INVITATION TO BID

Requesting:	Bid(s) for the Fox Chase Tower Rehabilitation
Issue Date:	October 21, 2021
Last Date for Questions:	Wednesday, October 27, 2021, by 9:00 AM
Addendum Posted:	Friday, October 29, 2021, by 12:00 PM
Proposals Due:	Wednesday, November 2, 2021, at 10:00 AM
Bid submission Website:	www.demandstar.com
Public Bid Opening:	Bids will be virtually opened and read aloud publicly on the same day and time by going to bids.oswegoil.org or call (312) 626-6799 just prior to the meeting. When prompted, enter passcode 812 5239 0580 from your phone. You will hear the audio of the meeting through our webinar service.
Note:	Project subject to the Illinois Prevailing Wage Act (820 ILCS 130/1-1.01, *et seq.*)

All questions concerning this solicitation shall be submitted via e-mail to Purchasing Manager before the date stated above. A written response in the form of a public addendum may be published on the Village's website by the stated date above.

Contact with anyone other than the Purchasing Manager for matters relative to the project described in this invitation to bid during the bidding process is prohibited.

Contact for this proposal:
Shanel Gayle, Purchasing Manager in writing at sgayle@oswegoil.org

TABLE OF CONTENTS

GENERAL CONDITIONS 4
INSTRUCTIONS TO BIDDERS 7
CONTRACT 11
CONTRACT SIGNATURES 19
BID COST SHEET 20
DETAIL EXCEPTION SHEET 22
SUBCONTRACTOR LISTING 23
REFERENCES 24
CONTRACTOR BID AGREEMENT 25

APPENDIX A: COVID-19 CONTRACTOR POLICY

APPENDIX B: TECHNICAL SPECIFICATIONS

APPENDIX C: PLANS

APPENDIX D: ORIGINAL CONSTRUCTION DRAWINGS

APPENDIX E: FOX CHASE TOWER ELEVATED TANK OBSERVATION REPORT

LEGAL NOTICE
INVITATION TO BID THE FOX CHASE TOWER REHABILITATION

The Village of Oswego will be accepting sealed bids for the Fox Chase Tower Rehabilitation until November 2, 2021, at 10:00 AM local time. Bids will be virtually opened and read aloud publicly on the same day and time by going to bids.oswegoil.org.

Project Title: Invitation to Bid the Fox Chase Tower Rehabilitation
Proposal No. 21-6070-005

Bids must be submitted electronically. All necessary documents are available through the Village's bid portal www.demandstar.com. Downloading documents and submitting Bids requires registration with "DemandStar." If you are not already a member, you can obtain a FREE AGENCY SUBSCRIPTION to the Village of Oswego account by going to www.demandstar.com/register.rsp. Instructions for DemandStar can be found on the Village's website www.oswegoil.org. Hard copy, emailed or faxed Bids will not be accepted.

Infrequent or first-time users of electronic bidding are recommended to load their Bids at least twenty-four (24) hours prior to the due date. All technical questions regarding the use of DemandStar, must be emailed at least 48 hours before the due date to sgayle@oswegoil.org. All answers to questions related to technical issues with DemandStar, will be provided within one business day.

Bidders are advised of the following requirements of this contract:

1. This Project is subject to the Illinois Prevailing Wage Act (820 ILCS 130) , and the Illinois Preference Act (30 ILCS 570);
2. A 10% bid bond must be submitted with the bid;
3. SSPC ACS-1/NACE No. 13 Industrial Coating and Lining Application Specialist Qualification andCertification is required;
4. This Project is subject to the Illinois Public Construction Bond Act (30 ILCS 550) and requires a 110% performance, labor and material payment bond on award of contract.

Questions regarding this legal notice or the proposal package must be in writing and emailed directly to sgayle@oswegoil.org until October 27, 2021, at 9:00 AM local time. Responses will be posted in DemandStar by October 29, 2021, at 12:00 PM local time.

The bidder shall at all times observe and conform to all federal, state, and local laws, ordinances, and regulations, including those which may, in any manner, affect the preparation of bids or the performance of the contract.

Shanel Gayle
Purchasing Manager

GENERAL CONDITIONS

1. Contractor Qualifications

The Contractor must be experienced in providing said services to local governments. Submitters that cannot demonstrate successful previous experience in the work in this bid will be considered not responsible and will not be considered for award of the contract.

The Contractor must possess (own or rent) and/or assure the availability of sufficient equipment, meeting the requirements that follow, to successfully pursue the work in this bid.

