system.

- 3) Proposal shall include a General Arrangement "GA" drawing depicting the equipment arrangement from the silo outlet flange to the customers delivery point showing the arrangement of the splitting arrangement. The drawing shall show both plan & elevation views with vertical & horizontal dimensions shown for all components in the system.

Components in the system include the following:

- Manual knife gate on silo outlet
- Feeder inlet hopper
- Feeder
- Wetting Cone
- Wetting Cone discharge piping
- Splitter Arrangement
- Gravity transport lines from splitting tank

Bidders are responsible to take the necessary field measurements to ensure the new equipment fits within the available space without raising the silos.

The elevation of the silos shall not be changed in order to fit the equipment in. Also, the new gravity feed lines from the splitting assembly shall remain above the concrete floor in their present elevation.

- 4) The supplier of feed equipment from the silo outlet to, and including, the splitting assembly and control system, shall be located no further than a 4-hour drive from Wanaque, NJ. This is to facilitate prompt response time and reduced cost for onsite technical service calls.
- 5) Bidder is responsible to ensure all equipment & system components shall be of such size and weight to be capable of being brought into the building and installed in place utilizing existing doorways, hallways, passageways, elevator & space around silos. If there is not enough room through these areas, the bidder is responsible for the cost to provide an alternate means to get the equipment into place. If used, the surfaces of the elevator must be protected throughout the duration of the project.

The requirement for "alternate means" shall be described and noted in detail in the bid.

- 6) The following information shall be provided with the bid.

- a) Eductor & orifice size
 - b) System water pressure & flow requirements
- 7) The following information shall be provided with the bid
- a) Description of field assembly requirements.
 - b) List of components to be shop assembled and remained assembled for shipment.
 - c) An electrical load list.
 - d) Project schedule detailing the following: (Bar Chart format is acceptable.)
 - Engineering & Procurement phase, Drawing submittal date, Fabrication period, and Ship date.
 - Construction activities
 - 10 Day Acceptance Test

I have read and understand these Special Instructions

(CONTRACTOR)

BY: _____

SIGNATURE

PRINT NAME AND TITLE

APPENDIX #2

QUESTIONNAIRE
(COMPLETE DURING BID PHASE)

1. Bidder to acknowledge that no exceptions are being taken to bid documents.

Response:

2. Has bidder submitted a GA drawing as described in Appendix #1 - "Special Instructions", SECTION 4 Item 3) with bid?

Response:

3. Reference SECTION 4 Item 5) in Appendix #1 - "Special Instructions". Are "Alternate Means" required to get the equipment into place?

Response:

4. Does Bidder understand that one feed train needs to be kept available for service at all times except for the minimum time required to install the new splitting tank?

Response:

5. Does the Bidder understand the SAFETY requirements as noted in EXHIBIT "A" - "Specification for Supply & Installation; Rehabilitation of an Existing Potassium Permanganate Storage & Feed System" SECTION 111000?

Response:

EXHIBIT "A"

SPECIFICATION FOR SUPPLY & INSTALLATION

SECTION 111000

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INTRODUCTION

The existing Pot Perm (Potassium Permanganate) storage & feed system consists of two complete independent feed trains including two separate silos. The only component shared between the two trains is the spitting / mixing tank.

Work consists of rehabilitating both trains with new equipment. The only component of the existing system to be reused are the storage silos.

During construction & installation of the new equipment, one train MUST have the ability to remain operable at all times.

System Description

The major Components of the new system for each train consists of the following items.

- Storage Silo with bin vent filter & level instrumentation (Silos will be reused)
- Knife Gate on silo outlet
- Volumetric Feeder
- Wetting Cone
- Splitter Piping to deliver Pot Perm to two application points
- Control System including Motor Controls

Scope of Supply & Work

A Complete and Operating System shall be Supplied & Installed and is to include all mechanical, electrical, instrumentation & controls, piping, painting, structural components as necessary, Start-Up & Commissioning and training.

The Owner is not supplying any of the system components. All materials & components and labor to install are to be supplied as part of the Contractors scope of supply and work.

Additional Included Items.

- Cleaning & Wash Down of the Pot Perm room
- Demolition and disposal of existing system
- Emptying of Pot Perm silos

DEFINITION OF TERMS

Pot Perm KMnO₄, Potassium Permanganate

SAFETY

Pot Perm is a flammable chemical and is easily ignited with open flame & sparks.

See Appendix #2, Safety Data Sheet "SDS" for Pot Perm

Before work starts, Contractor shall clean the entire room, ceiling to floor. The first step is to vacuum loose Pot Perm and then to water wash. Waste water shall be disposed of by the Contractor. During water washing Contractor shall cover equipment that is to remain in service and take the necessary precautions to protect that equipment.

No work of any kind can be performed on the train which must remain operable. This train may or may not be running at any point in time depending on the Water Treatment Plant process requirements.

Before work starts on the train to be replaced, flame retardant shields shall be placed around the operable train to protect it from flames, hot slag, sparks, etc to prevent Pot Perm to be ignited on that train.

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Under this item, the contractor shall furnish and install, to manufacturer's recommendations two (2) complete dry chemical feeding systems each equipped with a volumetric feeder, wetting cone assembly and delivery arrangement all as describe below.
- B. The feeders shall be the volumetric dry solids type for feeding potassium permanganate, with an approximate bulk density of 90-100 pounds per cubic feet, at a maximum rate of 57 pounds per hour and a minimum rate of 3 pounds per hour.
- C. All components of the feed system must be capable of being brought into the Pot Perm room without building modification or disassembly. The assembled system must be able to accommodate the approximate 91" height restriction under the existing storage silos. All dimensions and measurements to be field checked by bidders as part of the bid process.
- D. The wetting cone discharge from each train must be split evenly within +/- 5% to feed the Commission's two applications points.

- E. Design of the system and all of its components shall be dust free whether in operation or not.
- F. All material, equipment & components being replaced shall be dismantled & disposed of by Contractor.

1.02 QUALITY ASSURANCE

- A. The dry chemical feeder/dissolver system shall be furnished by a single designer/supplier/manufacturer, with all manufacturing and assembly of the equipment and controls carried out in the supplier's facilities. The system shall be pre-assembled, pre-piped, pre-wired, and tested at the factory to be delivered to the site ready for installation and start-up.
- B. The single designer/supplier/manufacturer shall have a minimum of 15 years of experience in providing similar equipment in municipal installations.
- C. The system shall be as manufactured by Acrison, Inc., Moonachie, NJ or approved equal

PART 2 - PRODUCTS

2.01 VOLUMETRIC FEEDER

- A. The feeder shall employ a dissimilar speed, Double Concentric Auger Metering Mechanism mechanically geared together in a specific ratio to each other that produces uniform product density for accurate and continuous material feed without flooding, bridging or voids. The feeder housing shall be dust-tight with a minimum of 11 gauge stainless steel construction. The feeder shall be heavy-duty and designed to provide easy cleaning without the need for removing the feeder from its mounting, or disassembling flexible connectors, hoppers, or removing the wetting cone. The feeder shall be constructed to provide complete access to its internal components by simply removing its discharge spout. The feeder's double augers, drive shafts and seal housing shall be constructed of 304 stainless steel; the seals shall be synthetic.
- B. The Double Concentric Auger Metering Mechanism shall consist of a solid flight metering auger and a concentric, 6-inch diameter conditioning auger (Intromitter) operating in a mechanically "fixed-ratio" to each other. The

larger conditioning auger (Intromitter) shall span the full length of the feeder chamber and shall be driven at a slower speed than the smaller metering auger, filling the auger from a full 360 degrees, thereby eliminating the possibility of the metering auger not filling with material. This mechanical design shall increase the torque capability associated with the large conditioning auger (Intromitter) to ensure low speed starting. The feeder shall be powered by a single, AC inverter duty motor.

- C. All chemical contact areas of the feeder including the double augers, seal assembly and discharge cylinder shall be constructed of 304 stainless steel or better. Minimum sheet metal thickness shall be 11 gauge and all welds shall be continuous.
- D. The feeders shall have a metering accuracy of $\pm 1.0\%$ (error) of set rate based on a given number of consecutive samples.
- E. A flow/no-flow device shall be mounted on the downspout of the feeder discharge to detect a no-flow situation, and signal an alarm. The device shall use Doppler-shift technology and include a user adjustable time-delay setting

2.02 FEEDER HOPPER

- A. The feeder shall be supplied with an integral supply hopper to provide a minimum of 4 cubic feet of storage capacity. The hopper shall be supplied with a bolted, gasketed cover, with a circular collar inlet to mate with the knife gate on the silo outlet. The hopper and cover shall be constructed of 11 gauge 304 stainless steel.
- B. The feeder/hopper assembly shall be placed on a steel frame base capable of supporting the feeder and its accessories. The base shall be supplied by the feeder manufacturer and finished same as the feeder.
- C. The feeder hopper shall be equipped with a low level paddle type probe or tuning (vibrating) fork type sensor to start and stop the operation of the silo hopper vibrator. Systems that operate continuously or rely on timers will not be considered acceptable.

2.03 KNIFE GATE

- A. A manually operated knife gate shall be mounted at the silo outlet for maintenance purposes. Slide gate shall be dust-tight, and have stainless steel product contact areas. A manual hand wheel shall be provided. The knife gate shall be provided by either Orbinox or Salina Vortex or equivalent.

2.04 SUPPORT STRUCTURE

- A. Each major component of the feed system, including the Volumetric Feeder Inlet Hopper shall be mounted to a common support structure. The support structure shall be fabricated from 3 inch square stainless steel tubing and shall be designed to elevate the volumetric feeder adjacent to the wetting cone.

2.05 WETTING CONE

- A. The feeder shall discharge into a 316 stainless steel wetting cone with a PVC eductor. The wetting cone shall be designed to trap material as it is discharged from the feeder, and to completely wet the chemical before it is applied to the process.
- B. The current application lines discharge from a proportional weir splitter box via gravity to the application points. Feeder manufacture to determine new TDH and appropriately size eductor based on new system design. Available water supply is 100 GPM at 80 PSIG. Bidders are to state in bid water supply GPM & PSIG requirements. Water supply requirements shall be minimized as much as possible. Bidder shall include in scope the replacement of the existing water line, if necessary, from lime room to the Pot Perm room to install a larger line for any increase in flow demand. The Lime Room is adjacent to the Pot Perm room
- C. The inlet water line of the wetting cone shall include a solenoid valve for on/off control of water flow and a pressure switch to signal a loss of water pressure. A suitably sized PVC/acrylic rotameter and a brass/bronze throttling valve shall be supplied to control water inflow if necessary.
- D. If wetting cone requires pressure that exceeds the Commission current water supply, then all required equipment including booster pump, piping, valving, motor starter, and controls shall be supplied by the bidder, one for each feed train.

- E. The discharge line from the wetting cone shall be evenly split into two existing chemical application lines each with a means for isolation. Flow balancing shall be provided. Flow indication shall be provided in each line.

2.06 SPLITTING ARRANGEMENT

- A. The purpose of the splitting arrangement is to provide two output streams with an equal flow within 5% of each other for delivery of Pot Perm to the water treatment plant.
- B. The Wetting Cone will discharge into the Splitting Tank. The Splitting Tank will have two discharges to deliver the solution to the water treatment system.
- C. The splitting arrangement shall provide means to adjust & verify flow thru the use of flow indicators.
- D. The splitting arrangement shall also provide a means to isolate either side and direct all flow to the open side.

2.07 SILO VIBRATORS

- A. Silo Vibrators shall be replaced with new units capable of providing the same force to move materials as the existing vibrator which is a 115 Volt, 60 Hertz, 16 amp, Syntron Vibra-Flow Model V-75A by FMC Corporation.
- B. Vibrator to provide positive discharge of the material on a first-in/first-out basis, without causing compaction, degradation, or attrition
- C. Vibration shall be produced by a totally enclosed, permanently lubricated, adjustable motor driven vibrator.

2.08 SILO LEVEL INDICATORS

- A. Existing Silo Bindicators, two per silo, shall be replaced with new level switches. The existing Bindicators are 115 Volt, Model RA5.
- B. The level probes shall be rotating paddle type or tuning (vibrating) fork type, with the sensing unit suitable for outdoor mounting.
- C. A continuous level sensor shall also be furnished on the silo roof for monitoring level in the silo storage area. The level sensor shall be radar type with 316 stainless steel wire rope. The level sensor shall have a 4-20

mA analog output wired to a 0-100% level display device located in the system control panel, truck unloading panel and remote indication in the plants main control room

2.09 SILO BIN VENT FILTERS

- A. A silo bin vent filter dust collector of the pulse jet design shall be provided for mounting on top of the silo. Compressed air shall be used for pulse jet cleaning the filters bags. Cartridge or fabric bags are acceptable based on system supplier's experience.
- B. If fabric bags or cartridge filters are used, the pulse jet cleaning mechanism shall consist of a compressed air header, diaphragm valves, solenoid valves, a pressure gauge, a condensate drain petcock, and any associated appurtenances.
- C. The dust collector shall be fabricated of a minimum of 12-gauge carbon steel, and shall be painted the manufacturer's standard color. All connection hardware shall be stainless steel.
- D. Bag clean logic shall include low compressed air pressure permissive & alarm. Available compressed air pressure is 80psig min.
- E. Silo Bin Vent Filters shall be replaced with new units that are capable of adequately handling delivery truck blower volumes as well as fitting in the limited space available above the permanganate silos. The existing units are Flex-Kleen model 58-BVS-36-II. Bidder is responsible to insure adequate space exists to get the new units on top of the silos. No building openings are allowed to accomplish this.

2.10 EXHAUST FAN (For Pot Perm Room)

- A. The existing exhaust fan, louvers, and screen shall be replaced.

2.11 CONTROLS

- A. A NEMA 4 304SS control enclosure shall be supplied loose for field mounting within the Pot Perm room. There shall be 2 separate control enclosures, one dedicated for each train. The enclosure shall house all

motor starters and Variable Frequency Drives (VFD's) for the system. The VFD's shall be Emerson PAC Motion. A main disconnect switch shall also be provided. Hand/off/auto switches with indicator lights shall be provided for all devices. Control panel shall operate on 480V power and contain internal step down transformer(s) as required. Control Panel shall be capable of communicating with the existing Plant SCADA inclusive of all alarms, statuses and remote operations. The interface with the SCADA system will be the Ethernet port(s) on the PLC CPU(s). Local control on the control cabinet will interface with the PLC but there should be a method to run the Pot Perm system in the event that a PLC fails.

- B. Control panel shall house the Emerson PAC Systems Rx3i microprocessor controllers for both volumetric feeders and all other necessary controls and motor starters.

The microprocessor controller shall employ latest state-of-the-art technology, specifically designed for volumetric feeder control. The unit shall have the ability to be controlled from either manually entered set points or remote analog or digital signals. The operator interface shall consist of Emerson Quick Panel Plus with a 15" screen. The controller shall have as standard:

1. Touch keyboard entry of all data
2. Digital display of operational data
3. Fully isolated analog and digital inputs and outputs for full remote operation and status indication
4. Non-Volatile storage of calibration and operating data
5. Feed totalization

- C. The control panel shall also include the following additional functions, switches and statuses:

1. System Hand/Off/Auto Switch with Run and Alarm Lights
2. Feeder Hand/Off/Auto Switch with Run and Alarm Lights
3. Feeder Rate and Feed Rate set point
4. Silo Vibrator Hand/Off/Auto Switch with Run Lights
5. Solenoid Hand/Off/Auto Switch with Open Light
6. Hopper Low and Low/Low Level Alarms and Lights
7. Wetting Cone High Level Alarm and Lights
8. Water Supply low pressure alarm and light
9. Silo level
10. Dry Contacts as required

Red is running. Green is off.

- D. A NEMA 4 SS304 truck unloading station control enclosure shall be supplied loose for field mounting, outside, on the Chemical Building exterior wall. The truck Unloading Panel shall interface with the main control panel PLC.
1. The system shall operate on 115 volt, single phase, 60 Hz power supply received from the main control panel.
 2. A micro switch with rocker arm shall be provided at the inlet end of the fill pipe. The switch actuation shall automatically energize the silo vent dust collector fan whenever the fill pipe cover is removed.
 3. The panel shall be equipped, at a minimum, with the following components.
 - a. Audible Alarm Horn
 - b. Power On/Off Switch
 - c. Power On Light
 - d. Dust Collector Hand/Off/Auto Switch
 - e. Dust Collector On Light
 - f. Silo Low Level Alarm Light
 - g. Silo High-Level Alarm Light
 - h. Alarm Acknowledge Pushbutton
 - i. Silo continuous level indication (Precision Digital PD765 Series)

2.12 PLATFORMS, DECK, STAIRS

- A. As required for operations or maintenance purposes, a platform and stairs shall be provided. All components shall be OSHA compliant.
- B. Rework platform at the top of the silos to be OSHA compliant.
- Install an access way to get from the main platform to the area between the silos.
 - Rework ladder and all handrail & toe kick boards as necessary
 - Replace grating between silos along with structural support
 - Replace / install handrail on top of silos to provide full protection on silo roofs at all locations anywhere on top of silo.

2.13 PAINTING

- A. See Painting Spec 090100

- B. The entire Pot Perm room is to be painted. This includes the walls, doors and ceiling. The floor does not get painted.
- C. All structural steel gets painted.
- D. The Silo exterior gets painted.

2.14 DEHUMIDIFICATION

- A. Two (2) dehumidifiers shall be provided as manufactured by Quest / Therma-Stor, Model HI-E DRY 195 or equivalent.
- B. Each shall be located on the floor elevation of the Pot Perm room. One should be located in the northeast corner of the Pot Perm room and the other diagonally across the room.
- C. One of the units discharge shall be ducted to the top of the silo elevation for air distribution.
- D. Two new 20 amp electric outlets on dedicated circuits, one for each dehumidifier shall be installed.

2.15 LIGHTING

- A. Contractor to replace existing ceiling and wall mounted light fixtures. All new fixtures shall be LED.
- B. Illumination shall be 50 foot candles on silo tops and throughout the floor level of the Pot Perm room.

2.16 ELECTRICAL

- A. Install power to new equipment as necessary. Existing wiring shall not be reused. Existing conduit within the Pot Perm room shall not be reused.
- B. Electric power is available from an adjacent MCC room.

2.17 SILO HATCHES (Manway)

- A. The silo hatches shall be inspected and rebuilt as necessary so they are air tight. As a minimum new gaskets shall be installed.

2.18 SILO PRESSURE VACUUM RELIEFS

- A. The pressure vacuum relief on each silo shall be replaced with an in kind new unit.

2.19 TRUCK UNLOADING LINES

- A. There are 2 truck unloading lines, one for each silo.
- B. Each line shall be pressure tested to 1 psig and any leaks identified. A price shall then be provided to repair the leaks.

PART 3 – EXECUTION

3.01 ENGINEERING AND SHOP DRAWINGS

- A. Submit shop drawings and engineering data in accordance with the following requirements.
 - 1. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared. This shall include but not be limited to:
 - i. Design data on each component of the system.
 - ii. Anchor bolt layout plans and sizes.
 - iii. Individual catalog cuts on every component of the system.
 - iv. Electrical drawings showing wiring schematics, point to point drawings, panel layouts, bill of materials, and enclosure door layout.
 - v. General arrangement drawings showing arrangement of the equipment, interfaces with other systems and site components.
 - vi. Coating system to be used on the storage silo.
 - vii. Written description of system operation
 - viii. System P&IDs

- ix. PLC Ladder Logic
- x. I/O List

- 2. Signed and sealed structural drawings and calculations prepared by a licensed NJ Professional Engineer.

B. Shop drawings shall be prepared and assembled by the selected manufacturer. Shop drawings prepared and assembled by manufacturer's sales representatives, fabrication shops or other than the selected manufacturer will not be accepted.

C. Operation and maintenance manuals shall be furnished in accordance with the following requirements:

- 1. Each manual shall include a title page which includes the equipment covered and shall include the manufacturer's address, phone number, email, and contact; manufacturer's equipment name and model number.
- 2. Each manual shall include a table of contents identifying the location of each item and component supplied.
- 3. For all equipment, the Contractor shall furnish a complete, detailed listing of all equipment components and accessories showing component name, manufacturer, model number and quantity information shall be furnished for each component. Data sheets with multiple entries shall be marked to indicate the specific items being used. Provide in the following format:
 - i. A summary page shall be provided for each piece of equipment detailing the following information:
 - 1. Equipment Number
 - 2. Equipment Description
 - 3. Serial Number
 - 4. Model Number
 - 5. Manufacturer/Supplier/Local Service Provider
 - a. Address

- b. Phone
 - c. Representative
 - 6. Equipment Design Criteria
 - 7. Performance Data
 - 8. Normal Operating Characteristics
 - 9. Limiting Conditions
- ii. Detailed disassembly, overhaul and reassembly, installation, alignment, adjustment and checking instructions.
 - iii. Detailed operating instructions for start-up, calibration, routine and normal operation, regulation and control, safety, shutdown and emergency conditions. Detailed list of settings for relays, pressure switches, temperature switches, level switches, thermostats, alarms, relief valves, rupture discs, etc.
 - iv. Detailed preventative maintenance procedures and schedules, including detailed lubrication instructions and schedules, identification of required lubricants and operating fluids (description, specification and trade name of at least two manufacturers), and diagrams illustrating lubrication points.
 - v. Detailed guide to equipment and/or process “troubleshooting”.
 - vi. Detailed parts lists identified by title, materials of construction, manufacturer's part number, list of recommended spare parts , current cost list for recommended spare parts, predicted life of parts subject to wear, and an exploded or concise cut-away view of each equipment assembly.
 - vii. Electrical and instrumentation schematics, including motor control centers, control panels, wiring diagrams, instrument panels and analyzer panels.