The Contractor must submit certification demonstrating SSPC ACS-1/NACE No. 13 qualifications.

2. Work Schedule

The Contractor shall complete the work required as soon as practicable. The only exception to this requirement will be extenuating circumstances as may be accepted by the Village. Requests for exceptions due to extenuating circumstances must be made in writing to the Village within 48 hours of the occurrence. The Village's decision to provide exceptions shall be made in its sole discretion, and any such decisions shall be final.

Subsequent to the award of the bid, at the commencement of weather conducive to providing these services, a notice to proceed shall be issued. The Contractor shall commence work as soon as possible thereafter.

Work will not be permitted on Sunday or the following legal holidays:

New Year's Day	Labor Day
Martin Luther King's Birthday	Veteran's Day
President's Day	Thanksgiving Day
Memorial Day	Day after Thanksgiving
Independence Day	Christmas Eve, ½ Day (afternoon)
Christmas Day	

All work shall be prohibited during certain public events in said area.

3. Safety Officer

- The Contractor shall provide a qualified Safety Officer contact for the Village to ensure work site and personnel safety compliance.
- The Safety Officer shall address all concerns, and communicate resolution to the Village, within a one (1) hour window.

4. Method of Assignment

The Village may add, delete, or change the work locations or details of the marking layouts at any time during the work period, with at least two (2) working days prior notice to the Contractor.

5. Equipment

All equipment required to perform the contract is the sole responsibility of the Contractor and should be included in the bid. Multiple mobilizations may be expected and will not be treated like extras.

6. Bid Bond

Unless specifically waived, each bid shall be accompanied by a bid bond in an amount of ten percent (10%) or such other percentage as stated in the supplementary conditions of the full amount of the bid in the form of a certified or bank cashier's check or bid bond. In a reasonable time after the bid opening, bid deposits of all except the three lowest responsible bidders will be released. The remaining deposits will be released after the successful bidder has entered into the contract and furnished all necessary and required bonds and insurance documents The bid deposit shall become the property of the Village if the successful bidder within fourteen (14) days from awarding the contract refuses or is unable to comply with the contract requirements, not as a penalty, but as liquidated damages.

The bid bond must be uploaded with the bid documents through the Demandstar bid portal and the original must be mailed to: Village of Oswego, Attn. Shanel Gayle, Bid Bond, 100 Parkers Mill, Oswego, Il 60543.

7. Performance, Labor and Material Payment Bonds

The successful bidder shall furnish, at the time of execution of the contract, a performance bond for one hundred and ten percent (110%) of the full amount of the contract to guarantee the completion of any work to be performed bythe Contractor under the contract, payment of material used in such work, and for all labor performed in such work including by subcontractors.

The Public Construction Bond Act applies to this project, and all contractors shall fully comply with this Act. A performance bond satisfactory to the Village, and in compliance with the Act, must be executed by a Surety Company authorized to do business in the State or otherwise secured in a manner satisfactory to the Village. The Village requires that the performance bond be in an amount equal to 110% of the contract price specified. The surety on the bond shall be a company that is licensed by the Department of Insurance authorizing it to execute surety bonds and the company shall have a financial strength rating of at least A- as rated by A.M. Best Company, Inc.,Moody's Investors Service, Standard & Poor's Corporation, or a similar rating agency.

Proof of all required bonds and sureities must be emailed to sgayle@oswegoil.org and the original must be mailed (or otherwise delivered to- to: Village of Oswego, Attn. Shanel Gayle,

Performance Bond,100 Parkers Mill, Oswego, Il 60543

In the event that the bidder fails to furnish the bonds within fourteen (14) days after notification of the award, then the bid bond shall be retained by the Village as actual liquidated damages and not as apenalty. It is agreed that the sum of the bid bond is a fair estimate of the amount of damages that the Village willsustain due to the bidder's failure to furnish the bonds.

8. **Delivery of Materials**

It shall be the Contractor's responsibility to see all materials and equipment is delivered within or adjacentto the area of installation or repair as specified by the Village.

The work described in this specification shall be done with the least inconvenience. Vehicles must have egress capabilities at all times. The amount of time that normal operations are interrupted must be kept to an absolute minimum and shall be coordinated with the Village.

The Contractor is responsible to protect all existing and newly installed work, materials, equipment, improvements, utilities, structures, and vegetation at all times during the course of this contract. Any property or incidentals damaged during the course of this contract shall be repaired or replaced to the satisfaction of the Village.