- viii. List of all special tools supplied and description of their use. Special tools include any tool not normally available in an industrial hardware or mill supply house.
 - ix. List of names and addresses of nearest service centers for parts, overhaul and service.
 - x. Procedures for storing, handling and disposing of any chemicals or products used with the equipment or system.
 - xi. For equipment and systems, also provide the following:
 - 1. Control and wiring diagrams provided by the controls manufacturer.
 - 2. Sequence of operations by the controls manufacturer.
 - 3. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - xii. The supplier's operation and maintenance information will address the particular equipment furnished, with specific details on operation and maintenance practices. General data is not acceptable. Information contained in the manual which is not appropriate to the Project shall be marked out and noted as "N/A".
- D. In addition, Manufacture will supply the following for review:
- 1. Complete dimensional system drawings and assemblies drawings
 - 2. Final as-built drawings will be provided in electronic CAD format
 - 3. Electrical schematics
 - 4. Control Panel layout drawings and point to point ladder logic diagrams
 - 5. Functional schematics and/or P&ID diagrams

3.02 MANUFACTURER'S OPERATIONS AND MAINTENANCE TRAINING

- A. The equipment manufacturer shall provide a full operations and maintenance manual for the systems and all components as describe above:

- B. An electronic Excel spreadsheet of all assets to be uploaded into the Commission's CMMS system along with preventative maintenance plans shall be provided.
- C. Checkout of final installation, start-up, and instruction of operating personnel shall be performed by the manufacturer's field service personnel
- D. The equipment manufacturer shall provide 4 trips, 8 days total of installation inspection, start-up and operator training.

3.03 CODES AND REFERENCES

The Potassium Permanganate System described herein shall at a minimum comply with the following codes as applicable:

- 1. Uniform Construction Code, State of New Jersey, 2015
- 2. International Building Code, New Jersey Edition, 2015
- 3. International Mechanical Code, 2015
- 4. American Society of Heating, Refrigerating and Air Conditioning Engineers 90.1-2013.
- 5. National Standard Plumbing Code, 2015
- 6. NFPA 70: National Electric Code, 2014
- 7. NFPA 72: National Fire Alarm and Signaling Code, latest edition
- 8. NFPA 101: Life Safety Code, latest edition
- 9. ASCE 7-10

3.04 SPARE PARTS

The system manufacturer will also furnish a recommended spare parts inventory for their respective equipment to satisfy normal requirements for a period of one year of operation, minimum.

3.05 ACCEPTANCE TEST RUN

A 10 day Acceptance test Run shall be required before Owner accepts custody of the system. If any operational problem(s) are encountered, the test run shall restart for another full 10 days after the problem(s) are fixed.

A successful 10 day Acceptance Test Run shall be achieved before work starts on the second feed train.

3.06 WARRANTY

The Potassium Permanganate System manufacturer shall provide a 1-year warranty against defective material and workmanship. The warranty period shall begin on the date of Owner acceptance of the system start-up.

PART 4 – INSTALLATION

4.01 INSTALLATION

See SAFETY Section (@ beginning of this document) before starting work.

- A. The system shall be installed by the contractor in strict conformance with the manufacturer's installation instructions. Checkout of final installation, start-up, and instruction of operating personnel shall be performed by the manufacturer's field service personnel.
- B. All mechanical and electrical installation materials and labor shall be provided by the contractor for all interconnecting piping, conduit, wiring, structural steel, anchoring, etc. to provide a complete turnkey system.
- C. All mechanical and electrical installation materials and labor for the installation of ancillary valves, fittings, appurtenance, shipped loose items, etc. not specifically listed within this specification as needed for a complete turnkey system shall be provide by the contractor.
- D. All mechanical labor for the installation of platforms, decks and stairs shall be provided by the contractor.
- E. Contractor responsible for disposal of all removed, replaced, or demolished equipment.
- F. Only one system can out of service at a time. A ten (10) day successful testing period of the new system will be required prior to taking the second system out of service for demolition.

4.02 SPECIAL INSTRUCTIONS DURING CONSTRUCTION PHASE

- A. 24 hour notice is required for any requests of Owner. Examples of such requests are as follows but are not limited to:
 - 1. Site access of Contractor new personnel that have not been initially cleared. This includes Contractors Subcontractors.
 - 2. Special parking access
 - 3. Hot Work Permits
 - 4. Confined Space Entries

- B. Contractors on site Supervisor shall coordinate with the Main Gate regarding deliveries. Contractor shall go to Main Gate to guide deliveries to unloading point.
- C. The Pot Perm system is needed for continuous operation of the plant. As such only one train can be worked on at a time.
- D. No demolition shall start without Owners approval.

SAFETY DATA SHEET FOR POT PERM



SAFETY DATA SHEET

1. Identification

Product identifier	CAIROX® potassium permanganate
Other means of identification	
SDS number	-
CAS number	7722-64-7
Recommended use	Potassium Permanganate is an oxidant recommended for applications that require a strong oxidant.
Recommended restrictions	Use in accordance with supplier's recommendations.
Manufacturer/Importer/Supplier/Distributor information	
Company name	CARUS CORPORATION
Address	315 Fifth Street, Peru, IL 61354, USA
Telephone	+1 815 223-1500 - All other non-emergency inquiries about the product should be directed to the company
E-mail	salesmkt@caruscorporation.com
Website	www.caruscorporation.com
Contact person	Shelley Corban
Emergency Telephone	For Hazardous Materials [or Dangerous Goods] Incidents ONLY (spill, leak, fire, exposure or accident), call CHEMTREC at CHEMTREC®, USA: 001 (800) 424-9300 CHEMTREC®, Mexico (Toll-Free - must be dialed from within country): 01-800-681-9531 CHEMTREC®, Other countries: 001 (703) 527-3887

2. Hazard(s) identification

Physical hazards	Oxidizing solids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1C
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, repeated exposure	Category 2 (Liver)
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Not classified.	
Label elements		



Signal word Danger

Hazard statement May intensify fire; oxidizer. Harmful if swallowed. Causes severe skin burns and eye damage. May cause damage to organs (Liver) through prolonged or repeated exposure by ingestion. Very toxic to aquatic life with long lasting effects.

Precautionary statement	
Prevention	Keep away from heat. Keep/Store away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not breathe dust. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Avoid release to the environment.
Response	In case of fire: Use water for extinction. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Get medical advice/attention if you feel unwell. Wash contaminated clothing before reuse. Collect spillage.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Potassium permanganate		7722-64-7	> 97.5

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Get medical attention immediately.
Skin contact	Take off immediately all contaminated clothing. Immediately flush skin with plenty of water. Get medical attention immediately. Wash contaminated clothing before reuse.
Eye contact	Contact with skin may leave a brown stain of insoluble manganese dioxide. This can be easily removed by washing with a mixture of equal volume of household vinegar and 3% hydrogen peroxide, followed by washing with soap and water. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Continue rinsing. Get medical attention immediately.
Ingestion	Immediately rinse mouth and drink plenty of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Contact with this material will cause burns to the skin, eyes and mucous membranes. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Decomposition products are alkaline. Brown stain is insoluble manganese dioxide.
General information	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. For personal protection, see Section 8 of the SDS. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Flood with water from a distance, water spray or fog.
Unsuitable extinguishing media	The following extinguishing media are ineffective: Dry chemical. Foam. Carbon dioxide (CO ₂). Halogenated materials.
Specific hazards arising from the chemical	May intensify fire; oxidizer. May ignite combustibles (wood, paper, oil, clothing, etc.). Contact with incompatible materials or heat (135 °C / 275 °F) could result in violent exothermic chemical reaction. Oxidizing agent, may cause spontaneous ignition of combustible materials. By heating and fire, corrosive vapors/gases may be formed. During fire, gases hazardous to health may be formed such as: Carbon oxides (CO _x). Metal oxides.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions

Move container from fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Dike fire control water for later disposal. Water runoff can cause environmental damage.

General fire hazards

The product is not flammable. May intensify fire; oxidizer. May ignite combustibles (wood, paper, oil, clothing, etc.). Contact with incompatible materials or heat (135 °C / 275 °F) could result in violent exothermic chemical reaction.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Keep unnecessary personnel away. Keep upwind. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up

Keep combustibles (wood, paper, oil, etc.) away from spilled material. Should not be released into the environment. This product is miscible in water. Stop leak if possible without any risk. Dike the spilled material, where this is possible. Clean up spills immediately by sweeping or shoveling up the material. Do not return spilled material to the original container; transfer to a clean metal or plastic drum. To clean up potassium permanganate solutions, follow either of the following two options:

Option # 1: Dilute to approximately 6% with water, and then reduce with sodium thiosulfate, a bisulfite or ferrous salt solution. The bisulfite or ferrous salt may require some dilute sulfuric acid (10% w/w) to promote reduction. Neutralize with sodium carbonate to neutral pH, if acid was used. Decant or filter and deposit sludge in approved landfill. Where permitted, the sludge may be drained into sewer with large quantities of water.

Option # 2: Absorb with inert media like diatomaceous earth or inert floor dry, collect into a drum and dispose of properly. Do not use saw dust or other incompatible media. Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations pertaining to permanganates.

To clean contaminated floors, flush with abundant quantities of water into sewer, if permitted by federal, state, and local regulations. If not, collect water and treat as described above.

Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.

Environmental precautions

Do not allow to enter drains, sewers or watercourses. Contact local authorities in case of spillage to drain/aquatic environment.

7. Handling and storage**Precautions for safe handling**

Take any precaution to avoid mixing with combustibles. Do not get this material in your eyes, on your skin, or on your clothing. Do not breathe dust or mist or vapor of the solution. Use personal protection as recommended in Section 8 of the SDS. If clothing becomes contaminated, remove and wash off immediately. When using, do not eat, drink or smoke. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep container tightly closed and in a well-ventilated place. Store in a cool, dry place. Store away from incompatible materials (See Section 10). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Potassium permanganate (CAS 7722-64-7)	Ceiling	5 mg/m3

US. ACGIH Threshold Limit Values Material

Material	Type	Value	Form
CAIROX® potassium permanganate	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Potassium permanganate (CAS 7722-64-7)	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value	Form
CAIROX® potassium permanganate	TWA	1 mg/m3	Fume.
Components	Type	Value	Form
Potassium permanganate (CAS 7722-64-7)	STEL	3 mg/m3	Fume.
	TWA	1 mg/m3	Fume.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	Follow standard monitoring procedures.
Appropriate engineering controls	Provide adequate general and local exhaust ventilation. An eye wash and safety shower must be available in the immediate work area.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles). Wear face shield if there is risk of splashes.
Skin protection	
Hand protection	Wear chemical-resistant, impervious gloves. Use protective gloves made of: Rubber or plastic. Suitable gloves can be recommended by the glove supplier.
Skin protection	
Other	Wear appropriate chemical resistant clothing. Rubber or plastic apron.
Respiratory protection	In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Measurement Element: Manganese (Mn) 10 mg/m3 Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100. Any supplied-air respirator. 25 mg/m3 Any supplied-air respirator operated in a continuous-flow mode. Any powered, air-purifying respirator with a high-efficiency particulate filter. 50 mg/m3 Any air-purifying, full-face piece respirator equipped with an N100, R100, or P100 filter. Any supplied-air respirator with a tight-fitting face piece that is operated in a continuous-flow mode. Any powered, air-purifying respirator with a tight-fitting face piece and a high-efficiency particulate filter. Any self-contained breathing apparatus with a full face piece. Any supplied-air respirator with a full face piece. 500 mg/m3 Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode. Emergency or planned entry into unknown concentrations or IDLH conditions - Any self-contained breathing apparatus that has a full face piece and is operated in a pressure-demand or other positive-pressure mode. Escape Any air-purifying, full-face piece respirator equipped with an N100, R100, or P100 filter. Any appropriate escape-type, self-contained breathing apparatus.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Dark purple solid with metallic luster.
Physical state	Solid.
Form	Solid.
Color	Dark purple.
Odor	Odorless.
Odor threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Starts to decompose with evolution of oxygen (O ₂) at temperatures above 150 °C. Once initiated, the decomposition is exothermic and self sustaining.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Non flammable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	2.7 (20 °C) (Water = 1)
Solubility(ies)	
Solubility (water)	6 % (20 °C)
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	464 °F (240 °C)
Viscosity	Not applicable.
Other information	
Density	2.70 g/cm ³
Explosive properties	Not explosive. Can explode in contact with sulfuric acid, peroxides and metal powders.
Molecular formula	H-Mn-O ₄ .K
Molecular weight	158.03 g/mol
Oxidizing properties	Strong oxidizing agent.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Contact with combustible material may cause fire. Can explode in contact with sulfuric acid, peroxides and metal powders. Starts to decompose with evolution of oxygen (O ₂) at temperatures above 150 °C. Once initiated, the decomposition is exothermic and self sustaining.
Conditions to avoid	Contact with incompatible materials or heat (135 °C / 275 °F) could result in violent exothermic chemical reaction.
Incompatible materials	Acids. Peroxides. Reducing agents. Combustible material. Metal powders. Contact with hydrochloric acid liberates chlorine gas.
Hazardous decomposition products	By heating and fire, corrosive vapors/gases may be formed.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause respiratory irritation.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Contact with this material will cause burns to the skin, eyes and mucous membranes. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Components	Species	Test Results
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Potassium permanganate (CAS 7722-64-7)

Acute

Dermal

LD50	Rat	2000 mg/kg
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Oral

LD50	Rat	2000 mg/kg
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Skin corrosion/irritation Causes severe skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity Not classified.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure May cause damage to organs (Liver) through prolonged or repeated exposure by ingestion.

Aspiration hazard Not classified.

Chronic effects May cause damage to respiratory system. Prolonged exposure, usually over many years, to manganese oxide fume/dust can lead to chronic manganese poisoning, chiefly affecting the central nervous system.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Components	Species	Test Results
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Potassium permanganate (CAS 7722-64-7)

Aquatic

Fish	LC50	Bluegill (Lepomis macrochirus)	2.7 mg/l, 96 hours static 2.3 mg/l, 96 hours flow through 2.3 mg/l, 96 hours 1.8 - 5.6 mg/l
		Carp (Cyprinus carpio)	3.16 - 3.77 mg/l, 96 hours

Components	Species	Test Results
		2.97 - 3.11 mg/l, 96 hours
	Goldfish (Carassius auratus)	3.3 - 3.93 mg/l, 96 hours static
	Milkfish, salmon-herring (Chanos chanos)	> 1.4 mg/l, 96 hours
	Rainbow trout (Oncorhynchus mykiss)	1.8 mg/l, 96 hours
		1.08 - 1.38 mg/l, 96 hours
		0.77 - 1.27 mg/l, 96 hours
Persistence and degradability	Expected to be readily converted by oxidizable materials to insoluble manganese oxide.	
Bioaccumulative potential	Potential to bioaccumulate is low.	
Mobility in soil	The product is miscible with water. May spread in water systems.	
Other adverse effects	None known.	
13. Disposal considerations		
Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.	
Hazardous waste code	D001: Ignitable waste The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.	
Waste from residues / unused products	Do not allow this material to drain into sewers/water supplies.	
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Rinse container at least three times to an absence of pink color before disposing. Empty containers should be taken to an approved waste handling site for recycling or disposal.	
14. Transport information		
DOT		
UN number	UN1490	
UN proper shipping name	Potassium permanganate	
Transport hazard class(es)		
Class	5.1	
Subsidiary risk	-	
Label(s)	5.1	
Packing group	II	
Environmental hazards		
Marine pollutant	Yes	
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.	
Special provisions	IB8, IP2, IP4, T3, TP33	
Packaging exceptions	152	
Packaging non bulk	212	
Packaging bulk	240	
IATA		
UN number	UN1490	
UN proper shipping name	Potassium permanganate	
Transport hazard class(es)		
Class	5.1	
Subsidiary risk	-	
Packing group	II	
Environmental hazards	Yes	
ERG Code	5L	
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.	
IMDG		
UN number	UN1490	
UN proper shipping name	POTASSIUM PERMANGANATE	
Transport hazard class(es)		
Class	5.1	
Subsidiary risk	-	
Packing group	II	

Environmental hazards**Marine pollutant**

Yes

EmS

F-H, S-Q

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

General information

IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

15. Regulatory information**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

Drug Enforcement Administration (DEA) (21 CFR 1310.02 (b) 8: List II chemical.

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (6 CFR 27, Appendix A): Listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Potassium permanganate (CAS 7722-64-7) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories

Oxidizer (liquid, solid, or gas)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Potassium permanganate	7722-64-7	> 97.5

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Potassium permanganate (CAS 7722-64-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

Safe Drinking Water Act (SDWA)

Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Potassium permanganate (CAS 7722-64-7) 6579

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Potassium permanganate (CAS 7722-64-7) 15 %WT

DEA Exempt Chemical Mixtures Code Number

Potassium permanganate (CAS 7722-64-7) 6579

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

California OSH Hazardous Substance List: Listed.

US. Massachusetts RTK - Substance List

Potassium permanganate (CAS 7722-64-7)

US. New Jersey Worker and Community Right-to-Know Act

Potassium permanganate (CAS 7722-64-7)

US. Pennsylvania Worker and Community Right-to-Know Law

Potassium permanganate (CAS 7722-64-7)

US. Rhode Island RTK

Not regulated.

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 27-November-2013

Revision date 24-April-2018

Version # 04

HMIS® ratings Health: 3
Flammability: 0
Physical hazard: 1

NFPA ratings**List of abbreviations**

GHS: Globally Harmonized System of Classification and Labeling of hazardous properties of Chemicals.
TWA: Time weighted average.

LD50: Lethal Dose, 50%.

LC50: Lethal Concentration, 50%.

IMDG: International Maritime Dangerous Goods.

IATA: International Air Transport Association.

MARPOL: International Convention for the Prevention of Pollution from Ships.

References

HSDB® - Hazardous Substances Data Bank
Registry of Toxic Effects of Chemical Substances (RTECS)
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

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EXHIBIT “B”

SUPPLEMENTAL SPECIFICATIONS

SUPPLEMENTAL SPECIFICATIONS

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SUPPLEMENTAL SPECIFICATIONS

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260553	Identification for Electrical Systems
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SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if OWNER decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 012300 "Alternates" for products selected under an alternate.
 - 2. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or OWNER that are not required in order to meet other Project requirements but may offer advantage to Contractor and OWNER.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: ***Substitution Requests shall only be permitted at project bid stage, prior to contract award.*** Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: ***Show compliance with requirements for substitutions and the following, as applicable:***
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by OWNER and separate contractors that will be necessary to accommodate proposed substitution.

- c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers, Contractors and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code(s) in effect for Project.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Engineer's / Owner's Action: If necessary, Engineer / Owner will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Engineer/ Owner will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 calendar days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Engineer / Owner will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Engineer / Owner will consider requests for substitution if received prior to the Notice of Award. Requests received after that time may be considered or rejected at discretion of Engineer.
 - 1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers OWNER a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities OWNER must assume. OWNER's additional responsibilities may include compensation to OWNER for redesign and evaluation services, increased cost of other construction by OWNER, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.

- g. Requested substitution is compatible with other portions of the Work.
- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.
- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Engineer will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 PROPOSAL REQUESTS

- A. OWNER-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

- finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Engineer.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

- A. On OWNER's approval of a Work Changes Proposal Request, Construction Manager will issue a Change Order for signatures of OWNER and Contractor.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Change Directive: Construction Manager may issue a Change Directive. Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

- B. Documentation: Maintain detailed records on a time and material basis of work required by the Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Owner at earliest possible date, but no later than 21 days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Owner
 - c. Owners Contract number.
 - d. Contractor's name and address.
 - e. Date of submittal.
2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
 - a. Include separate line items under Contractor and principal subcontracts for project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate OWNER payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Contractor and paid for by OWNER.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Submit Application for Payment to Owner by the last business day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 1. Submit draft copy of Application for Payment by the 20th of each month for review by Owner.
- C. Application for Payment Forms: Use forms acceptable to OWNER for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Each Application for Payment submitted shall be numbered sequentially.
 3. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 4. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 5. Indicate separate amounts for work being carried out under OWNER-requested project acceleration.

- E. **Stored Materials:** Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to OWNER, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. **Transmittal:** Submit one paper and one electronic copy, signed and notarized, of each Application for Payment to Owner by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. **Initial Application for Payment:** Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 5. Products list (preliminary if not final).
 6. LEED action plans (if applicable).
 7. Schedule of unit prices.
 8. Submittal schedule (preliminary if not final).
 9. List of Contractor's staff assignments.
 10. List of Contractor's principal consultants.
 11. Copies of building permits.
 12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 13. Initial progress report.
 14. Report of preconstruction conference.
 15. Certificates of insurance and insurance policies.
 16. Performance and payment bonds.
 17. Data needed to acquire OWNER's insurance.

18. Initial Settlement Survey and damage Report.
- H. Application for Payment at Substantial Completion: After Engineer issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for OWNER occupancy of designated portions of the Work.
- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when OWNER took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement, if applicable.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. Requests for Information (RFIs).
 - 4. Project Web site.
 - 5. Project meetings.
 - 6. Administrative and Supervisory Personnel.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from OWNER, Construction Manager, Engineer, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Within ten (10) days of contract award, prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel: Within 15 days of starting construction operations, submit a list of key personnel assignments, including construction manager, project manager, field superintendent, safety officer, startup engineer, project scheduler, administrative assistant, and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
1. Post copies of list in project meeting room, in temporary field office, on Project Web site, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
 4. Coordinate work with Abatement Contractor, when applicable, prior to and during the project.
 5. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as OWNER's property.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Owner will return RFIs submitted to Owner by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Owner.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

- C. Owners Action: Owner will review each RFI, determine action required, and respond. Allow seven working days for owners response for each RFI. RFIs received by Owner after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Engineer's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
2. Owner action may include a request for additional information, in which case Owners time for response will date from time of receipt of additional information.
3. Owner's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer and Construction Manager in writing within 10 days of receipt of the RFI response.

- D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

1. Project name.
2. Name and address of Contractor.
3. Name and address of Owner.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Owner's response was received.

- E. On receipt of Owner action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner / Engineer / Construction Manager within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

- A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

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1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify OWNER and Engineer of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Include Action Items with Responsible Party identified and due date noted. Distribute the meeting minutes to everyone concerned, including OWNER, Construction Manager, and Engineer, within five days of the meeting.
- B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to OWNER and Engineer, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of OWNER, Commissioning Authority, Construction Manager, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
- l. Preparation of record documents.
 - m. Use of the premises.
 - n. Work restrictions.
 - o. Working hours.
- p. Responsibility for temporary facilities and controls.
 - q. Procedures for moisture and mold control.
 - r. Procedures for disruptions and shutdowns.
 - s. Construction waste management and recycling.
 - t. Parking availability.
 - u. Office, work, and storage areas.
 - v. Equipment deliveries and priorities.
 - w. First aid.
 - x. Security.
 - y. Progress cleaning.
 - z. Safety.
 - aa. Welding Procedures.

- bb. Interaction with college personnel, including students.
 - cc. Plans required by the Client.
- 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Engineer, Construction Manager, and Commissioning Authority of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

- D. **Project Closeout Conference:** Construction Manager will schedule and conduct a project closeout conference, at a time convenient to OWNER and Engineer, but no later than 90 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. **Attendees:** Authorized representatives of OWNER, Commissioning Authority, Construction Manager, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. **Agenda:** Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for delivery of material samples, attic stock, and spare parts.
 - f. Requirements for demonstration and training.
 - g. Preparation of Contractor's punch list.
 - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - i. Submittal procedures.
 - j. Coordination of separate contracts.
 - k. Partial occupancy requirements.
 - l. Installation of furniture, fixtures, and equipment.
 - m. Responsibility for removing temporary facilities and controls.
 4. **Minutes:** Entity conducting meeting will record and distribute meeting minutes.
- E. **Progress Meetings:** Construction Manager will conduct progress meetings at biweekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. **Attendees:** In addition to representatives of OWNER, Commissioning Authority, Construction Manager, and Engineer, prime contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. **Agenda:** Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. **Contractor's Construction Schedule:** Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to

do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- F. Coordination Meetings: Construction Manager will conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
 1. Attendees: In addition to representatives of OWNER, Commissioning Authority, Construction Manager, Engineer, Contractor and other entities concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure

- commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of component conflicts.
 - 4) Status of submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site utilization.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 3. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 4. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Owner's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Owner's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Owner and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Owner's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. SECTION DELETED Owner's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Owner for Contractor's use in preparing submittals.
1. Engineer Owner will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
 - a. Owner makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 calendar days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Owner, or other parties is indicated, allow 21 calendar days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Owner and to Owner's consultants, allow 15 days for review of each submittal. Submittal will be returned to Owner before being returned to Contractor.
- D. Paper Submittals:
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Owner.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Owner.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.

- 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Owner observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Owner.
5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will return without review submittals received from sources other than Contractor.
- a. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
 - 1) Project name.
 - 2) Date.
 - 3) Destination (To :).
 - 4) Source (From :).
 - 5) Owner.
 - 6) Name of Contractor.
 - 7) Name of firm or entity that prepared submittal.
 - 8) Names of subcontractor, manufacturer, and supplier.
 - 9) Category and type of submittal.
 - 10) Submittal purpose and description.
 - 11) Specification Section number and title.
 - 12) Specification paragraph number or drawing designation and generic name for each of multiple items.
 - 13) Drawing number and detail references, as appropriate.
 - 14) Indication of full or partial submittal.
 - 15) Transmittal number, numbered consecutively.
 - 16) Submittal and transmittal distribution record.
 - 17) Remarks.
 - 18) Signature of transmitter.
- E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner.
 4. Transmittal Form for Electronic Submittals: Use electronic form, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Owner.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.
 - o. Transmittal number, numbered consecutively.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.
 5. Include the following information as keywords in the electronic submittal file:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- F. Options: Identify options requiring selection by Owner.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

- H. Resubmittals: Make resubmittals in same form as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Owner's action stamp.
- I. Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Owner's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections. (See Supplemental Condition SC-17 "Submittals and Shop Drawings" for additional requirements.)
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Owner's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches , but no larger than 24 by 36 inches .
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

- a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as OWNER's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Owner will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."

- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects, engineers and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.

4. Product and manufacturers' names.
 5. Description of product.
 6. Test procedures and results.
 7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Owner.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER'S ACTION

- A. Action Submittals: Owner will review each submittal, make marks to indicate corrections or revisions required, and return it. Owner will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:
 - 1. No Exception Taken (NET)
 - 2. Make Corrections Noted (MCN)
 - 3. Examined, Action By Others (E)
 - 4. Revise And Resubmit (R&R)
 - 5. Submit Specified Item (SSI)
 - 6. Proceed W/ Fabrication (PWF)
 - 7. Rejected (R)
- B. Informational Submittals: Owner will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Owner.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Owner without action.

Commented [JL1]: Do we keep this whole section?

North Jersey District Water Supply Commission
Pot Perm System Rehabilitation

September 3, 2021

END OF SECTION 013300

SUBMITTAL PROCEDURES

013300 - 12/12

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by OWNER or authorities having jurisdiction are not limited by provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Owner.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

- D. **Product Testing:** Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. **Source Quality-Control Testing:** Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- F. **Field Quality-Control Testing:** Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. **Testing Agency:** An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. **Installer/Applicator/Erector:** Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. **Experienced:** When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. **Referenced Standards:** If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner for a decision before proceeding.
- B. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner for a decision before proceeding.

1.5 ACTION SUBMITTALS

- A. **Shop Drawings:** For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Contractor's quality-control personnel.
- B. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Owner.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Owner.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.

13. Recommendations on retesting and reinspecting.

- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For OWNER's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Owner with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.9 QUALITY CONTROL

- A. OWNER Responsibilities: Where quality-control services are indicated as OWNER's responsibility, OWNER will engage a qualified testing agency to perform these services.
 1. OWNER will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to OWNER are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by OWNER, unless agreed to in writing by OWNER.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and

conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Owner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
 - 1. Distribution: Distribute schedule to OWNER, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: OWNER will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of OWNER, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Owner and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Owner with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Retesting and re-inspecting corrected work.
 - 7. Special Tests and Inspections may consist of, but are not limited to, the following, as applicable:

-Visual Testing (VT)

-Magnetic Particle Testing (MT)

-Liquid Penetrant Testing (PT)

-Ultrasonic Testing (UT)

-Radiographic Testing (RT)

Tests shall be scheduled and conducted at times pre-approved by OWNER.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted and hours it was conducted.
 - 2. Description of the Work tested or inspected and the type of test.
 - 3. Date test or inspection results were transmitted to Owner.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Commissioning Authority's, and Owner's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineers action on Contractor's submittals, applications, and requests, "approved" is limited to Engineers duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AABC	Associated Air Balance Council www.aabc.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.americanbearings.org	(202) 367-1155
ACI	American Concrete Institute (Formerly: ACI International) www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association	(800) 878-8878

	www.afandpa.org	(202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AHRI	Air-Conditioning, Heating, and Refrigeration Institute (The) www.ahrinet.org	(703) 524-8800
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Engineers (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(607) 256-3313
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute (See AHRI)	
ARI	American Refrigeration Institute (See AHRI)	
ARMA	Asphalt Roofing Manufacturers Association	(202) 207-0917

	www.asphaltroofing.org	
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Safety Engineers (The) www.asse.org	(847) 699-2929
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions www.atis.org	(202) 628-6380
AWEA	American Wind Energy Association www.awea.org	(202) 383-2500
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWMAC	Architectural Woodwork Manufacturers Association of Canada www.awmac.com	(403) 453-7387
AWPA	American Wood Protection Association (Formerly: American Wood-Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association	(212) 297-2122

	www.buildershardware.com	
BIA	Brick Industry Association (The) www.gobrick.com	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
BOCA	BOCA (Building Officials and Code Administrators International Inc.) (See ICC)	
BWF	Badminton World Federation (Formerly: International Badminton Federation) www.bwfbadminton.org	60 3 9283 7155
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.electricity.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CFSEI	Cold-Formed Steel Engineers Institute www.cfsei.org	(866) 465-4732 (202) 263-4488
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(404) 622-0073

CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(703) 724-1128
CRI	Carpet and Rug Institute (The) www.carpet-rug.org	(706) 278-3176
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(800) 328-6306 (847) 517-1200
CSA	Canadian Standards Association www.csa.ca	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
CWC	Composite Wood Council (See CPA)	
DASMA	Door and Access Systems Manufacturers Association www.dasma.com	(216) 241-7333
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
ECA	Electronic Components Association www.ec-central.org	(703) 907-8024
ECAMA	Electronic Components Assemblies & Materials Association (See ECA)	
EIA	Electronic Industries Alliance (See TIA)	

EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (703) 538-1616
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
ESTA	Entertainment Services and Technology Association (See PLASA)	
EVO	Efficiency Valuation Organization www.evo-world.org	(415) 367-3643 44 20 88 167 857
FIBA	Fédération Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Fédération Internationale de Volleyball (The International Volleyball Federation) www.fivb.org	41 21 345 35 45
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridarroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council U.S. www.fscus.org	(612) 353-4511
GA	Gypsum Association www.gypsum.org	(301) 277-8686
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GS	Green Seal www.greenseal.org	(202) 872-6400
HI	Hydraulic Institute	(973) 267-9700

	www.pumps.org	
HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association (See AHRI)	
HMMA	Hollow Metal Manufacturers Association (See NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAPSC	International Association of Professional Security Consultants www.iapsc.org	(415) 536-0288
IAS	International Approval Services (See CSA)	
ICBO	International Conference of Building Officials (See ICC)	
ICC	International Code Council www.iccsafe.org	(888) 422-7233 (202) 370-1800
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICPA	International Cast Polymer Alliance www.icpa-hq.org	(703) 525-0511
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IES	Illuminating Engineering Society (Formerly: Illuminating Engineering Society of North America) www.ies.org	(212) 248-5000
IESNA	Illuminating Engineering Society of North America (See IES)	
IEST	Institute of Environmental Sciences and Technology	(847) 981-0100

	www.iest.org	
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
IGSHPA	International Ground Source Heat Pump Association www.igshpa.okstate.edu	(405) 744-5175
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
Intertek	Intertek Group (Formerly: ETL SEMCO; Intertek Testing Service NA) www.intertek.com	(800) 967-5352
ISA	International Society of Automation (The) (Formerly: Instrumentation, Systems, and Automation Society) www.isa.org	(919) 549-8411
ISAS	Instrumentation, Systems, and Automation Society (The) (See ISA)	
ISFA	International Surface Fabricators Association (Formerly: International Solid Surface Fabricators Association) www.isfanow.org	(877) 464-7732 (801) 341-7360
ISO	International Organization for Standardization www.iso.org	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association (See ISFA)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (See CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(847) 375-4718

MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MMPA	Moulding & Millwork Producers Association (Formerly: Wood Moulding & Millwork Producers Association) www.wmmpa.com	(800) 550-7889 (530) 661-9591
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.org	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6223 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association	(301) 657-3110

	www.necanet.org	
NeLMA	Northeastern Lumber Manufacturers Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFPA	NFPA International (See NFPA)	
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NHLA	National Hardwood Lumber Association www.nhla.com	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association (See NWFA)	
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
MRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSPE	National Society of Professional Engineers www.nspe.org	(703) 684-2800
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788

NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736
NWFA	National Wood Flooring Association www.nwfa.org	(800) 422-4556 (636) 519-9663
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PLASA	PLASA (Formerly: ESTA - Entertainment Services and Technology Association) www.plasa.org	(212) 244-1505
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(706) 882-3833
RIS	Redwood Inspection Service www.redwoodinspection.com	(925) 935-1499
SAE	SAE International (Society of Automotive Engineers) www.sae.org	(877) 606-7323 (724) 776-4841
SBCCI	Southern Building Code Congress International, Inc. (See ICC)	
SCTE	Society of Cable Telecommunications Engineers www.scte.org	(800) 542-5040 (610) 363-6888
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	
SIA	Security Industry Association	(866) 817-8888

	www.siaonline.org	(703) 683-2075
SJI	Steel Joist Institute www.steeljoist.org	(843) 293-1995
SMA	Screen Manufacturers Association www.smainfo.org	(773) 636-0672
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SRCC	Solar Rating and Certification Corporation www.solar-rating.org	(321) 638-1537
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWPA	Submersible Wastewater Pump Association www.swpa.org	(847) 681-1868
TCA	Tilt-Up Concrete Association www.tilt-up.org	(319) 895-6911
TCNA	Tile Council of North America, Inc. (Formerly: Tile Council of America) www.tileusa.com	(864) 646-8453
TEMA	Tubular Exchanger Manufacturers Association, Inc. www.tema.org	(914) 332-0040

TIA	Telecommunications Industry Association (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance) www.tiaonline.org	(703) 907-7700
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance (See TIA)	
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tilerroofing.org	(312) 670-4177
UBC	Uniform Building Code (See ICC)	
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WDMA	Window & Door Manufacturers Association www.wdma.com	(800) 223-2301 (312) 321-6802

WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association (See MMPA)	
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 938-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DIN	Deutsches Institut für Normung e.V. www.din.de	49 30 2601-0
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, LLC www.icc-es.org	(800) 423-6587 (562) 699-0543

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

COE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce National Institute of Standards and Technology www.nist.gov	(301) 975-4040
DOD	Department of Defense http://dodssp.daps.dla.mil	(215) 697-2664

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DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FG	Federal Government Publications www.gpo.gov	(202) 512-1800
GSA	General Services Administration www.gsa.gov	(800) 488-3111 (202) 619-8925
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory Environmental Energy Technologies Division http://eetd.lbl.gov	(510) 486-4000
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742
SD	Department of State www.state.gov	(202) 647-4000
TRB	Transportation Research Board National Cooperative Highway Research Program www.trb.org	(202) 334-2934
USDA	Department of Agriculture Agriculture Research Service U.S. Salinity Laboratory www.ars.usda.gov	(202) 720-3656
USDA	Department of Agriculture Rural Utilities Service www.usda.gov	(202) 720-2791
USDJ	Department of Justice Office of Justice Programs National Institute of Justice www.ojp.usdoj.gov	(202) 307-0703
USP	U.S. Pharmacopeia www.usp.org	(800) 227-8772 (301) 881-0666
USPS	United States Postal Service www.usps.com	(202) 268-2000

- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CFR	Code of Federal Regulations	(866) 512-1800
	Available from Government Printing Office	(202) 512-1800
	www.gpo.gov/fdsys	

DOD	Department of Defense	(215) 697-2664
	Military Specifications and Standards	
	Available from Department of Defense Single Stock Point	
	http://dodssp.daps.dla.mil	

DSCC	Defense Supply Center Columbus	
	(See FS)	

FED-STD	Federal Standard	
	(See FS)	

FS	Federal Specification	(215) 697-2664
	Available from Department of Defense Single Stock Point	
	http://dodssp.daps.dla.mil	

Available from Defense Standardization Program
www.dsp.dla.mil

Available from General Services Administration	(800) 488-3111
www.gsa.gov	(202) 619-8925

Available from National Institute of Building Sciences/Whole Building Design Guide	(202) 289-7800
www.wbdg.org/ccb	

MILSPEC	Military Specification and Standards	
	(See DOD)	

USAB	United States Access Board	(800) 872-2253
	www.access-board.gov	(202) 272-0080

USATBC	U.S. Architectural & Transportation Barriers Compliance Board	
B	(See USAB)	

- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF	State of California Department of Consumer Affairs Bureau of Electronic Appliance and Repair, Home Furnishings and Thermal Insulation www.bearhfti.ca.gov	(800) 952-5210 (916) 574-2041
CCR	California Code of Regulations Office of Administrative Law California Title 24 Energy Code www.calregs.com	(916) 323-6225
CDHS	California Department of Health Care Services (Formerly: California Department of Health Services) (See CCR)	
CDPH	California Department of Public Health Indoor Air Quality Program www.cal-iaq.org	
CPUC	California Public Utilities Commission www.cpuc.ca.gov	(800) 848-5580 (415) 703-2782
SCAQM D	South Coast Air Quality Management District www.aqmd.gov	(909) 396-2000
TFS	Texas Forest Service Forest Resource Development and Sustainable Forestry http://txforests-service.tamu.edu	(979) 458-6606

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to OWNER Contractor, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from OWNER's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from OWNER's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.

1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
 3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
1. Locations of dust-control partitions at each phase of work.
 2. HVAC system isolation schematic drawing.
 3. Location of proposed air-filtration system discharge.
 4. Waste handling procedures.
 5. Other dust-control measures.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before OWNER's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch , 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts with 1-5/8-inch- OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch , 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-

inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

- C. Wood Enclosure Fence: Plywood, 8 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.
- E. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
- F. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Shall be provided by Contractor Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless OWNER authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, OWNER, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: No connection allowed. Contractor is to provide Porta John's..
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to OWNER's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to OWNER. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Toilets: Use of OWNER's existing toilet facilities is prohibited.
- F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
 - 1. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
 - 2. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- H. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- I. Electric Power Service: Connect to OWNER's existing electric power service. Maintain equipment in a condition acceptable to OWNER.

- J. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. .
 - 2. Connect temporary service to OWNER's existing power source, as directed by OWNER.
- K. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 - 2. Maintain support facilities until OWNER schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to OWNER.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Use designated areas of OWNER's existing parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- E. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- F. Existing Stair Usage: Use of OWNER's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to OWNER. At Substantial Completion, restore stairs to condition existing before initial use.
 - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

- G. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- F. Tree and Plant Protection: Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."
- G. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- H. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

- I. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
- J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- K. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. OWNER reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 012300 "Alternates" for products selected under an alternate.
 - 2. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 3. Section 014200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Owner's Action: If necessary, Owner will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Owner will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Owner does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Owner will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by OWNER's construction forces. Coordinate location with OWNER.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to OWNER.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for OWNER.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

PRODUCT REQUIREMENTS

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. OWNER reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Owner will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable

Products" Article for consideration of an unnamed product by one of the other named manufacturers.

- C. Visual Matching Specification: Where Specifications require "match Owners sample", provide a product that complies with requirements and matches Owners sample. Owner's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Owner from manufacturer's full range" or similar phrase, select a product that complies with requirements. Owner will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

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2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Owner will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Owner may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owner's, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of OWNER-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting surveys.
 - 2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of OWNER-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- D. Certified Surveys: Submit two copies signed by land surveyor.
- E. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify OWNER of locations and details of cutting and await directions from OWNER before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.

- d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
- 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in OWNER's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to OWNER for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to OWNER according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify OWNER promptly.

- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify OWNER when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by OWNER.