9. **Injury to Property**

In case any direct or indirect damage is done to public or private property by or because of the work, or in consequence of any act or omission on the part of the Contractor, his employees or agents, the Contractor shall, at his own cost, restore such property to a condition similar or equal to that existing before such damage was done, by repairing, rebuilding, or otherwise restoring, as may be required by the Village, or shall make good such damage in a satisfactory manner; and in case of failure on the part of the Contractor to promptly so restore or make good such damage, the Village may, upon 48 hours written notice, proceed to repair, rebuild, or otherwise restore such property as may be necessary, and the cost thereof will be deducted from any monies due or tobecome due to the Contractor under the Contract; or the Director of Public Works may deduct from any monies due to the Contractor a sum sufficient, in the judgment of the Village, to reimburse the owners of the property so damaged.

10. **Decisions and Explanations by Village**

The Village shall decide any and all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work and shall decide all questions which may arise as to the interpretations of any or all plans relating to the work and of the specifications, and all questions, as to the acceptable fulfillment of the Contract on the part of the Contractor; and the Village shall determine the amount and quantity of the several kinds of work performed and materials which are to be paid for under the Contract, and such decision and estimate shall be final and conclusive, and such estimate, in case any questions shall arise, shall be a condition precedent to the right of the Contractor to receive any money due under the Contract. Any doubt as to the meaning of any of the provisions of the specifications, Contracts, or plans will be interpreted by the Village. The decision of the Village will be final.

INSTRUCTIONS TO BIDDERS

1. **Preparation and Submission of Bids:**
   A. Each bid shall be submitted on the exact form furnished by the Village through DemandStar. All blank spaces for bid prices, unit costs and alternates must be filled in using both words and figures if indicated.In case of any discrepancy in the amount Bid, the prices expressed in written words shall govern.
   B. Each Bidder must submit a complete Bid package, including the following items:
      a) **Signed Contract**
      b) **Signed Bid Sheet**
      c) **Detailed Exception Sheet**
      d) **Subcontractors List**
      e) **References**
      f) **Signed Contractor Bid Agreement**
      g) **Bid Bond (scanned and mailed)**
      h) **Documentation of compliance with SSPC ACS-1/NACE No. 13 Industrial Coating and Lining Application Specialist Qualification and Certification, as indicated in the Invitation to Bid and General Conditions 1–Contractor Qualifications.**
   C. Bidders may attach separate sheets to the Bid for the purpose of explanation, exception, alternate Bid and to cover unit prices, if needed.
   D. Bidders may withdraw their Bid either personally or by written request at any time before the hour set for the Bid opening and may resubmit a Bid. No Bid may be withdrawn ormodified after the Bid opening except where the award of the contract has been delayed for a period of more than thirty (30) days.
   E. In submitting this Bid, the Bidder further declares that the only person or party interested in the bid as principals are those named herein; and that the Bid is made without collusion with any other person, firm or corporation.
   F. The Bidder further declares that he has carefully examined this entire Bid Package, and he has familiarized himself with all of the local conditions affecting the contract and the detailed requirements of this work and understands that in making the Bid he waives all rights to plead a misunderstanding regarding same.
   G. The Bidder further understands and agrees that if his bid is accepted, he is to furnish and provide all necessary machinery, tools, apparatus, and other means to do all of the work and to furnish all of the materials specified in the contract, except such materials as are to be furnished by the Village, in the manner and at the time therein prescribed, and in accordance with the requirements therein set forth.
   H. The Bidder further agrees that if the Village decides to extend or shorten the work, or otherwise alters it by extras or deductions, including the elimination of one or more of the items, as provided in the specifications, he will perform the work as altered, increased or decreased.
   I. The Bidder further agrees that the Village representative may at any time during the progress of the work covered by this Contract, order other work or materials incidental thereto and that all such work and materials as do not appear in the Bid or contract as a

specific item covered by a lump sum price, and which are not included under the Bid price for other items in the Contract, shall be performed as extra work.