3.4 FIELD ENGINEERING

- A. Identification: OWNER will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of OWNER. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to OWNER before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 84 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by OWNER.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls" and Section 017419 "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Demolition Waste:

- a. Asphalt paving.
- b. Concrete.
- c. Concrete reinforcing steel.
- d. Brick.
- e. Concrete masonry units.
- f. Wood studs.
- g. Wood joists.
- h. Plywood and oriented strand board.
- i. Wood paneling.
- j. Wood trim.
- k. Structural and miscellaneous steel.
- l. Rough hardware.
- m. Roofing.
- n. Insulation.
- o. Doors and frames.
- p. Door hardware.
- q. Windows.
- r. Glazing.
- s. Metal studs.
- t. Gypsum board.
- u. Acoustical tile and panels.
- v. Carpet.
- w. Carpet pad.
- x. Demountable partitions.
- y. Equipment.
- z. Cabinets.
- aa. Plumbing fixtures.
- bb. Piping.
- cc. Supports and hangers.
- dd. Valves.
- ee. Sprinklers.
- ff. Mechanical equipment.
- gg. Refrigerants.
- hh. Electrical conduit.
- ii. Copper wiring.
- jj. Lighting fixtures.
- kk. Lamps.
- ll. Ballasts.
- mm. Electrical devices.
- nn. Switchgear and panelboards.
- oo. Transformers.

2. Construction Waste:

- a. Masonry and CMU.
- b. Lumber.
- c. Wood sheet materials.
- d. Wood trim.
- e. Metals.

- f. Roofing.
- g. Insulation.
- h. Carpet and pad.
- i. Gypsum board.
- j. Piping.
- k. Electrical conduit.
- l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.5 ACTION SUBMITTALS

(None)

1.6 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

Provide handling, containers, storage, signage, transportation, and other items as required during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control
- D. Waste Management in Historic Zones or Areas: Hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches or more.

3.2 WASTE CHARACTERIZATION

- A. All materials removed shall be segregated and characterized for recycling and disposal in accordance with all applicable regulations. Contractor is responsible for performing testing required for acceptance at recycling or disposal facilities. This will include the testing of lead paint wastes, if any.

3.3 HAZARDOUS WASTE

- A. Hazardous waste determination should be conducted on all waste materials.
- B. All hazardous wastes generated shall be collected and placed into appropriate containers. All drums/containers shall be labeled and logged as they are filled. All drums shall be sealed, when filled or work is complete, and moved to an Authority approved storage location until transported off-site for disposal at an Authority approved TSDF (Treatment Storage and Disposal Facility).

Contractor shall maintain containers in good condition. In the event a container becomes dented, punctured or damaged in handling or transfer, the contents shall either be transferred to a new container, or the damaged container shall be salvage packed.

- C. The Contractor shall be responsible for the collection, segregated by waste type, testing, transportation, storage and disposal of all waste material generated by the Contractor's work.

1. Labels shall bear the following marking:

HAZARDOUS WASTE. Federal law prohibits improper disposal.

- D. While wastes are in storage pending disposal they shall be stored in a secure preferably indoor, paved facility, or shall to be transferred by Contractor to a designated area at a frequency directed by Commissions representative. In the event that an indoor paved storage area is not available, the Contractor shall place waste in the containers on a pallet and cover the containers to prevent weather damage. All wastes shall be segregated and properly labeled. Contractor shall perform weekly inspection of the temporary waste storage area and containers while in storage.
- E. Contractor shall assign a unique identifier (ID number) to each container, complete log for each container and affix log to each container. Contractor shall enter the volume and type of waste added to the container and date drum was filled.
- F. Contractor shall maintain a tracking log of containers and provide an updated copy to the Commission on a daily basis.
- G. Manifests and Shipping Papers: Contractor shall prepare all shipping papers (Hazardous Waste Manifests or Bills of Lading, as appropriate, and as required by law) for review and approval by Commission representative in advance of the shipment. Hazardous Waste Manifests shall include the facility's correct EPA ID number. Shipping papers will be executed by the Authority.
1. Contractor is responsible to provide Commission representative with copies of laboratory analyses, MSDSs, waste profiles, LDRs and all supporting documentation used to prepare for shipments.
2. Contractor shall comply with the manifesting, certification and reporting requirements of all applicable regulations, and provide Commission with all weight tickets, return copies of all manifests, receipts and certificates of disposal or recycling for all shipments.
3. Contractor shall provide waste analysis, draft profiles and shipping papers to the Site Environmental Representative in advance of submittal and shipment dates.
4. Shipments shall be coordinated in advance so that the Commission's Site Representative or designee is present for shipment. No wastes shall leave Site without approval of Site Environmental Representative.
- H. Dumpsters and bins used to store and ship trash and solid waste shall be subject to inspection by Owner before shipment. Trash and construction waste shall be removed regularly from the site.

3.4 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport
 - 6.
 7. Remaining paragraphs below are examples of additional requirements that can be added for salvaging materials.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- F. Plumbing Fixtures: Separate by type and size.
- G. Lighting Fixtures: Separate lamps by type and protect from breakage.
- H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.5 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be shared equally by OWNER and Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste from OWNER's property and transport to recycling receiver or processor.

3.6 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.7 USED OIL

- A. Lubricating oils shall be drained from oil containing equipment to the point where no free liquid remains within the vessel or reservoir of associated equipment.
- B. Contractor shall provide containment of adequate capacity beneath the equipment or unit being drained.

- C. Drained oils shall be placed in dedicated new (unused) DOT specification containers that are rated for liquids. Contractor is responsible for provision of containers and labels.
- D. Oils that are drained from equipment vessels or reservoirs shall not be combined or co-mingled. Under no circumstances shall other types of waste be combined with oil in containers.
- E. Contractor shall apply a Used Oil Label on each container prior to filling. Label all containers indicating the unit and equipment from which the oil was drained, and date on which removed.
- F. Labels shall also reflect the generator, address, and EPA ID number, and DOT proper shipping name information. The Authority shall be listed as the generator of the waste.
- G. Assign a unique identifier (ID number) to each container, complete log for each container and affix log to each container. In addition, contractor shall maintain a tracking log of containers and provide an updated copy of tracking log to the Authority on a daily basis.
- H. Contractor shall maintain spill pallets beneath containers while they are being filled or being accumulated.
- I. All containers must remain closed at all times except when a container is actively being filled.
- J. Contractor shall maintain containers in good condition. In the event a container becomes dented, punctured or damaged in handling or transfer, the contents shall either be transferred to a new container, or the damaged container shall be salvage packed.
- K. Once filling has been completed, contractor shall notify the Authority's Site Environmental Representative.

3.8 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- D. Disposal: Remove waste materials from Owner's property and legally dispose of them.

3.9 SITE/JOB SPECIFIC HEALTH AND SAFETY PLAN (HASP)

- a. The Contractor shall establish and submit a comprehensive Site-Specific Health and Safety Plan (HASP). The HASP shall include both general procedures and specific requirements to be followed by the Contractor and their Sub-contractors to ensure the health and safety of employees, the public and the environment. The HASP shall be reviewed and approved by the Contractor's Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP) prior to submittal to Authority. The HASP shall include, but shall not limited to:
 - i. Emergency Action Plans and Accident Prevention Plan
 - ii. Employee Training and Certifications
 - iii. Personal Protective Equipment (PPE) Requirements
 - iv. Medical Surveillance Program
 - v. Exposure Monitoring, Action Levels and Engineering Controls
 - vi. Health Risk Identification and Hazard Analysis
 - vii. Hazard Communication
 - viii. Equipment Safety and Inspection
 - ix. Identification and Regulation of Work Zones
 - x. Decontamination Procedures and Worker Hygiene Practices
 - xi. Spill Response Procedures and Notification Protocol
 - xii. Competent Person Inspections and Reporting Requirements
 - xiii. Clearance Testing and Inspections
 - xiv. Hazardous Materials Handling

3.10 PAINT ABATEMENT WORK PLAN (if applicable)

- A. Painted surfaces, similar to those scheduled for removal and alteration, are assumed to contain various levels of Lead. Paint with any detectable quantity of lead shall be considered Lead containing and subject to OSHA standards. The contractor shall comply with all Federal, State, local and Authority requirements for worker protection when assessing exposure to, and working with, lead containing materials. Requirements of note are specified in OSHA's Lead in Construction (29 CFR 1926.62), Respiratory Protection (29 CFR 1910.134) and Hazard Communication (29 CFR 1910.1200).
- B. The Contractor shall establish and submit a Paint Abatement Work Plan (if applicable) in addition to the task-specific Health and Safety Plan (HASP) for review in accordance with all applicable Federal, State and local codes and regulations.

C. The Work Plan shall include, at a minimum,

1. Locations and square footage for paint abatement (sketch preferred),
2. Detail how wastes will be handled and containerized,
3. Describe the PPE to be worn by the workers, including need rationale with documentation of exposure assessment(s),
4. Training documentation,
5. List of materials and equipment, describing their use relevant to the subject project.
6. Abrasive work methods and burning of paint is not permitted.
7. Chemical stripping and/or HEPA shrouded tool methods may be used for paint removal where the painted components are to be cut and/or welded.
8. If water is used for water blasting/pressure washing or any purpose, a portion of the work plan shall be dedicated to water management. The water shall not be allowed to flow into drains or allowed to flow to the river. Water shall be collected and tested by Contractor to determine proper disposal in consultation with Authority designated representative and properly disposed of by the Contractor.
9. Improper handling and storage of waste may result in immediate shutdown of the project until corrective action is completed.
10. Contractors and subcontractors shall comply with all worker protection requirements including respiratory protection, personal protective equipment, medical monitoring, blood lead testing, proper removal/handling procedures, and worker training.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for progress cleaning of Project site.
 - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting OWNER unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by OWNER. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain OWNER's signature for receipt of submittals.
 - 5. Submit test/adjust/balance records.
 - 6. Submit changeover information related to OWNER's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise OWNER of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to OWNER. Advise OWNER's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct OWNER's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."

6. Advise OWNER of changeover in heat and other utilities.
7. Participate with OWNER in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, OWNER will either proceed with inspection or notify Contractor of unfulfilled requirements. OWNER will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by OWNER, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of OWNER's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by OWNER. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, OWNER will either proceed with inspection or notify Contractor of unfulfilled requirements. OWNER will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. OWNER.
 - d. Name of Contractor.
 - e. Page number.
 - 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file. OWNER will return annotated file.
 - b. Three paper copies. OWNER will return two copies.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of OWNER for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit OWNER's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by OWNER during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - q. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Product maintenance manuals.
 - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. OWNER will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to OWNER.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. OWNER will return two copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. OWNER and Commissioning Authority will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. OWNER and Commissioning Authority will return copy with comments.
1. Correct or revise each manual to comply with OWNER's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of OWNER's and Commissioning Authority's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
1. List of documents.
 2. List of systems.
 3. List of equipment.
 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to

ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of OWNER.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Commissioning Authority.
 - 7. Names and contact information for major consultants to the OWNER that designed the systems contained in the manuals.
 - 8. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.

8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of operating personnel for notification of installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.

5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 1. Do not use original project record documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- G. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for final property survey.
 - 2. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements. CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and one of file prints.
 - 3) Submit record digital data files and one set(s) of plots.
 - 4) OWNER will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit three paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and three set(s) of prints.
 - 3) Print each drawing, whether or not changes and additional information were recorded.

- c. Final Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit record digital data files and three set(s) of record digital data file plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded.

- B. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Change Directive.
 - k. Changes made following OWNER's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.

- n. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 - 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with OWNER. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
- 1. Format: DWG, Version AUTOCAD 2010, Microsoft Windows operating system.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 - 4. Refer instances of uncertainty to OWNER for resolution.
 - 5. OWNER will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013300 "Submittal Procedures" for requirements related to use of OWNER's digital data files.
 - b. OWNER will provide data file layer information. Record markups in separate layers.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where OWNER determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
- 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 - 2. Consult OWNER for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- 1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of OWNER.
 - e. Name of Contractor.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for OWNER's reference during normal working hours.

END OF SECTION 017839

SECTION 090100 - PAINTING

CMU (Walls) Previously Coated

Surface Preparation

- Light power wash with water

Painting

- 2 Coats Pro Industrial PreCat Waterbase Epoxy @ 1.5-2.5 mils DFT per coat

Outside of Carbon Steel Silo

Surface Preparation

- SSPC-SP1 Solvent Wipe followed by SSPC-SP-2 Hand Tool Clean then SSPC-SP3 Power Tool Clean

Painting

- Spot Prime(areas displaying corrosion)-Macropoxy 646 FC Epoxy at 3-5 mils DFT
Full Prime-Macropoxy 920 PrePrime at 1.5-2 mils DFT
Full Topcoat- HS Polyurethane at 3-5 mils DFT

Interior of Silo

Surface Preparation

- SSPC-SP-10 Near White Blast with 2-4 mil angular blast profile

Painting

- Duraplate 8200 @ 30-35 mils DFT.

Structural Steel

Surface Preparation

- SSPC-SP1 Solvent Wipe followed by SSPC-SP-2 Hand Tool Clean then SSPC-SP3 Power Tool Clean

Painting

- Spot Prime(areas displaying corrosion)-Macropoxy 646 FC Epoxy at 3-5 mils DFT
Full Prime-Macropoxy 920 PrePrime at 1.5-2 mils DFT
Full Topcoat- HS Polyurethane at 3-5 mils DFT

Based on Sherwin Williams Products

SECTION 232923 - VARIABLE-FREQUENCY MOTOR CONTROLLERS

PART 1 - GENERAL

1.1 DIVISION 23 AND DIVISION 26 RESPONSIBILITIES

- A. VFCs shall be furnished by Mechanical Division 23. Start-up, adjusting, demonstration, training and control wiring shall be by Mechanical Division 23
- B. VFC installation, testing, power wiring and breaker setting shall be by Electrical Division 26.
- C. Section includes separately enclosed, preassembled, combination VFCs, rated 600 V and less, for speed control of three-phase, squirrel-cage induction motors.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 DEFINITIONS

- A. CE: Conformance Europeene (European Compliance).
- B. CPT: Control power transformer.
- C. DDC: Direct digital control.
- D. EMI: Electromagnetic interference.
- E. LED: Light-emitting diode.
- F. NC: Normally closed.
- G. NO: Normally open.
- H. OCPD: Overcurrent protective device.
- I. PID: Control action, proportional plus integral plus derivative.
- J. RFI: Radio-frequency interference.

K. VFC: Variable-frequency motor controller.

1.4 ACTION SUBMITTALS

A. Product Data: For each type and rating of VFC indicated.

1. Include dimensions and finishes for VFCs.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For each VFC indicated.

1. Include mounting and attachment details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans, drawn to scale, showing dimensioned layout on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Required working clearances and required area above and around VFCs.
2. Show VFC layout and relationships between electrical components and adjacent structural and mechanical elements.
3. Show support locations, type of support, and weight on each support.
4. Indicate field measurements.

B. Qualification Data: For testing agency.

C. Seismic Qualification Data: Certificates, for each VFC, accessories, and components, from manufacturer.

1. Certificate of compliance.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

3. Detailed description of equipment anchorage devices on which the certification is based, and their installation requirements.

- D. Product Certificates: For each VFC from manufacturer.
- E. Harmonic Analysis Report: Provide Project-specific calculations and manufacturer's statement of compliance with IEEE 519.
- F. Source quality-control reports.
- G. Field quality-control reports.
- H. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For VFCs to include in emergency, operation, and maintenance manuals.

1. Include the following:

- a. Manufacturer's written instructions for testing and adjusting thermal-magnetic circuit breaker and motor-circuit protector trip settings.
- b. Manufacturer's written instructions for setting field-adjustable overload relays.
- c. Manufacturer's written instructions for testing, adjusting, and reprogramming microprocessor control modules.
- d. Manufacturer's written instructions for setting field-adjustable timers, controls, and status and alarm points.
- e. Load-Current and Overload-Relay Heater List: Compile after motors have been installed, and arrange to demonstrate that selection of heaters suits actual motor nameplate, full-load currents.
- f. Load-Current and List of Settings of Adjustable Overload Relays: Compile after motors have been installed, and arrange to demonstrate that switch settings for motor-running overload protection suit actual motors to be protected.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Power Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
 - 2. Control Power Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than two of each size and type.
 - 3. Indicating Lights: Two of each type and color installed.
 - 4. Auxiliary Contacts: Furnish one spare(s) for each size and type of magnetic controller installed.
 - 5. Power Contacts: Furnish three spares for each size and type of magnetic contactor installed.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. If stored in space that is not permanently enclosed and air conditioned, remove loose packing and flammable materials from inside controllers and install temporary electric heating, with at least 250 W per controller.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for VFCs, including clearances between VFCs, and adjacent surfaces and other items.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace VFCs that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following or approved equivalent:

1. Basis of Design: Toshiba Q9 Plus HVAC Drive.

2.2 SYSTEM DESCRIPTION

A. General Requirements for VFCs:

1. VFCs and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Comply with NEMA ICS 7, NEMA ICS 61800-2, and UL 508A or UL 508C.

B. Application: variable torque.

C. VFC Description: Variable-frequency motor controller, consisting of power converter that employs pulse-width-modulated inverter, factory built and tested in an enclosure, with integral disconnecting means and overcurrent and overload protection; listed and labeled by an NRTL as a complete unit; arranged to provide self-protection, protection, and variable-speed control of one or more three-phase induction motors by adjusting output voltage and frequency.

1. Units suitable for operation of NEMA MG 1, Design A and Design B motors, as defined by NEMA MG 1, Section IV, Part 30, "Application Considerations for Constant Speed Motors Used on a Sinusoidal Bus with Harmonic Content and General Purpose Motors Used with Adjustable-Voltage or Adjustable-Frequency Controls or Both."
2. Units suitable for operation of inverter-duty motors as defined by NEMA MG 1, Section IV, Part 31, "Definite-Purpose Inverter-Fed Polyphase Motors."
3. Listed and labeled for integrated short-circuit current (withstand) rating by an NRTL acceptable to authorities having jurisdiction.

D. Design and Rating: Match load type, such as fans, blowers, and pumps; and type of connection used between motor and load such as direct or through a power-transmission connection.

E. Output Rating: Three phase; 10 to 60 Hz, with voltage proportional to frequency throughout voltage range; maximum voltage equals input voltage.

F. Unit Operating Requirements:

1. Input AC Voltage Tolerance: Plus 10 and minus 15 percent of VFC input voltage rating.
2. Input AC Voltage Unbalance: Not exceeding 5 percent.
3. Input Frequency Tolerance: Plus or minus 3 percent of VFC frequency rating.
4. Minimum Efficiency: 97 percent at 60 Hz, full load.
5. Minimum Displacement Primary-Side Power Factor: 98 percent under any load or speed condition.
6. Minimum Short-Circuit Current (Withstand) Rating: 100 kA.
7. Ambient Temperature Rating: Not less than 5 deg F (-15 deg C) and not exceeding 104 deg F (40 deg C).
8. Humidity Rating: Less than 95 percent (noncondensing).
9. Altitude Rating: Not exceeding 3300 feet (1000 m).
10. Vibration Withstand: Comply with NEMA ICS 61800-2.
11. Overload Capability: 1.1 times the base load current for 60 seconds; minimum of 1.8 times the base load current for three seconds.
12. Starting Torque: Minimum 100 percent of rated torque from 3 to 60 Hz.
13. Speed Regulation: Plus or minus 5 percent.
14. Output Carrier Frequency: Selectable; 0.5 to 15 kHz.
15. Stop Modes: Programmable; includes fast, free-wheel, and dc injection braking.

G. Inverter Logic: Microprocessor based, 32 bit, isolated from all power circuits.

H. Isolated Control Interface: Allows VFCs to follow remote-control signal over a minimum 40:1 speed range.

1. Signal: Electrical.

I. Internal Adjustability Capabilities:

1. Minimum Speed: 5 to 25 percent of maximum rpm.
2. Maximum Speed: 80 to 100 percent of maximum rpm.
3. Acceleration: 0.1 to 999.9 seconds.
4. Deceleration: 0.1 to 999.9 seconds.
5. Current Limit: 30 to minimum of 150 percent of maximum rating.

J. Self-Protection and Reliability Features:

1. Surge Suppression: Factory installed as an integral part of the VFC, complying with UL 1449 SPD, Type 1 or Type 2.
 2. Loss of Input Signal Protection: Selectable response strategy, including speed default to a percent of the most recent speed, a preset speed, or stop; with alarm.
 3. Under- and overvoltage trips.
 4. Inverter overcurrent trips.
 5. VFC and Motor-Overload/Overtemperature Protection: Microprocessor-based thermal protection system for monitoring VFCs and motor thermal characteristics, and for providing VFC overtemperature and motor-overload alarm and trip; settings selectable via the keypad.
 6. Critical frequency rejection, with three selectable, adjustable deadbands.
 7. Instantaneous line-to-line and line-to-ground overcurrent trips.
 8. Loss-of-phase protection.
 9. Reverse-phase protection.
 10. Short-circuit protection.
 11. Motor-overtemperature fault.
- K. Automatic Reset/Restart: Attempt three restarts after drive fault or on return of power after an interruption and before shutting down for manual reset or fault correction; adjustable delay time between restart attempts.
- L. Power-Interruption Protection: To prevent motor from re-energizing after a power interruption until motor has stopped, unless "Bidirectional Autospeed Search" feature is available and engaged.
- M. Bidirectional Autospeed Search: Capable of starting VFC into rotating loads spinning in either direction and returning motor to set speed in proper direction, without causing damage to drive, motor, or load.
- N. Torque Boost: Automatically varies starting and continuous torque to at least 1.5 times the minimum torque to ensure high-starting torque and increased torque at slow speeds.
- O. Motor Temperature Compensation at Slow Speeds: Adjustable current fall-back based on output frequency for temperature protection of self-cooled, fan-ventilated motors at slow speeds.

P. Integral Input Disconnecting Means and OCPD: NEMA KS 1, fusible switch with pad-lockable, door-mounted handle mechanism.

1. Disconnect Rating: Not less than 115 percent of VFC input current rating.
2. Auxiliary Contacts: NO or NC, arranged to activate before switch blades open.

2.3 PERFORMANCE REQUIREMENTS

A. Seismic Performance: VFCs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7. The designated VFCs shall be tested and certified by an NRTL as meeting the ICC-ES AC 156 test procedure requirements.

1. The term "withstand" means "the unit will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.4 CONTROLS AND INDICATION

A. Status Lights: Door-mounted LED indicators displaying the following conditions:

1. Power on.
2. Run.
3. Overvoltage.
4. Line fault.
5. Overcurrent.
6. External fault.

B. Panel-Mounted Operator Station: Manufacturer's standard front-accessible, sealed keypad and plain-English-language digital display; allows complete programming, program copying, operating, monitoring, and diagnostic capability.

1. Keypad: In addition to required programming and control keys, include keys for HAND, OFF, and AUTO modes.
2. Security Access: Provide electronic security access to controls through identification and password with at least three levels of access: View only; view and operate; and view, operate, and service.

- a. Control Authority: Supports at least four conditions: Off, local manual control at VFC, local automatic control at VFC, and automatic control through a remote source.

C. Historical Logging Information and Displays:

- 1. Real-time clock with current time and date.
- 2. Running log of total power versus time.
- 3. Total run time.
- 4. Fault log, maintaining last four faults with time and date stamp for each.

D. Indicating Devices: Digital display and additional readout devices as required, mounted flush in VFC door and connected to display VFC parameters including, but not limited to:

- 1. Output frequency (Hz).
- 2. Motor speed (rpm).
- 3. Motor status (running, stop, fault).
- 4. Motor current (amperes).
- 5. Motor torque (percent).
- 6. Fault or alarming status (code).
- 7. PID feedback signal (percent).
- 8. DC-link voltage (V dc).
- 9. Set point frequency (Hz).
- 10. Motor output voltage (V ac).

E. Control Signal Interfaces:

- 1. Electric Input Signal Interface:
 - a. A minimum of two programmable analog inputs: 0- to 10-V dc.
 - b. A minimum of six multifunction programmable digital inputs.
- 2. Remote Signal Inputs: Capability to accept any of the following speed-setting input signals from the DDC system for HVAC or other control systems:
 - a. 0- to 10-V dc.
 - b. 4- to 20-mA dc.
 - c. Potentiometer using up/down digital inputs.
 - d. Fixed frequencies using digital inputs.

3. Output Signal Interface: A minimum of two programmable analog output signal(s) (0- to 10-V dc), which can be configured for any of the following:
 - a. Output frequency (Hz).
 - b. Output current (load).
 - c. DC-link voltage (V dc).
 - d. Motor torque (percent).
 - e. Motor speed (rpm).
 - f. Set point frequency (Hz).
4. Remote Indication Interface: A minimum of two programmable dry-circuit relay outputs (120-V ac, 1 A) for remote indication of the following:
 - a. Motor running.
 - b. Set point speed reached.
 - c. Fault and warning indication (overtemperature or overcurrent).
 - d. PID high- or low-speed limits reached.
- F. PID Control Interface: Provides closed-loop set point, differential feedback control in response to dual feedback signals. Allows for closed-loop control of fans and pumps for pressure, flow, or temperature regulation.
 1. Number of Loops: Two.
- G. Interface with DDC System for HVAC: Factory-installed hardware and software shall interface with DDC system for HVAC to monitor, control, display, and record data for use in processing reports. VFC settings shall be retained within VFC's nonvolatile memory.
 1. Hardwired Points:
 - a. Monitoring: On-off status.
 - b. Control: On-off operation.
 2. Communication Interface: Comply with ASHRAE 135. Communication shall interface with DDC system for HVAC to remotely control and monitor lighting from a DDC system for HVAC operator workstation. Control features and monitoring points displayed locally at lighting panel shall be available through the DDC system for HVAC.

2.5 LINE CONDITIONING AND FILTERING

- A. Input Line Conditioning: Based on the manufacturer's harmonic analysis study and report, provide input filtering, as required, to limit total demand (harmonic current) distortion and total harmonic voltage demand at the defined point of common coupling to meet IEEE 519 recommendations.
- B. EMI/RFI Filtering: CE marked; certify compliance with IEC 61800-3 for Category C2.

2.6 OTHER FEATURES

- A. Sleep Function: Senses a minimal deviation of a feedback signal and stops the motor. On an increase in speed- command signal deviation, VFC resumes normal operation.
- B. Motor Preheat Function: Preheats motor when idle to prevent moisture accumulation in the motor.
- C. Remote Indicating Circuit Terminals: Mode selection, controller status, and controller fault.
- D. Communication Port: RS-232 port, USB 2.0 port, or equivalent connection capable of connecting a printer and a notebook computer.

2.7 ENCLOSURES

- A. VFC Enclosures: NEMA 250, to comply with environmental conditions at installed location.
 - 1. Dry and Clean Indoor Locations: Type 1.
 - 2. Outdoor Locations: Type 3R.
- B. Plenum Rating: UL 1995; NRTL certification label on enclosure, clearly identifying VFC as "Plenum Rated."

2.8 ACCESSORIES

- A. Space heaters, with NC auxiliary contacts, to mitigate condensation in NEMA 250, Type 1 and Type 3R enclosures installed outdoors or in unconditioned interior spaces subject to humidity and temperature swings.

- B. Cooling Fan and Exhaust System: For NEMA 250, Type 1 and Type 3R ; UL 508 component recognized: Supply fan, with intake and exhaust grills and filters; 120-V ac; obtained from integral CPT.
- C. Spare control-wiring terminal blocks; unwired.

2.9 SOURCE QUALITY CONTROL

- A. Testing: Test and inspect VFCs according to requirements in NEMA ICS 61800-2.
 - 1. Test each VFC while connected to its specified motor.
 - 2. Verification of Performance: Rate VFCs according to operation of functions and features specified.
- B. VFCs will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, surfaces, and substrates to receive VFCs, with Installer present, for compliance with requirements for installation tolerances, and other conditions affecting performance of the Work.
- B. Examine VFC before installation. Reject VFCs that are wet, moisture damaged, or mold damaged.
- C. Examine roughing-in for conduit systems to verify actual locations of conduit connections before VFC installation.
- D. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Wall-Mounting Controllers: Install with tops at uniform height and with disconnect operating handles not higher than 79 inches (2000 mm) above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not on walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."
- B. Floor-Mounting Controllers: Install VFCs on 4-inch (100- mm) nominal thickness concrete base. Comply with requirements for concrete base specified in Section 033000 "Cast-in-Place Concrete."
 - 1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
 - 2. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
 - 3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 4. Install anchor bolts to elevations required for proper attachment to supported equipment.
- C. Roof-Mounting Controllers: Install VFC on roofs with tops at uniform height and with disconnect operating handles not higher than 79 inches (2000 mm) above finished roof surface unless otherwise indicated, and by bolting units to curbs or mounting on freestanding, lightweight, structural-steel channels bolted to curbs. Seal roof penetrations after raceways are installed.
 - 1. Curbs and roof penetrations are specified in Section 077200 "Roof Accessories."
 - 2. Structural-steel channels are specified in Section 260529 "Hangers and Supports for Electrical Systems."
- D. Seismic Bracing: Comply with requirements specified in Section 260548.16 "Seismic Controls for Electrical Systems."

- E. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- F. Install fuses in each fusible-switch VFC.
- G. Install fuses in control circuits if not factory installed.
- H. Install heaters in thermal-overload relays. Select heaters based on actual nameplate full-load amperes after motors are installed.
- I. Install, connect, and fuse thermal-protector monitoring relays furnished with motor-driven equipment.
- J. Comply with NECA 1.

3.3 CONTROL WIRING INSTALLATION

- A. Install wiring between VFCs and remote devices and facility's central-control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."
- B. Bundle, train, and support wiring in enclosures.
- C. Connect selector switches and other automatic-control devices where applicable.
 - 1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switches are in manual-control position.
 - 2. Connect selector switches with control circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor-overload protectors.

3.4 IDENTIFICATION

- A. Identify VFCs, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.

2. Label each VFC with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

B. Operating Instructions: Frame printed operating instructions for VFCs, including control sequences and emergency procedures. Fabricate frame of finished metal, and cover instructions with clear acrylic plastic. Mount on front of VFC units.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each VFC element, bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect VFC, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each VFC element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at VFC locations are within 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer and Owner before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform tests according to the Inspection and Test Procedures for Adjustable Speed Drives stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Perform the following infrared (thermographic) scan tests and inspections, and prepare reports:

- a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each VFC. Remove front panels so joints and connections are accessible to portable scanner.
 - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each VFC 11 months after date of Substantial Completion.
 - c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
9. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- D. VFCs will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies the VFC and describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations made after remedial action.

3.6 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
1. Complete installation and startup checks according to manufacturer's written instructions.

3.7 ADJUSTING

- A. Program microprocessors for required operational sequences, status indications, alarms, event recording, and display features. Clear events memory after final acceptance testing and prior to Substantial Completion.
- B. Set field-adjustable switches, auxiliary relays, time-delay relays, timers, and overload-relay pickup and trip ranges.
- C. Adjust the trip settings of instantaneous-only circuit breakers and thermal-magnetic circuit breakers with

adjustable, instantaneous trip elements. Initially adjust to 6 times the motor nameplate full-load amperes and attempt to start motors several times, allowing for motor cool-down between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed 8 times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer and Owner before increasing settings.

- D. Set field-adjustable circuit-breaker trip ranges.
- E. Set field-adjustable pressure switches.

3.8 PROTECTION

- A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions until controllers are ready to be energized and placed into service.
- B. Replace VFCs whose interiors have been exposed to water or other liquids prior to Substantial Completion.

3.9 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, reprogram, and maintain VFCs.

END OF SECTION 232923

September 3, 2021

SECTION 260500– GENERAL REQUIREMENTS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. All products shall be UL listed and labeled and shall comply with NFPA 70.

1.2 DEMOLITION AND REMOVALS

- A. Disconnect, remove and / or relocate existing material, equipment and other work as noted or required for proper installation of new work.
- B. Except where existing wiring is indicated to be re-used, any item indicated for removal shall be removed, inclusive of any raceway, boxes, wiring, etc., back to its originating source.
- C. All existing material, equipment and construction debris to be removed under this contract shall become the property of the Contractor. Removed equipment shall be properly disposed of by the Contractor.
- D. Connections to existing work: Install new work and connect to existing work with minimum interference to existing facilities.
- E. Maintain continuous operation of existing facilities as required with necessary temporary connections between new and existing work. Connect new work to existing work in a neat and workmanlike manner. Restore existing disturbed work to original condition, including maintaining wiring continuity as required.
- F. Restore all existing surfaces to match surrounding surface.

1.3 OPERATIONAL TESTING

- A. Perform operational testing of all new equipment until equipment runs trouble-free for 30 consecutive days.
- B. Make final connections and perform startup of equipment for complete and operational systems upon completion.

1.4 CONSTRUCTION SEQUENCE, SCHEDULE, AND LIMITATIONS ON DOWNTIME

- A. Contractor shall develop and submit a detailed construction sequence and schedule for the work.
 - 1. All shutdown periods and temporary power facilities shall be described in detail.
- B. Work will be conducted in a live working environment. Provide two week look ahead schedule to Owner throughout the project. Coordinate and obtain approval from Owner for any work that will affect live portions of the working environment prior to starting work.
- C. Notify NJDWSC 5 days in advance of any proposed shutdowns. Coordinate details of proposed shutdowns with NJDWSC.
 - 1. NJDWSC shall grant permission for shutdowns at its own discretion.

2. NJDWSC may delay or postpone scheduled shutdowns at any time as may be required to maintain operations.

- D. Furnish floor wide fire watch during any fire alarm, or fire protection (sprinkler service) interruptions.

1.5 TEMPORARY POWER

- A. Contractor shall make all arrangements and provide all equipment necessary to provide temporary power as required to complete the work.

1.6 CONFLICTS AND PROBLEMS

- A. The Engineer and Owner shall be notified immediately upon discovery of a problem or conflict. Contractor shall promptly identify one or more proposed solutions but shall not proceed until so authorized.

1.7 COORDINATION

- A. Coordinate the location and orientations of all equipment.
- B. Contractor shall thoroughly familiarize himself and coordinate with existing conditions.

1.8 SUBMITTALS

- A. Submittals (shop drawings) shall be provided for each piece of purchased equipment. Ensure thoroughness and accuracy of the submittals. The Contractor shall provide a stamp on the shop drawings stating that they conform to the drawings and specifications.
 1. Long lead items shall be ordered promptly to ensure timely deliveries.

1.9 RECORD DRAWINGS

- A. Prepare a complete set of Record Drawings of all systems including mechanical, electrical and control diagrams.
- B. Record drawings shall clearly indicate the installed condition of the work including equipment locations and exact routing of all wiring, piping, and ductwork.
- C. Provide updated panel schedules for all panelboards.
- D. Record drawings shall include at a minimum 3 sets of printed drawings as well as electronic files.
- E. Electronic drawing files shall be submitted in AutoCAD. Other electronic files shall be MS Word or Excel when possible.

1.10 INSPECTIONS AND PERMITS

- A. Contractor shall arrange and pay for all permits, certificates, inspections, etc. And pay all fees levied by state, local and municipal authorities having jurisdiction over work done under this contract.

1.11 INSTALLATION

- A. Drawings are diagrammatic and indicate general arrangement of systems and work. Drawings do not necessarily indicate the actual location of equipment, or routing including all offsets, drops, rises, and runs for conduit, piping, ductwork, etc.
- B. "Furnish and install" or "provide" means to supply, erect, install and connect up to, complete for readiness for regular operation, the particular work referred to.
- C. The Contractor shall furnish and install all supports, hangers, boxes, conduit, wiring and panels as required, and shall perform demolition and modification work as required, to make a complete and operable system.
- D. Proper fire protection measures, satisfactory to the local fire department, shall be taken when welding or cutting with torches or electric arc. Contractor to provide open flame permit if required.
- E. All work shall be done in a neat workmanlike manner, left clean and free from defects, and completely operable.
- F. Install work so as to be readily accessible for operation, maintenance and repair.

1.12 DELIVERY AND HANDLING

- A. Investigate each space through which equipment must be moved. Where necessary, equipment shall be shipped from manufacturer in sections of size suitable for moving through available restrictive spaces. Ascertain from owner at what times of day equipment may be moved through all areas.
- B. Protect all equipment from the weather and damage at all times during shipment, storage and construction.

1.13 CUTTING AND PATCHING

- A. Contractor shall perform all cutting and patching as required for his work. Do not cut building structural elements. Patch and paint to match adjacent surfaces.
- B. All holes in masonry floors and walls shall be core drilled. Any core drilling shall be coordinated with the Owner.
- C. All penetrations of floors (whether or not fire resistance rated) and all penetrations of fire rated walls and floors shall be provided with a through penetration protection system (firestopping). Each through-penetration protection system shall be tested in accordance with ASTM E814 and be listed for the type of floor or wall assembly penetrated and the type of protection system required.

1.14 WARRANTY

- A. Basic warranty period shall be one year and shall start from the date of successful commissioning and start-up. A special warranty may also be required for certain equipment, as required in the individual specification sections for the equipment.

1.15 OPERATION AND MAINTENANCE MANUALS

- A. At the completion of the project, provide the Owner with copies of installation, operation and maintenance procedures along with final approved shop drawings for each piece of equipment.

1.16 OPERATOR TRAINING

- A. Provide comprehensive training for Owner's personnel covering the operation and maintenance of each piece of equipment provided on the project.
- B. Training shall be conducted at the Owner's facility by a representative of the equipment manufacturer.
- C. Submit a list of training topics and training schedule.
- D. Document each training session and include training documentation in the Operation and Maintenance Manual.

END OF SECTION 200500

September 3, 2021

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The work included in the Section is related to the furnishing and installing power and control cables for powering and controlling the operation of the Silos.

1.2 SUMMARY

- A. Section Includes:
 - 1. Copper building wire rated 600 V or less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

- A. RoHS: Restriction of Hazardous Substances.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer's authorized service representative.
- B. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA.
 - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 - 2. RoHS compliant.
 - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- D. Conductor Insulation:
 - 1. Type XHHW-2: Comply with UL 44.
 - 2. Type THHN/THWN: Comply with UL 83

2.2 CONTROL WIRE

- A. The #14 AWG Stranded Copper Conductor with Type XHHW-2 or Type THHN/THWN insulation.
- B. Fiber Optic Cable, type and configuration as shown on the drawings.

2.3 SIGNAL WIRE

- A. The minimum wiring size shall be as follows:
 - 1. 18-22AWG, Stranded Copper Conductor, twisted-pair shielded; 600V insulation, for 4-20mA signals
- B. Fiber Optic Cable, type and configuration as shown on the drawings.
- C. The wire colors for control signals shall be as follows:
 - 1. BLACK (+), WHITE or CLEAR (-) for twisted-pair shielded cables

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Feeder cables; Type XHHW-2
- B. Branch circuits: Type THHN/THWN.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Install all conductors and cables in raceways, type as shown on drawing.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling method, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Support conduits according per NEC
- F. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- G. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- H. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.4 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies as shown on plans details.

3.6 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.7 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections.
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 2. Perform each of the following visual and electrical tests:
 - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
 - b. Test bolted connections for high resistance using one of the following:
 - 1) A low-resistance ohmmeter.
 - 2) Calibrated torque wrench.
 - 3) Thermographic survey.
 - c. Inspect compression-applied connectors for correct cable match and indentation.
 - d. Inspect for correct identification.
 - e. Inspect cable jacket and condition.
 - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
 - g. Continuity test on each conductor and cable.
- C. Cables will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports to record the following:
 - 1. Procedures used.
 - 2. Results that comply with requirements.
 - 3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

SECTION 260523 - CONTROL-VOLTAGE ELECTRICAL POWER CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Category 6 balanced twisted pair cable.
 - 2. Twin-axial data highway cable.
 - 3. RS-232 cabling.
 - 4. RS-485 cabling.
 - 5. Low-voltage control cabling.
 - 6. Control-circuit conductors.
 - 7. Identification products.

1.3 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control and signaling power-limited circuits.
- C. Plenum: A space forming part of the air distribution system to which one or more air ducts are connected. An air duct is a passageway, other than a plenum, for transporting air to or from heating, ventilating, or air-conditioning equipment.
- D. RCDD: Registered Communications Distribution Designer.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

- A. Source quality-control reports.
- B. Field quality-control reports.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Flame Travel and Smoke Density in Plenums: As determined by testing identical products according to NFPA 262, by a qualified testing agency. Identify products for installation in plenums with appropriate markings of applicable testing agency.
 - 1. Flame Travel Distance: **60 inches (1520 mm)** or less.
 - 2. Peak Optical Smoke Density: 0.5 or less.
 - 3. Average Optical Smoke Density: 0.15 or less.
- C. Flame Travel and Smoke Density for Riser Cables in Non-Plenum Building Spaces: As determined by testing identical products according to UL 1666.
- D. Flame Travel and Smoke Density for Cables in Non-Riser Applications and Non-Plenum Building Spaces: As determined by testing identical products according to UL 1685.
- E. RoHS compliant.

2.2 CATEGORY 6 BALANCED TWISTED PAIR CABLE

- A. Description: Four-pair, balanced-twisted pair cable, with internal spline, certified to meet transmission characteristics of Category 6 cable at frequencies up to 250MHz.
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AMP NETCONNECT; a TE Connectivity Ltd. company.
 - 2. CommScope, Inc.
 - 3. General Cable; General Cable Corporation.
 - 4. Mohawk; a division of Belden Networking, Inc.
- C. Standard: Comply with NEMA WC 66/ICEA S-116-732 and TIA-568-C.2 for Category 6 cables.
- D. Conductors: 100-ohm, 23 AWG solid copper.
- E. Shielding/Screening: Unshielded twisted pairs (UTP).
- F. Cable Rating: Plenum (suitable for installation in any space).
- G. Jacket: Blue thermoplastic.

CONTROL-VOLTAGE ELECTRICAL POWER CABLES

2.3 TWIN-AXIAL DATA HIGHWAY CABLE

A. Standard Cable: NFPA 70, Type CM.

1. Paired, pairs, No. 24 AWG, stranded (7x32) tinned-copper conductors.
2. Polypropylene insulation.
3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
4. PVC jacket.
5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned-copper drain wire.
6. Flame Resistance: Comply with UL 1685.

B. Plenum-Rated Cable: NFPA 70, Type CMP.

1. Paired, pairs, No. 24 AWG, stranded (7x32) tinned-copper conductors.
2. Plastic insulation.
3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
4. Plastic jacket.
5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned-copper drain wire.
6. Flame Resistance: Comply with NFPA 262.

2.4 RS-232 CABLE

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. [Allied Wire & Cable Inc.](#)
2. [Belden Inc.](#)
3. [General Cable Technologies Corporation.](#)
4. [Genesis Cable Products; Honeywell International, Inc.](#)
5. [Southwire Company.](#)

B. PVC-Jacketed, TIA 232-F:

1. Three, No. 22 AWG, stranded (7x30) tinned copper conductors.
2. Polypropylene insulation.
3. Aluminum foil-polyester tape shield with 100 percent shield coverage.
4. PVC jacket.
5. Conductors are cabled on common axis with No. 22 AWG, stranded (7x30) tinned copper drain wire.
6. NFPA 70 Type: Type CM.
7. Flame Resistance: Comply with UL 1581.

C. Plenum-Type, TIA 232-F:

1. Three, No. 22 AWG, stranded (7x30) tinned copper conductors.
2. PE insulation.
3. Aluminum foil-polyester tape shield with 100 percent shield coverage.
4. Fluorinated ethylene propylene jacket.

CONTROL-VOLTAGE ELECTRICAL POWER CABLES

5. Conductors are cabled on common axis with No. 22 AWG, stranded (7x30) tinned copper drain wire.
6. Flame Resistance: Comply with NFPA 262.

2.5 RS-485 CABLE

A. Standard Cable: NFPA 70, Type CMG.

1. Paired, one pair, twisted, No. 22 AWG, stranded (7x30) tinned-copper conductors.
2. PVC insulation.
3. Unshielded.
4. PVC jacket.
5. Flame Resistance: Comply with UL 1685.

B. Plenum-Rated Cable: NFPA 70, Type CMP.

1. Paired, one pair, No. 22 AWG, stranded (7x30) tinned-copper conductors.
2. Fluorinated ethylene propylene insulation.
3. Unshielded.
4. Fluorinated ethylene propylene jacket.
5. Flame Resistance: NFPA 262.

2.6 LOW-VOLTAGE CONTROL CABLE

A. Paired Cable: NFPA 70, Type CMG.

1. One, No. 16 AWG, stranded (19x29) tinned-copper conductors.
2. PVC insulation.
3. Unshielded.
4. PVC jacket.
5. Flame Resistance: Comply with UL 1685.

B. Plenum-Rated, Paired Cable: NFPA 70, Type CMP.

1. One, No. 16 AWG, stranded (19x29) tinned-copper conductors.
2. PVC insulation.
3. Unshielded.
4. PVC jacket.
5. Flame Resistance: Comply with NFPA 262.

2.7 CONTROL-CIRCUIT CONDUCTORS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Encore Wire Corporation.
2. General Cable; General Cable Corporation.
3. Service Wire Co.
4. Southwire Company.

CONTROL-VOLTAGE ELECTRICAL POWER CABLES

- B. Class 1 Control Circuits: Stranded copper, Type XHHW-2, complying with UL 44 in raceway.
- C. Class 2 Control Circuits: Stranded copper, Type XHHW-2, complying with UL 44 in raceway.
- D. Class 3 Remote-Control and Signal Circuits: Stranded copper, Type XHHW-2, complying with UL 44 in raceway.
- E. Class 2 Control Circuits and Class 3 Remote-Control and Signal Circuits That Supply Critical Circuits: Circuit Integrity (CI) cable.
 - 1. Smoke control signaling and control circuits.

2.8 SOURCE QUALITY CONTROL

- A. Factory test twisted pair cables according to TIA-568-C.2.
- B. Cable will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Test cables on receipt at Project site.
 - 1. Test each pair of twisted pair cable for open and short circuits.

3.2 INSTALLATION OF RACEWAYS AND BOXES

- A. Comply with requirements in Section 260533 "Raceways and Boxes for Electrical Systems" for raceway selection and installation requirements for boxes, conduits, and wireways as supplemented or modified in this Section.
 - 1. Outlet boxes shall be no smaller than 2 inches (50 mm) wide, 3 inches (75 mm) high, and 2-1/2 inches (64 mm) deep.
 - 2. Flexible metal conduit shall not be used.
- B. Comply with TIA-569-D for pull-box sizing and length of conduit and number of bends between pull points.
- C. Install manufactured conduit sweeps and long-radius elbows if possible.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Comply with NECA 1.

CONTROL-VOLTAGE ELECTRICAL POWER CABLES

B. General Requirements for Cabling:

1. Comply with TIA-568-C Series of standards.
2. Comply with BICSI ITSIMM, Ch. 5, "Copper Structured Cabling Systems."
3. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, and cross-connect and patch panels.
4. Cables may not be spliced and shall be continuous from terminal to terminal. Do not splice cable between termination, tap, or junction points.
5. Cables serving a common system may be grouped in a common raceway. Install network cabling and control wiring and cable in separate raceway from power wiring. Do not group conductors from different systems or different voltages.
6. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
7. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIMM, Ch. 5, "Copper Structured Cabling Systems." Install lacing bars and distribution spools.
8. Do not install bruised, kinked, scored, deformed, or abraded cable. Remove and discard cable if damaged during installation and replace it with new cable.
9. Cold-Weather Installation: Bring cable to room temperature before dereeling. Do not use heat lamps for heating.
10. Pulling Cable: Comply with BICSI ITSIMM, Ch. 5, "Copper Structured Cabling Systems." Monitor cable pull tensions.
11. Support: Do not allow cables to lie on removable ceiling tiles.
12. Secure: Fasten securely in place with hardware specifically designed and installed so as to not damage cables.
13. Provide strain relief.
14. Keep runs short. Allow extra length for connecting to terminals. Do not bend cables in a radius less than 10 times the cable OD. Use sleeves or grommets to protect cables from vibration at points where they pass around sharp corners and through penetrations.
15. Ground wire shall be copper, and grounding methods shall comply with IEEE C2. Demonstrate ground resistance.

C. Balanced Twisted Pair Cable Installation:

1. Comply with TIA-568-C.2.
2. Do not untwist balanced twisted pair cables more than 1/2 inch (12 mm) at the point of termination to maintain cable geometry.

D. Installation of Control-Circuit Conductors:

1. Install wiring in raceways.
2. Use insulated spade lugs for wire and cable connection to screw terminals.
3. Comply with requirements specified in Section 260533 "Raceways and Boxes for Electrical Systems."

E. Open-Cable Installation:

1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.

2. Suspend copper cable not in a wireway or pathway a minimum of **8 inches (200 mm)** above ceilings by cable supports not more than **30 inches (760 mm)** apart.
3. Cable shall not be run through or on structural members or in contact with pipes, ducts, or other potentially damaging items. Do not run cables between structural members and corrugated panels.

F. Installation of Cable Routed Exposed under Raised Floors:

1. Install plenum-rated cable only.
2. Install cabling after the flooring system has been installed in raised floor areas.
3. Below each feed point, neatly coil a minimum of **72 inches (1830 mm)** of cable in a coil not less than **12 inches (305 mm)** in diameter.

G. Separation from EMI Sources:

1. Comply with BICSI TDMM and TIA-569-D recommendations for separating unshielded copper voice and data communications cable from potential EMI sources including electrical power lines and equipment.
2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - a. Electrical Equipment or Circuit Rating Less Than 2 kVA: A minimum of **5 inches (127 mm)**.
 - b. Electrical Equipment or Circuit Rating between 2 and 5 kVA: A minimum of **12 inches (305 mm)**.
 - c. Electrical Equipment or Circuit Rating More Than 5 kVA: A minimum of **24 inches (600 mm)**.
3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - a. Electrical Equipment or Circuit Rating Less Than 2 kVA: A minimum of **2-1/2 inches (64 mm)**.
 - b. Electrical Equipment or Circuit Rating between 2 and 5 kVA: A minimum of **6 inches (150 mm)**.
 - c. Electrical Equipment or Circuit Rating More Than 5 kVA: A minimum of **12 inches (305 mm)**.
4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - a. Electrical Equipment or Circuit Rating Less Than 2 kVA: No requirement.
 - b. Electrical Equipment or Circuit Rating between 2 and 5 kVA: A minimum of **3 inches (75 mm)**.
 - c. Electrical Equipment or Circuit Rating More Than 5 kVA: A minimum of **6 inches (150 mm)**.
5. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or 5 HP and Larger: A minimum of **48 inches (1200 mm)**.

6. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5 inches (127 mm).

3.4 REMOVAL OF CONDUCTORS AND CABLES

- A. Remove abandoned conductors and cables. Abandoned conductors and cables are those installed that are not terminated at equipment and are not identified with a tag for future use.

3.5 CONTROL-CIRCUIT CONDUCTORS

- A. Minimum Conductor Sizes:
 1. Class 1 remote-control and signal circuits; No 14 AWG.
 2. Class 2 low-energy, remote-control, and signal circuits; No. 16 AWG.
 3. Class 3 low-energy, remote-control, alarm, and signal circuits; No 12 AWG.

3.6 FIRESTOPPING

- A. Comply with TIA-569-D, Annex A, "Firestopping."
- B. Comply with BICSI TDMM, "Firestopping" Chapter.

3.7 GROUNDING

- A. For data communication wiring, comply with TIA-607-B and with BICSI TDMM, "Bonding and Grounding (Earthing)" Chapter.
- B. For low-voltage control wiring and cabling, comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."

3.8 IDENTIFICATION

- A. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- B. Identify data and communications system components, wiring, and cabling according to TIA-606-B; label printers shall use label stocks, laminating adhesives, and inks complying with UL 969.
- C. Identify each wire on each end and at each terminal with a number-coded identification tag. Each wire shall have a unique tag.

3.9 FIELD QUALITY CONTROL

- A. Perform tests and inspections.

CONTROL-VOLTAGE ELECTRICAL POWER CABLES

B. Tests and Inspections:

1. Visually inspect cable jacket materials for UL or third-party certification markings. Inspect cabling terminations to confirm color-coding for pin assignments, and inspect cabling connections to confirm compliance with TIA-568-C.1.
 2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
 3. Test cabling for direct-current loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination, but not after cross-connection.
 - a. Test instruments shall meet or exceed applicable requirements in TIA-568-C.2. Perform tests with a tester that complies with performance requirements in its "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in its "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
- C. Document data for each measurement. Print data for submittals in a summary report that is formatted using Table 10.1 in BICSI TDMM as a guide, or transfer the data from the instrument to the computer, save as text files, print, and submit.
- D. End-to-end cabling will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

END OF SECTION 260523

September 3, 2021

September 3, 2021

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Grounding and Bonding work refers to furnishing and installing the grounding and bonding of equipment, panels and the Silos.

1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.
- B. Section includes grounding and bonding systems and equipment, plus the following special applications:
 - 1. Underground distribution grounding.
 - 2. Ground bonding common with lightning protection system.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans showing dimensioned locations of grounding features specified in "Field Quality Control" Article, including the following:
 - 1. Test wells.
 - 2. Ground rods.
 - 3. Ground rings.
- B. Qualification Data: For testing agency and testing agency's field supervisor.
- C. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. As built Drawings.
 - 1. Include the following:
 - a. Plans showing as-built, dimensioned locations of grounding features specified in "Field Quality Control" Article, including the following:

- 1) Test wells.
 - 2) Ground rods.
 - 3) Ground rings.
- b. Instructions for periodic testing and inspection of grounding features at test wells based on NETA MTS and NFPA 70B.
- 1) Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
 - 2) Include recommended testing intervals.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Certified by NETA.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
1. Solid Conductors: ASTM B 3.
 2. Stranded Conductors: ASTM B 8.
 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 5. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
 6. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (wide and 1/16 inch thick.

2.3 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

- B. Welded Connectors: and connections required for all underground and outdoor locations: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Cable-to-Cable Connectors for indoors: Compression type, copper or copper alloy.
- D. Conduit Hubs: Mechanical type, terminal with threaded hub.
- E. Ground Rod Connection: Exothermic weld.
- F. Lay-in Lug Connector: Exothermic weld connections.
- G. Straps: Solid copper, copper lugs. Rated for 600 A.

2.4 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad; 5/8 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, 211,500 circular mils minimum.
 - 1. Bury at least 30 inches below grade.
- C. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors and as otherwise indicated.
 - 3. Connections to Ground Rods: Exothermic welds.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.

3.3 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Flexible raceway runs.

3.4 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
- C. Ground Rods: Drive rods until tops are at depths indicated on the drawings or elsewhere in the specifications.
 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
- D. Test Wells: Ground rod driven in bottom of test well.
 1. Install at least one test well were indicated. Set top of test well flush with finished grade or slab.
- E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- F. Ground Ring: Install a grounding conductor, electrically connected to each Silo structure ground rod and extending around the perimeter of slab.
 1. Install tinned-copper conductor not less than No. 4/0 (211,500circular mills) AWG for ground ring and for taps to building steel.
 2. Bury ground ring not less than 24 inches from building's foundation.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

- C. Perform tests and inspections.
- D. Tests and Inspections:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
 - 3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81. Test all grounding by performing all visual and mechanical inspections and electrical tests as indicated in ANSI/NETA ATS-2013, Section 7.13
 - 4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- E. Grounding system will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.
- G. Report measured ground resistances that exceed the following values:
 - 1. At all Grounding Test Wells, Lightning Protection Drone Conductors, Electric Panels, and Equipment/Control/Communication Cabinets: 3 ohm(s).
- H. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.
- B. Related Sections include the following:
 - 1. Section 2560548.16 – Seismic Controls for Electrical Systems.

1.2 DEFINITIONS

- A. RMC: Rigid metal conduit.

1.3 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.4 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 - 1. Steel slotted channel systems. Include Product Data for components.
 - 2. Equipment supports.

1.5 QUALITY ASSURANCE

- A. Comply with NFPA 70.

1.6 COORDINATION

- A. Coordinate size and location of concrete bases. Provide anchor-bolt inserts into bases.
- B. Coordinate installation of, equipment supports.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Atkore International.
 - g. Wesanco, Inc.
 - 3. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 5. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Hilti, Inc.
 - 2) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.

2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-Line, Inc.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti, Inc.
 - 4) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 - 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 CONCRETE BASES

- A. Anchor equipment to concrete base.
 - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC- PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing- repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

The work described in this specifications covers to the raceways for power circuit conductors and communication wiring run in the Chemical Building and around the Silos.

1.2 SUMMARY

A. Section Includes:

1. Metal conduits, and fittings.
2. Boxes, enclosures, and cabinets.

1.3 DEFINITIONS

- A. RMC: Rigid Meta steel Conduit.
- B. PVC: Rigid polyvinyl Chloride Conduit

1.4 ACTION SUBMITTALS

- A. Product Data: For conduit, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:
1. Structural members in paths of conduit groups with common supports.
 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Listing and Labeling: Metal conduits, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. RMC: Comply with ANSI C80.1 and UL 6.
- C. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- D. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
 - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
 - 2. Expansion Fittings: steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
- E. Joint Compound for RMC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NO-METALLIC CONDUIT AND FITTINGS (PVC)

- A. PVC Conduit: Schedule 80
- B. Fittings: Listed for use with Schedule 80 PVC

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. General Requirements for Boxes, Enclosures: Boxes, enclosures, and cabinets installed outdoors or in wet locations shall be listed for use in wet locations.
- B. All boxes enclosures and cabinets installed outdoors shall be galvanized cast-metal or NEMA 4X, Type 304 Stainless Steel
- C. Sheet Metal Outlet and Device Boxes (indoors): Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes (indoors): Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- E. Small Sheet Metal Pull and Junction Boxes (indoors): NEMA OS 1.
- F. Cast-Metal Access, Pull, and Junction Boxes (outdoors): Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.
- G. Cabinets:

1. NEMA 250, Type 12 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
1. Conduit: RMC metal conduit.
 2. Connection to Vibrating Equipment (Motor-Driven Equipment): LFMC.
 3. Boxes aboveground: Galvanized cast-metal or NEMA 4X, Type 304 Stainless Steel.
 4. Enclosures and Cabinets aboveground: NEMA 4X, Type 304 Stainless Steel.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
1. Conduit: RMC.
 2. Connection to Vibrating Equipment (Motor-Driven Equipment): LFMC.
 3. Boxes and Enclosures, as specified or as shown on the drawings.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
 2. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.

3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

- E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- F. Conceal conduit and within ceilings, unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- G. Support conduit within 12 inches of enclosures to which attached.
- H. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- I. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- J. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- K. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- L. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- M. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- N. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- O. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- P. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries between interior and exterior spaces.
 - 2. Where an underground service raceway enters a building or structure.
 - 3. Where otherwise required by NFPA 70.
- Q. Expansion-Joint Fittings:
 - 1. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

- a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
 2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg of temperature change for metal conduits.
 3. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
 4. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- R. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC in damp or wet locations not subject to severe physical damage.
- S. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to bottom of box unless otherwise indicated.
- T. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- U. Seal-Off Fitting
1. Provide conduit seal-off fittings on all conduits penetrating exterior walls. Locate the seal-off fitting on the building interior side immediately adjacent to the exterior wall penetration.
- 3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS
- A. Install sleeves and sleeve seals at penetrations of exterior wall assemblies. Comply with requirements shown on plan details.
- 3.4 FIRESTOPPING
- A. Install firestopping at penetrations of fire-rated floor and wall assemblies.
- 3.5 PROTECTION
- A. Protect coatings, finishes, and cabinets from damage and deterioration.

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provide identification of the electrical equipment and accessories by applying labels, tags for panelboards and circuits, warning tape for conduits.

1.2 SUMMARY

The identification labels shall be attached to Panels, Circuit Breakers at MCC, tags on cables at panels and junction boxes.

Warning tape should be placed in the trench to identify the conduit routing on grade.

- A. Section Includes:

- 1. Labels
- 2. Tapes
- 3. Tags
- 4. Ties

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.
- B. Samples: For each type of label and sign to illustrate composition, size, colors, lettering style, mounting provisions, and graphic features of identification products.
- C. Identification Schedule: Use same designations indicated on Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 - 1. White letters on an black field
 - 2. Legend: Indicate voltage and system or service type.
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.
 - 1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
 - 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - 3. Colors for 480/277-V Circuits:
 - a. Phase A: Brown.
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
 - 4. Color for Neutral: White.
 - 5. Color for Equipment Grounds: Bare copper or Green.
- C. Warning Label Colors:
 - 1. Identify system voltage with white letters on a black background.

2.3 LABELS

- A. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- thick, vinyl flexible label with acrylic pressure-sensitive adhesive.
 - 1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.

2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- B. Self-Adhesive Labels: Vinyl, thermal, transfer-printed, 3-mil- thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
1. Minimum Nominal Size:
 - a. 1-1/2 by 6 inches for raceway and conductors.
 - b. 3-1/2 by 5 inches for equipment.
 - c. As required by authorities having jurisdiction.

2.4 TAPES

- A. Marker Tapes: self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- B. Underground-Line Warning Tape:
1. Tape:
 - a. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical utility lines.
 - b. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
 2. Color and Printing:
 - a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
 - b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE"
 - c. Inscriptions for Orange-Colored Tapes: "TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE"

2.5 TAGS

- A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.
- B. Nonmetallic Preprinted Tags: Polyethylene tags, 0.015 inch thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

2.6 CABLE TIES

- A. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength at 73 Deg F (according to ASTM D 638: 12,000 psi
 - 3. Temperature Range: Minus 40 to plus 185 deg F.
 - 4. Color: Black, except where used for color-coding.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before re-installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- F. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
- G. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the power and communication systems with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. "POWER."
 - 2. "COMM."
- H. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.

I. Self-Adhesive Labels:

1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.

J. Underground Line Warning Tape:

1. During backfilling of trenches, install continuous underground-line warning tape directly above cable or raceway at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.
2. Limit use of underground-line warning tape to direct-buried cables.
3. Install underground-line warning tape for cables in raceways.

K. Metal Tags:

1. Place in a location with high visibility and accessibility.
2. Secure using general-purpose cable ties.

L. Cable Ties: General purpose, for attaching tags, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Accessible Raceways 600 V or Less, for Feeder, and Branch Circuits, More Than 30 A and 480V to Ground: Identify with self-adhesive raceway labels.
1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- D. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. System legends shall be as follows:
1. "POWER."
 2. "COMM."
- E. Power-Circuit Conductor Identification, 600 V or Less: For conductors in, pull and junction boxes, use labels to identify the phase.

1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, use self-adhesive labels with the conductor or cable designation, origin, and destination.
- G. Control-Circuit Conductor Termination Identification: For identification at terminations, provide self-adhesive labels with the conductor designation.
- H. Locations of Underground Lines: Underground-line warning tape for power, communication, and control wiring and optical-fiber cable.
- I. Equipment Identification Labels:
 1. Indoor Equipment: Baked-enamel signs.
 2. Outdoor Equipment: Laminated acrylic or melamine sign.
 3. Equipment to Be Labeled:
 - a. Enclosures and electrical cabinets.
 - b. Access doors and panels for concealed electrical items.
 - c. Monitoring and control equipment.

END OF SECTION 260553

EXHIBIT “C”

CLARIFICATIONS NO. 1 TO 5



MEMORANDUM
PROC #21-24

NOTICE TO BIDDERS

CLARIFICATION TO QUESTIONS NO. 1

SENT VIA E-MAIL

DATE: December 10, 2021

TO: **POTENTIAL BIDDERS**

FROM: Margaret M. Maddalena, Contract Administrator

RE: **CONTRACT #2086 POT PERM SYSTEM REHABILITATION**

Question #1 There are two separate silos, and the specifications call for two main control panels, one for each silo. What about the truck fill panel? Should there be two separate truck fill panels (one for each silo), or should there be one truck fill panel that incorporates the fill components for both silos?

Response: ***One truck unloading panel is required for both silos.***

Question #2 Materials of construction for conduits in Pot Perm room. Rigid galv, stainless steel, PVC, EMT?

Response: ***Electric conduit shall be rigid galvanized. No existing conduit shall be reused except for the conduit in the ceiling of the electric / MCC room. All conduit in the Pot Perm room shall not be reused. New conduit in the Pot Perm room shall be run overhead to the silo support structure providing sufficient, OSHA compliant height. From there, wiring to the feeder & wetting cone shall run under the floor grating and come up to the respective devices.***

Question #3 Exhaust fan and louver – type, size, cfm required, materials of construction, is exhaust fan louver motorized or static.

Response: ***Exhaust fan has been removed from scope.***

- Question #4 We did not see any intake louver in room, is one required? With doors closed and exhaust fan running room becomes negative pressure.
- Response:** ***No intake louvers are required.***
- Question #5 How is exhaust fan controlled?
- Response:** ***Exhaust fan has been removed from scope.***
- Question #6 Water supply piping to silos, materials of construction?
- Response:** ***The specification for water piping is Copper Tubing, Type K.***
- Question #7 Regarding the Silo Bin Vent Filters, in order to best duplicate the existing units, to ensure proper mounting, clearances, and operation, it would be best to have the serial numbers of the existing units so that the manufacturer can pull the file on these exact systems. Can those serial numbers be provided?
- Response:** ***Please see picture #1 which is of the nameplate at the end of this document. The serial numbers are the same for both units.***
- Question #8 As this project does not include complete plans and specifications, wouldn't it be in NJDWSC best interested to require Design Professional Liability Insurance of the bidder?
- Response:** ***Please see Addendum #2.***
- Question #9 It is assumed that Chris is the person to contact to make site visits should we wish to so, or do they need to go through you as well?
- Response:** ***Please contact both Margaret Maddalena & Chris Clamser via e mail.***
- Question #10 Would it be possible to add another week or so to the bid timeline?
- Response:** ***The bid closing date has been extended to January 6, 2022 in accordance Addendum #1.***
- Question #11 I do not see any requirement for Builder's Risk Insurance is this accurate?
- Response:** ***Please see Addendum #2.***

Question #12 As it is difficult to determine the costs associated with Local/DCA Permits at this point, especially without complete documents, would it be possible to have an allowance item of say \$10K to cover the permit fees? This would allow the contractor to have a level field, and would not allow the permits to potentially be the driving force behind who is the low apparent bidder.

Response: *DCA Project Review & Permits are not required.*

Question #13 Article XII – Payments in General Conditions infers that payments will only be made when project is complete (or possibly 50% complete). On a project of this type and with the 420 Calendar day completion time, this does not seem to fair, especially since the article also states that contractor has to prove he has paid his suppliers prior to final payment. Please confirm that monthly progress payments are permissible under this contract. Section 012900 seems to indicate progress payments are acceptable, but Article XII seems to contradict that.

Response: *Monthly invoices can be submitted and should be received by the first of the month. Contractor to develop a schedule of values to be approved by the Commission for invoicing purposes.*

Question #14 Article XIII mentions holding money for expenses, losses or damages as determined by the Engineer – Who is the Engineer?

Response: *NJDWSC is the Engineer.*

Question #15 Per Special Instructions Bidders are to include a General Arrangement “GA” Drawings. Is this accurate?

Response: *Yes. A General Arrangement drawing is required to be submitted with the bid.*

Question #16 Does Project need to be submitted to DEP for approval? Has it already received approval?

Response: *DEP approval of the project is not required.*

Question #17 Does project fall under DCA purview for permitting?

Response: *DCA Project Review & Permits are not required.*

- Question #18 If permitting is required who is to be considered the “Engineer of Record?”
- Response:** ***DCA Project Review & Permits are not required.***
- Question #19 It is assumed that equipment vendors who are not listed are acceptable, as long as they meet the requirements of specifications, correct?
- Response:** ***Yes, that is correct.***
- Question #20 Will NJDWSC be handling day to day type onsite inspections or will NJDWSC be hiring an outside consultant to do so?
- Response:** ***NJDWSC will be performing this function.***
- Question #21 Section 014000 Calls for Specific Quality Assurance and Control Testing per other specs, but Section 014000 then goes on to mention that the requirements are not limited to the provisions of the section. What specific testing /quality control requirements will be required of the contractor? It is necessary to fully understand so as to provide a full concise cost estimate.
- Response:** ***Tests to be performed are noted in specification 111000. Any Quality Control requirements are specified in specification 111000 and the contract document and are mainly related to workmanship.***
- Question #22 Section 014000.1.8.E calls for Professional Engineer Qualifications. What is the Owner looking for here? Is this assumed to be the PE on staff with the Equipment vendor, or is it more an overall PE for the entire project?
- Response:** ***A PE shall be required primarily to review and stamp the drawings associated with the platforming at the silo tops and the associated design of the platform support.***
- Question #23 Please Confirm Bid Form pricing for Option #1 Emptying Silos, It is assumed that each of these items is a total quantity not a cumulating item. In other words the second bid item says 200 Cu-Ft are we to assume that we are to provide a price per cubic foot to remove a total of 200 Cubic Feet? And the pricing is just the cubic foot price? Then again with the 300 cu-Ft item same thing? It is not cumulating, these are stand-alone bid items, and are to be bid as unit price, with no totals, is that correct?

Response: *Please see addendum #2 for clarification.*

Question #24 Are Drawings of Existing Facility available to Bidders (ie, Silos, Pot Perm Room, Existing system, electrical etc.)

Response: *No. Bidders are required to conduct a site survey and obtain the necessary information and take field dimensions as required.*

Question #25 Is a specification for the piping required for the system?

Response: *Any pipe handling Pot Perm shall be 316 Stainless Steel.*

Question #26 It is assumed that the Potassium Permanganate System controls are to be supplied with system, and then tied into the NJDWSC system, is this correct? If so who is handling the programming within the NJDWSC system? Are there any requirements for the control system at the Potassium Permanganate System? Spec calls out Emerson, but if memory serves NJDWSC prefers GE. Where is this system to be tied into the existing NJDWSC system?

Response: *All programming for control of the complete system, feeders, silos, etc. is to be performed by the successful bidder. NJDWSC will interface with the feed system through the Ethernet port on the PLC processor. The only requirement by the successful bidder would be to add a predetermined IP address to the program.*

Programming of the NJDWSC HMI system will be done by NJDWSC.

GE PLC's were bought out by Emerson, therefore we now require Emerson.

Question #27 Is it to be assumed that there is adequate power for new Potassium Permanganate System? Where is power to be fed from?

Response: *Yes, there is enough power for the new system which will be fed from the electric / MCC room on the same floor. Contractor is required to replace breaker and all equipment/feeders on load side of breaker. No load study will be required. Lighting has been removed from scope so LP's no longer apply.*

Question #28 It is assumed that the Flame Retardant Shields mention under safety in section 111000 are temporary and will remain the property of the contractor, is this correct?

Response: ***Yes, that is correct.***

Question #29 Is there a specification for lighting 50 foot candles?

Response: ***Lighting has been deleted from the scope***

Question #30 Is any information available on silo hatches to determine gasketing requirements?

Response: ***Unfortunately No. Bidders are responsible to look at the existing gasket. Contractor is responsible to insure gasket material is compatible with Pot Perm.***

Question #31 Any information on the silo pressure vacuum reliefs that need to be replaced?

Response: ***Please see picture #2 of nameplate at end of this document.***

Question #32 Can additional details be provided for the silo platforming.

Response: ***Yes. Please see Addendum #2.***

Question #33 Does the wood under the grating need to be replaced at the floor level?

Response: ***Yes, galvanized steel channel shall be used to replace the wood. There are 3 pieces with lengths as follows.***

30 inch

40 inch

22 inch

Question #35 Does the floor pad under the existing control panel get removed?

Response: ***Yes.
The dimension of the pad is 21" wide, 80" long, 6-1/2" high***



Picture #1

Silo Bin Vent Filter Nameplate



Picture #2

Silo Pressure Vacuum Relief Valve Nameplate

CC: Bill Schaffner, Chief Financial Officer
Michael Broncatello, Comptroller & Chief Investment Officer
Maria Alliegro, P.E., LEED AP, Director of Engineering
Paul Serillo, Director of Facilities
Chris Clamser Engineering Project Manager



M E M O R A N D U M

PROC #21-30

NOTICE TO BIDDERS

CLARIFICATION TO QUESTIONS NO. 2

SENT VIA E-MAIL

DATE: December 16, 2021

TO: **POTENTIAL BIDDERS**

FROM: Margaret M. Maddalena, Contract Administrator

RE: **CONTRACT #2086 POT PERM SYSTEM REHABILITATION**

Question #1 Please provide Bin Vent Nameplate Information as the picture provided in Clarification #1 is slightly illegible.

Response: **Model 58-BVC-36-II**
SN # 13-51-09391
PO# 1034
Job # 4344

CC: Bill Schaffner, Chief Financial Officer
Michael Broncatello, Comptroller & Chief Investment Officer
Maria Alliegro, P.E., LEED AP, Director of Engineering
Paul Serillo, Director of Facilities
Chris Clamser Engineering Project Manager



M E M O R A N D U M

PROC #21-31

NOTICE TO BIDDERS

CLARIFICATION TO QUESTIONS NO. 3

SENT VIA E-MAIL

DATE: December 17, 2021

TO: **POTENTIAL BIDDERS**

FROM: Margaret M. Maddalena, Contract Administrator

RE: **CONTRACT #2086 POT PERM SYSTEM REHABILITATION**

Question #1 Based on Addendum #2 transferring between tanks is included in the base bid?

Response: *No, it should be presented as an option price.*

Question #2 Do we need to provide unit prices to transfer additional?

Response: *No, that requirement no longer exists because all of the Pot Perm can fit into 1 silo.*

Question #3 Do we need to provide storage price?

Response: *No, that requirement no longer exists because all of the Pot Perm can fit into 1 silo.*

Question #4 Addendum #2 mentions an option price, but can't determine what it is.

Response: *The option price will be to transfer material between silos.*

CC: Bill Schaffner, Chief Financial Officer
Michael Broncatello, Comptroller & Chief Investment Officer
Maria Alliegro, P.E., LEED AP, Director of Engineering
Paul Serillo, Director of Facilities
Chris Clamser Engineering Project Manager



M E M O R A N D U M

PROC #21-32

NOTICE TO BIDDERS

CLARIFICATION TO QUESTIONS NO. 4

SENT VIA E-MAIL

DATE: December 22, 2021

TO: **POTENTIAL BIDDERS**

FROM: Margaret M. Maddalena, Contract Administrator

RE: **CONTRACT #2086 POT PERM SYSTEM REHABILITATION**

Question #1 Please provide further definition of the painting requirements regarding doors and silo fill lines.

Response: *All doors and frames get painted on the inside. This includes one double door & one single door. These are stainless steel doors & frames.*

A total of four (4) silo fill lines get painted. Two for the Pot Perm silos and two for the Lime silos.

In addition, the floor grating and the support steel under it do not get painted.

Question #2 Please provide pictures of the existing truck unloading panel & connections.

Response: *Please see pictures below.*



Existing Pot Perm Truck Unloading connections that continue to get used.



Existing Pot Perm Truck Unloading Panel which gets replaced.

New Location of Pot Perm Truck Unloading Panel. New panel to be located in blank spot. This new location is nearby the old panel location.

Panel height shall not exceed 30 inches. A rotating red beacon light shall be mounted on top to indicate an alarm condition in addition to an audible alarm with sound level adjustment.



CC: Bill Schaffner, Chief Financial Officer
Michael Broncatello, Comptroller & Chief Investment Officer
Maria Alliegro, P.E., LEED AP, Director of Engineering
Paul Serillo, Director of Facilities
Chris Clamser Engineering Project Manager



M E M O R A N D U M

PROC #21-33

NOTICE TO BIDDERS

CLARIFICATION TO QUESTIONS NO. 5

SENT VIA E-MAIL

DATE: December 28, 2021

TO: **POTENTIAL BIDDERS**

FROM: Margaret M. Maddalena, Contract Administrator

RE: **CONTRACT #2086 POT PERM SYSTEM REHABILITATION**

Question #1 Does the new splitting tank need a connection to the new feed system & old feed system to facilitate splitting tank change out?

Response: *Yes, connections to both the new & old feed systems are required. This is a total of four (4) connections. Two (2) for the new feed systems and two (2) for the old feed systems. The intent is to change the splitting tank as soon as possible after contract award.*

CC: Bill Schaffner, Chief Financial Officer
Michael Broncatello, Comptroller & Chief Investment Officer
Maria Alliegro, P.E., LEED AP, Director of Engineering
Paul Serillo, Director of Facilities
Chris Clamser Engineering Project Manager

ATTACHMENT #1

**ACCESS APPROVAL & COVID-19
VISITOR QUESTIONNAIRE FORMS**

Pages (2) Two



North Jersey District Water Supply Commission

Visitor/Vendor/Contractor Access

Every person entering the N.J.D.W.S.C. must complete and submit the following before access will be granted:

1. Completed copy of *Access Approval Form*.
 2. Completed copy of *Visitor Questionnaire* related to Covid19.
 3. Copy of Drivers License or Photo I.D.
-
- If hazardous materials is being delivered, attach a copy of the MSDS for each chemical.
 - Contractors must meet with a N.J.D.W.S.C. Safety Officer prior to work being started.
 - Contractors will be responsible for all sub-contractors (paperwork and safety).
 - Upon arrival, everyone must check in with Security prior to the entrance gates.
 - If any emergency arises while on N.J.D.W.S.C. property, Security must be call at (973) 831-6200.
 - For anyone entering multiple days, the Covid19 form will only be necessary once a week.

All paperwork must be emailed to security@njdwsc.com and to their Commission contact person.

Any questions please call (973) 831-6200

ACCESS APPROVAL FORM TO COMMISSION FACILITIES



COMPLETE ALL SECTIONS

PLEASE PRINT LEGIBLY

1. Name of Individual Entering Premises: _____
 - a. Company Name: _____
 - b. Date of Arrival: _____
 - c. Time of Arrival: _____
 - d. Your Contact Info: Phone: _____ Fax: _____ Email: _____
2. **Purpose:**
 - a. Meeting: () Interview: () Pre-bid/Pre-Proposal Meeting: () Bid Opening: ()
Bid/RFP # & Title: _____
Meeting Scheduled With: _____
Visiting which Commission Facility: _____
 - b. Delivery: () Routine -or- () Special
Purpose of Delivery: _____
Contact Person at NJDWSC: _____
Type: _____ Package: _____ Chemical: _____ Other: _____
Hazardous Materials () (Attach MSDS Sheets)
Other Materials Delivered or Transported to Commission Property (List Below):

3. Vehicle Make: _____ Year: _____ Color: _____ Lic. Plate #: _____
4. Emergency Contact Number of Your Firm: _____ Name: _____
Tele #: _____

Email completed Access Approval Form & Photo ID to security@njdwsc.com 24 hours prior to arrival time. For any questions, please call (973) 831-6200. A new Access Approval Form is required for each and every visit.

Approved by Commission: _____ Date: _____

Note: ***Prior to any and all contractors starting work on the property, they are to meet with a Safety Officer for site orientation and safety awareness training. This must be done for each employee and all sub-contractors.***



North Jersey District Water Supply Commission

The safety of our employees, supplying partners, customers, families and visitors remain NJDWSC's overriding priority. As the Coronavirus disease 2019 (COVID-19) continues, NJDWSC Security are monitoring the situation closely and will periodically update company guidance based on current recommendations from the Centers for Disease Control and Prevention and the World Health Organization.

To prevent the spread of COVID-19 and reduce the potential risk of exposure to our workforce and visitors, we are conducting a simple screening questionnaire. Your participation is important to help us take precautionary measures to protect you and everyone in this building. Thank you for your time.

Visitor's Name:

Personal Phone Number (mobile/home)

Visitor's Company/Organization:

Self-Declaration by Visitor

1. Have you been quarantined within the last 14 days? **Yes** **No**
2. Have you had close contact with or cared for someone diagnosed with COVID-19 within the last 14 days? **Yes** **No**
3. Have you experienced any cold or flu-like symptoms in the last 14 days (to include fever, cough, sore throat, respiratory illness, difficulty breathing)? **Yes** **No**
4. Have you traveled from any of the prohibited countries within the past 14 days? **Yes** **No**
5. Have you received any COVID-19 vaccinations? **Yes** **No** **Date:** _____

If the answer is "yes" to questions 1, 2, 3 or 4, access to the facility will be denied.

Signature (visitor): _____ Date: _____

Note: if you plan to be onsite for consecutive days, please immediately advise your NJDWSC contact if any of your responses change.

The information collected on this form will be used to determine your access right to NJDWSC facilities.

Access to facility (circle one): **Approved** **Denied** **Temperature:** _____

MASKS MUST BE WORN AT ALL TIMES WHILE ON NJDWSC PROPERTY

ATTACHMENT #2

**VENDOR CERTIFICATION & DISCLOSURE OF POLITICAL
CONTRIBUTIONS DISCLOSURE FORMS**

Pages (7) Seven

INFORMATION AND INSTRUCTIONS

For Completing the “Two-Year Vendor Certification and Disclosure of Political Contributions” Chapter 51 Form

Background Information

On September 22, 2004, then-Governor James E. McGreevey issued E.O. 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, E.O. 134 prohibited State departments, agencies and authorities from entering into contracts exceeding \$17,500 with individuals or entities that made certain political contributions. E.O. 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 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 Chapter 51 Review Unit, the Certification and Disclosure of Political Contributions form is valid for a two (2) year period. Thus, if a vendor receives approval on January 1, 2014, the certification expiration date would be December 31, 2015. 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/Executive Order 117 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.**

State Agency Instructions: Prior to the awarding of a contract, the State Agency should first use NJSTART (<https://www.njstart.gov/bso/>) to check the status of a vendor’s Chapter 51 certification before contacting the Review Unit’s mailbox at CD134@treas.nj.gov. If the State Agency does not find any Chapter 51 Certification information in NJSTART and/or the vendor is not registered in NJSTART, then the State Agency should send an e-mail to CD134@treas.nj.gov 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 Form

Part 1: BUSINESS ENTITY INFORMATION

Business Name – Enter the full legal name of the vendor, including trade name if applicable.

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.

Business Type - Check the appropriate box that represents the vendor's type of business formation.

Listing of officers, shareholders, partners or members - Based on the box checked for the business type, provide the corresponding information. (A complete list must be provided.)

Part 2: DISCLOSURE OF CONTRIBUTIONS

Read the three types of political contributions that require disclosure and, if applicable, provide the recipient's information. The definition of "Business Entity/Vendor" and "Contribution" can be found on pages 3 and 4 of this form.

Name of Recipient - Enter the full legal name of the recipient.

Address of Recipient - Enter the recipient's street address.

Date of Contribution - Indicate the date the contribution was given.

Amount of Contribution - Enter the dollar amount of the contribution.

Type of Contribution - Select the type of contribution from the examples given.

Contributor's Name - Enter the full name of the contributor.

Relationship of the Contributor to the Vendor - Indicate the relationship of the contributor to the vendor. (e.g. officer or shareholder of the company, partner, member, 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.

Check the box under the recipient information if no reportable contributions have been solicited or made by the business entity. **This box must be checked if there are no contributions to report.**

Part 3: CERTIFICATION

Check Box A if the representative completing the Certification and Disclosure form is doing so on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity.

(No additional Certification and Disclosure forms are required if BOX A is checked.)

Check Box B if the representative completing the Certification and Disclosure form is doing so on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity with the exception of those individuals and/or entities that submit their own separate form. For example, the representative is not signing on behalf of the vice president of a corporation, but all others. The vice president completes a separate Certification and Disclosure form. **(Additional Certification and Disclosure forms are required from those individuals and/or entities that the representative is not signing on behalf of and are included with the business entity's submittal.)**

Check Box C if the representative completing the Certification and Disclosure form is doing so on behalf of the business entity only. **(Additional Certification and Disclosure forms are required from all individuals and/or entities whose contributions are attributable to the business entity and must be included with the business entity submittal.)**

Check Box D when a sole proprietor is completing the Certification and Disclosure form or when an individual or entity whose contributions are attributable to the business entity is completing a separate Certification and Disclosure form.

Read the five statements of certification prior to signing.

The representative authorized to complete the Certification and Disclosure form must sign and print her/his name, title or position and enter the date.

State Agency Procedure for Submitting Form(s)

The State Agency should submit the completed and signed Two-Year Vendor Certification and Disclosure forms either electronically to: cd134@treas.nj.gov or regular mail at: Chapter 51 Review Unit, P.O. Box 230, 33 West State Street, Trenton, NJ 08625-0230. Original forms should remain with the State Agency and copies should be sent to the Chapter 51 Review Unit.

Business Entity Procedure for Submitting Form(s)

The business entity should return this form to the contracting State Agency.

The business entity can submit the Certification and Disclosure form directly to the Chapter 51 Review Unit only when:

- The business entity is approaching its two-year certification expiration date and is seeking certification renewal;
- The business entity had a change in its ownership structure; OR
- The business entity made any contributions during the period in which its last two-year certification was in effect, or during the term of a contract with a State Agency.

Questions & Information

Questions regarding Public Law 2005, Chapter 51 (N.J.S.A. 19:44A-20.13) or E.O. 117 (2008) may be submitted electronically through the Division of Purchase and Property website at: <https://www.state.nj.us/treas/purchase/eo134questions.shtml>.

Reference materials and forms are posted on the Political Contributions Compliance website at: <http://www.state.nj.us/treasury/purchase/execorder134.shtml>.



State of New Jersey
Department of the Treasury

Division of Purchase and Property

Two-Year Chapter 51/Executive Order 117 Vendor Certification and
Disclosure of Political Contributions

FOR STATE USE ONLY

Solicitation, RFP, or Contract No. _____ Award Amount _____

Description of Services _____

State Agency Name _____ Contact Person _____

Phone Number _____ Contact Email _____

☐ Check if the Contract / Agreement is Being Funded Using FHWA Funds

**Please check if requesting
recertification ☐**

Part 1: Business Entity Information

Full Legal Business Name _____

(Including trade name if applicable)

Address _____

City _____ State _____ Zip _____ Phone _____

Vendor Email _____ Vendor FEIN (SS# if sole proprietor/natural person) _____

**Check off the business type and list below the required information for the type of business selected.
MUST BE COMPLETED IN FULL**

- ☐ Corporation: LIST ALL OFFICERS and any 10% and greater shareholder (If the corporation only has one officer, please write "sole officer" after the officer's name.)
- ☐ Professional Corporation: LIST ALL OFFICERS and ALL SHAREHOLDERS "sole officer" after the officer's name.)
- ☐ Partnership: LIST ALL PARTNERS with any equity interest
- ☐ Limited Liability Company: LIST ALL MEMBERS with any equity interest
- ☐ Sole Proprietor

Note: "Officers" means 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.

Also Note: "N/A will not be accepted as a valid response. Where applicable, indicate "None."

All Officers of a Corporation or PC

**10% and greater shareholders of a corporation
or all shareholders of a PC**

All Equity partners of a Partnership

All Equity members of a LLC

If you need additional space for listing of Officers, Shareholders, Partners or Members, please attach separate page.

Part 2: Disclosure of Contributions by the business entity or any person or entity whose contributions are attributable to the business entity.

1. Report below all contributions solicited or made during the 4 years immediately preceding the commencement of negotiations or submission of a proposal to any:

Political organization organized under Section 527 of the Internal Revenue Code and which also meets the definition of a continuing political committee as defined in N.J.S.A. 19:44A-3(n)

2. Report below all contributions solicited or made during the 5 ½ years immediately preceding the commencement of negotiations or submission of a proposal to any:

Candidate Committee for or Election Fund of any Gubernatorial or Lieutenant Gubernatorial candidate
State Political Party Committee
County Political Party Committee

3. Report below all contributions solicited or made during the 18 months immediately preceding the commencement of negotiations or submission of a proposal to any:

Municipal Political Party Committee
Legislative Leadership Committee

Full Legal Name of Recipient _____

Address of Recipient _____

Date of Contribution _____ Amount of Contribution _____

Type of Contribution (i.e. currency, check, loan, in-kind) _____

Contributor Name _____

Relationship of Contributor to the Vendor _____

If this form is not being completed electronically, please attach additional contributions on separate page.

Click the "Add a Contribution" tab to enter additional contributions.

Remove Contribution

Add a Contribution

☐ **Check this box only if no political contributions have been solicited or made by the business entity or any person or entity whose contributions are attributable to the business entity.**

Part 3: Certification (Check one box only)

- (A) ☐ I am certifying on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity as listed on Page 1 under **Part 1: Vendor Information**.
- (B) ☐ I am certifying on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity as listed on Page 1 under **Part 1: Vendor Information**, except for the individuals and/or entities who are submitting separate Certification and Disclosure forms which are included with this submittal.
- (C) ☐ I am certifying on behalf of the business entity only; any remaining persons or entities whose contributions are attributable to the business entity (as listed on Page 1) have completed separate Certification and Disclosure forms which are included with this submittal.
- (D) ☐ I am certifying as an individual or entity whose contributions are attributable to the business entity.

I hereby certify as follows:

1. **I have read the Information and Instructions accompanying this form prior to completing the certification on behalf of the business entity.**
2. **All reportable contributions made by or attributable to the business entity have been listed above.**

3. The business entity has not knowingly solicited or made any contribution of money, pledge of contribution, including in-kind contributions, that would bar the award of a contract to the business entity unless otherwise disclosed above:

- a) Within the 18 months immediately preceding the commencement of negotiations or submission of a proposal for the contract or agreement to:
- (i) A candidate committee or election fund of any candidate for the public office of Governor or Lieutenant Governor or to a campaign committee or election fund of holder of public office of Governor or Lieutenant Governor; OR
 - (ii) Any State, County or Municipal political party committee; OR
 - (iii) Any Legislative Leadership committee.
- b) During the term of office of the current Governor or Lieutenant Governor to:
- (i) A candidate committee or election fund of a holder of the public office of Governor or Lieutenant Governor; OR
 - (ii) Any State or County political party committee of the political party that nominated the sitting Governor or Lieutenant Governor in the last gubernatorial election.
- c) Within the 18 months immediately preceding the last day of the sitting Governor or Lieutenant Governor's first term of office to:
- (i) A candidate committee or election fund of the incumbent Governor or Lieutenant Governor; OR
 - (ii) Any State or County political party committee of the political party that nominated the sitting Governor or Lieutenant Governor in the last gubernatorial election.

4. During the term of the contract/agreement the business entity has a continuing responsibility to report, by submitting a new Certification and Disclosure form, any contribution it solicits or makes to:

- (a) Any candidate committee or election fund of any candidate or holder of the public office of Governor or Lieutenant Governor; OR
- (b) Any State, County or Municipal political party committee; OR
- (c) Any Legislative Leadership committee.

The business entity further acknowledges that contributions solicited or made during the term of the contract/agreement may be determined to be a material breach of the contract/agreement.

5. During the two-year certification period the business entity will report any changes in its ownership structure (including the appointment of an officer within a corporation) by submitting a new Certification and Disclosure form indicating the new owner(s) and reporting said owner(s) contributions.

I certify that the foregoing statements in Parts 1, 2 and 3 are true. I am aware that if any of the statements are willfully false, I may be subject to punishment.

Signed Name _____ Print Name _____

Title/Position _____ Date _____

Procedure for Submitting Form(s)

The contracting State Agency should submit this form to the Chapter 51 Review Unit when it has been required as part of a contracting process. The contracting State Agency should submit a copy of the completed and signed form(s), to the Chapter 51 Unit and retain the original for their records.

The business entity should return this form to the contracting State Agency. The business entity can submit this form directly to the Chapter 51 Review Unit only when it -

- Is approaching its two-year certification expiration date and wishes to renew certification;
- Had a change in its ownership structure; OR
- Made any contributions during the period in which its last two-year certification was in effect, or during the term of a contract with a State Agency.

Forms should be submitted either electronically to: cd134@treas.nj.gov , or regular mail at: Chapter 51 Review Unit, P.O. Box 230, 33 West State Street, Trenton, NJ 08625.

ATTACHMENT #3

**CONFIDENTIALITY &
NON-DISCLOSURE AGREEMENT**

Pages (5) Five

COMMISSIONERS
HOWARD L. BURRELL
 CHAIRMAN
 GLENWOOD, NJ
CHARLES P. SHOTMEYER
 VICE CHAIRMAN
 FRANKLIN LAKES, NJ
ALAN S. ASHKINAZE
 ORADELL, NJ
JEROME P. AMEDEO
 GREEN BROOK, NJ
DONALD C. KUSER
 WAYNE, NJ
ROBERT C. GAROFALO
 BRIELLE, NJ
JAMES L. CASSELLA
 EAST RUTHERFORD, NJ



ONE F.A. ORECHIO DRIVE
 WANAUKE, NJ 07465
 973-835-3600 FAX: 973-835-6701
 E-Mail: commissionoutreach@njdwsc.com

TIMOTHY J. EUSTACE
 EXECUTIVE DIRECTOR
WILLIAM SCHAFFNER
 CHIEF FINANCIAL OFFICER
KIM DIAMOND
 COMMISSION SECRETARY

CONFIDENTIALITY AND NONDISCLOSURE AGREEMENT

THIS CONFIDENTIALITY AND NONDISCLOSURE AGREEMENT (the “Agreement”) is made and entered into as of this ____ day of _____, 2022 by and between:

THE NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION (hereinafter, the “Commission”), located at One F.A. Orechio Drive, Wanaque, New Jersey 07465; and

_____, and its affiliates and subsidiaries (hereinafter, “_____”), with a primary place of business located at _____ (and, together with the Commission, the “parties”).

WITNESSETH

WHEREAS, pursuant to N.J.S.A. 58:5-1 et seq., the Commission is a public body corporate duly organized and existing under and by virtue of the laws of the State of New Jersey, exercising public and essential governmental functions and providing for the public health and welfare, and is engaged in developing raw water sources, storing water and distributing a reliable supply of potable water to its participating municipalities; and

WHEREAS, the Commission fulfills a vital role in maintaining, overseeing, and securing the operation of the largest regional water supply in the State of New Jersey, the safety and security of said operation constituting a critical Homeland Security concern; and

WHEREAS, in order to facilitate the possibility of entering into a contract for goods and services, and in particular, the procurement process pertaining to **CONTRACT #2086R POT PERM SYSTEM REHABILITATION** Commission-Owned Facilities, and if entered into, the execution of such business relationship, the Commission may disclose certain non-public or proprietary information to _____ (or the “Receiving Party”) and its representatives; and

WHEREAS, the Commission wishes to preserve the confidentiality and prevent the unauthorized disclosure and use of any such non-public or proprietary information disclosed to the Receiving Party and its representatives.

NOW THEREFORE, in consideration of the mutual promises, covenants, representations and warranties made in this Agreement, the receipt and sufficiency of which are hereby acknowledged by the parties, intending to be legally bound, hereby agree as follows:

1. "Information" means all non-public or proprietary information of the Commission disclosed in connection with this Agreement and shall include, but not be limited to, information regarding the Commission or its related entities' assets, liabilities, financial and other conditions, insurance, reinsurance, employees, consultants, operations, facilities, prospects, business plans, customer lists, or security arrangements. Information also includes any documents prepared by the Receiving Party that through the use of non-public proprietary Information that was provided to the Receiving Party by the Commission.
2. As a condition to receiving the Information which the Commission may furnish to the Receiving Party and its representatives or to which the Receiving Party and its representatives are afforded access, directly or indirectly, the Receiving Party and its representatives shall take all reasonable measures to avoid disclosure, dissemination or unauthorized use of Information, including, at a minimum, those measures that the Receiving Party takes to protect its own confidential information of a similar nature (provided that such measures are consistent with at least a reasonable degree of care).
3. Information does not include information that:
 - a. Has been or becomes published or is now or in the future publicly available without breach of this Agreement or breach of a similar agreement by a third party or through no wrongful act of the receiving party or its representatives; or
 - b. Is known to the Receiving Party prior to the time such information was acquired from the Commission under this Agreement as evidenced by the Receiving Party's contemporaneous written records; or
 - c. Is independently developed and prepared by the Receiving Party not in reliance upon or reflecting any Information disclosed pursuant to this Agreement; or
 - d. Subsequent to disclosure, is lawfully received from a third party having rights therein without restriction (to the best of the Receiving Party's knowledge) on the right of such third party or the Receiving Party to disseminate the information and without notice of any restriction against its further disclosure.
4. Information shall not, without the prior written consent of the Commission, be disclosed to any person or entity other than the Receiving Party's and its representatives' employees (including outside legal counsel, actuaries and accountants) who need to know the Information and in those instances only to the extent of such need. The Receiving Party agrees to keep all Information confidential, and further agrees to use Information solely for the evaluation stated above, and for no other purpose. The Receiving Party agrees that it and its representatives' employees (including outside legal counsel, actuaries and accountants) shall be informed of the terms of this Agreement.

5. All Information shall remain the exclusive property of the Commission, and the Receiving Party shall have no rights, by license or otherwise, to use Information except as expressly provided herein.
6. The Receiving Party agrees on its own behalf and on behalf of its representatives and/or assigns to return to the Commission or destroy, and verify in writing such destruction, all written, tangible or otherwise accessible material in any form (including electronic media such as computer diskettes, CD-ROM, electronic copies or any material resident in the hard or external drive of any computer) containing or reflecting any Information (including all copies, summaries, excerpts, extracts, notes or other reproductions) promptly at the request of the Commission or within sixty (60) days of the termination or conclusion of the parties' business or contractual relationship. All information retained by the Receiving Party pursuant to this Section 6 shall remain subject to the confidentiality and nondisclosure obligations of this Agreement. Notwithstanding anything to the contrary in this Agreement, the Receiving Party may retain one copy of Information that has become part of a file that the Receiving Party, in its reasonable judgment, is required to retain and/or make available for examination by government regulatory or investigatory agencies, or retain and/or produce by an order of a court or insurance regulatory agency.
7. Nothing in this Agreement shall impose any obligation upon either party to consummate a transaction, to enter into any discussion or negotiations with respect thereto, or to take any other action not expressly agreed to herein.
8. In the event that the Receiving Party receives a request to disclose all or any part of the Information as part of a governmental investigation or under the terms of a subpoena or order issued by a court or governmental body, the Receiving Party will take all reasonable steps to notify the Commission promptly in writing of such request in order to allow the Commission an opportunity to resist or narrow such request and will reasonably cooperate, at the Commission's expense, with the Commission and its representatives in connection with the Commission's efforts to resist or narrow such request. In the event that the Commission elects to waive the provisions of this Section 8 or is otherwise unsuccessful in resisting such request, the Receiving Party shall only disclose the Information that it determines it is legally required to disclose after consultation with competent counsel.
9. Except as required by applicable law or court or arbitral order, neither party shall in any way or in any form disclose (except as necessary to such party's outside legal counsel, actuaries and accountants), publicize or advertise in any manner the discussions or negotiations concerning the business purpose underlying this Agreement, or the status of any such discussions or negotiations without the consent of the other party.
10. This Agreement shall be deemed to be a contract made under the laws of the State of New Jersey and for all purposes shall be construed in accordance with the laws thereof. The parties agree that any and all disputes between the parties under or relating to the terms and conditions of this Agreement shall be fully and completely adjudicated in the courts of the State of New Jersey.

11. Any provision of this Agreement which may be prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions hereof or affecting the validity or enforceability of such provision in any other jurisdiction.
12. Neither this Agreement nor any rights or obligations hereunder may be assigned by either party hereto without the prior written consent of the other party, and such consent shall not be unreasonably withheld, delayed or conditioned. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns. No permitted assignment shall relieve a party of its obligations hereunder with respect to Information disclosed prior to the assignment. Any assignment in violation of this Paragraph Thirteen (12) shall be deemed null and void.
13. No amendment to any provision of this Agreement shall be binding and enforceable unless in writing and signed by both of the parties and specifically referencing this Agreement.
14. This Agreement shall continue to be binding after the conclusion of the business or contractual relationship between the parties absent prior written consent of both parties.
15. This Agreement shall not be interpreted in a manner that would violate any applicable canons of ethics or codes of professional responsibility. Nothing in this Agreement shall prohibit or interfere with the ability of counsel for any party to represent any individual, corporation, or other entity adverse to any party or its affiliate(s) in connection with any other matters.
16. Each of the parties acknowledges and agrees that remedies at law may be inadequate to protect the Commission against any actual or threatened breach of this Agreement by the Receiving Party or its representatives, and, without prejudice to any other rights and remedies otherwise available to the Commission (including, without limitation, monetary damages), the Receiving Party agrees to the granting of specific performance and injunctive or other equitable relief in the Commission's favor without proof of actual damages and each of the parties further agrees to waive, and to use all reasonable efforts to cause its representatives to waive, any requirement for the securing or posting of any bond in connection with any such remedy. Nothing in this Agreement shall be deemed or construed to limit or prevent the Commission from bringing a claim for damages as a result of any actual or threatened breach of this Agreement by the Receiving Party or its representatives.
17. Each of the parties agrees that no failure or delay by the Commission in exercising any right or remedy hereunder will operate as a waiver thereof, nor will any single or partial exercise thereof preclude any other or further exercise of any right or remedy hereunder.
18. This Agreement was entered into solely to benefit the parties and no other person or entity shall have enforceable rights and remedies hereunder or hereby.

19. This Agreement may be executed in one or more counterparts (including via facsimile), each of which shall be deemed an original but all of which together shall constitute one in the same instrument.
20. This Agreement sets forth the entire understanding between the parties concerning the subject matters of the foregoing recitals and paragraphs.

IN WITNESS HEREOF, the parties have caused this Agreement to be executed by their authorized representatives on the date first written.

(CONTRACTOR)

**NORTH JERSEY DISTRICT
WATER SUPPLY COMMISSION**

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

ATTACHMENT #4

DISCLOSURE OF INVESTMENT IN IRAN

Pages (1) One

**STATE OF NEW JERSEY -- DIVISION OF PURCHASE AND PROPERTY
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN**

Quote Number: _____ **Bidder/Offeror:** _____

PART 1: CERTIFICATION

BIDDERS MUST COMPLETE PART 1 BY CHECKING EITHER BOX.

FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE.

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division's website at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Bidders must review this list prior to completing the below certification. **Failure to complete the certification will render a bidder's proposal non-responsive.** If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party

PLEASE CHECK THE APPROPRIATE BOX:

☐ I certify, pursuant to Public Law 2012, c. 25, that neither the bidder listed above nor any of the bidder's parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). I further certify that I am the person listed above, or I am an officer or representative of the entity listed above and am authorized to make this certification on its behalf. **I will skip Part 2 and sign and complete the Certification below.**

OR

☐ I am unable to certify as above because the bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

EACH BOX WILL PROMPT YOU TO PROVIDE INFORMATION RELATIVE TO THE ABOVE QUESTIONS. PLEASE PROVIDE THOROUGH ANSWERS TO EACH QUESTION. IF YOU NEED TO MAKE ADDITIONAL ENTRIES, CLICK THE "ADD AN ADDITIONAL ACTIVITIES ENTRY" BUTTON.

Name _____	Relationship to Bidder/Offeror _____
Description of Activities _____ _____	
Duration of Engagement _____	Anticipated Cessation Date _____
Bidder/Offeror Contact Name _____	Contact Phone Number _____

ADD AN ADDITIONAL ACTIVITIES ENTRY

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above-referenced person or entity. I acknowledge that the State of New Jersey is relying on the information contained herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the State to notify the State in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with the State of New Jersey and that the State at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print): _____	Signature: _____
Title: _____	Date: _____