J. The Bidder further agrees to execute all documents within this Bid Package, for this work and present all of these documents to the Village.
K. The Bidder further agrees to execute all documents within this Bid Package, obtain a Certificate of Insurance for this work and present all of these documents within fifteen days. (15) days after the receipt of the Notice of Award and the Contract.
L. The Bidder further agrees that the Work will be substantially complete and ready for final payment in accordance with the schedule parameters set forth in Section 01 11 00, Paragraph 1.04.A of these Contract Documents, and to execute the work in such a manner and with sufficient materials, equipment and labor as will ensure its completion within the time limit specified within the Bid. It is understood and agreed that the completion within the time limit is an essential part of the contract.
M. By submitting a Bid, the Bidder understands and agrees that, if his Bid is accepted, and he fails to enter into a contract forthwith, he shall be liable to the Village for any damages the Village may thereby suffer, and forfeits the Bidder's Bid bond as actual damages suffered by the Village.
N. No Bid will be considered unless the party offering it shall furnish evidence satisfactory to the Village that he has necessary facilities, ability, and pecuniary resources to fulfill the conditions of the Contract.
O. No Bid shall be considered unless the party offering it shall furnish evidence satisfactory to the Village that he has the necessary facilities, ability, and pecuniary resources to fulfill the conditions of the Contract.

2. **Additional Information Request:** Questions regarding this Bid and specific questions regarding the specifications in this Bid can be emailed to Shanel Gayle, Purchasing Manager, at sgayle@oswegoil.org. Answers may be provided in writing to all potential Bidders in the form of an Addenda posted on the Bid page; No oralcomments will be made to any Bidder as to the meaning of the Bid and Specifications or other contract documents. Bidders will not be relieved of obligations due to failure to examine or receive documents, visit the site or become familiar with conditions or facts of which the Bidder should have been aware of, and the Village will reject all claims related to such failures.

   Information (other than in the form of a written Addendum issued by the Village) from any officer, agent, or employee of the Village or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him from fulfilling any of the conditions and obligations set forth in the bid and other contract documents. Before the bids are opened, all modifications or additions to the bid documents will be made in the form of a written Addendum issued by the Village. Any Addendum issued will be posted on the Village's DemandStar website. In the event of a conflict with the original contract documents, addenda shall governall other bid documents to the extent specified. Subsequent addenda shall govern over prior addenda only to the extent specified.

   The Bidder shall be required to acknowledge receipt of the formal Addendum by signing the Addendum and including it with the Bid. Failure of a Bidder to include a signed formal Addendum in its Bid shall deem its Bid non-responsive; provided that the Village may waive this requirement in its sole discretion.

3. **Conditions:** The Bidder is responsible for being familiar with all conditions, instructions, and documents governing this project and Bid. Failure to make such investigation and preparations shall not excuse the Contractor from the performance of the duties and obligations imposed under the terms of this contract. The Bidder acknowledges that local ordinance permits the Village to give preference to local businesses.

   A. The Village is exempt from Federal excise tax and the Illinois Retailer's Occupation Tax. This Bid cannot include any amounts of money for these taxes.
   B. To be valid, the Bids shall be itemized so that selection for purchase may be made, there is included in the price of each unit the cost of delivery (FOB Destination).
   C. The Village shall reserve the right to add or to deduct from the Alternate Bid any item at the prices indicated in the itemization of the Bid.
   D. All Bids shall be good , valid, and binding on the Bidder for thirty (30) days from the date of the Bid opening.
   E. Bidders shall be required to comply with all applicable federal, state and local laws, including those relating to the employment of labor without discrimination on the basis of age, race, color handicap, sex, national origin or religious creed.
   F. Bidders are required to fully comply with the Illinois Prevailing Wage Act.

4. **Award of Bid:** The Village reserves the right to reject any or all bids or packages and to waive any informality or technical error and to accept any bid deemed most favorable to the interests of the Village.
   A. The items of work not specifically mentioned in the Schedule which are necessary and required to complete the work intended shall be done incidentally to and as part of the items of work for which a unit price is given. No additional payment will be made for such incidental work. The Bidder shall be responsible for identifying all costs to complete the project on time and in order to create a functional and operational system in accordance with the Plans and Specifications.
   B. The Contract shall be deemed as have been awarded when formal notice of award shall have been duly served upon the intended awardee.
   C. In addition to price, the Village will consider:
      - Ability, capacity, and skill to fulfill the contract as specified.
      - Ability to supply the commodities, provide the services or complete the construction promptly, or within the time specified, without delay or interference.
      - Character, integrity, reputation, judgment, experience, and efficiency.
      - Quality of performance on previous contracts.
      - Previous and existing compliance with laws and ordinances relating to the contract.
      - Sufficiency of financial resources.
      - Quality, availability, and adaptability of the commodities, services or construction, in relation to the Village's requirements.
      - Ability to provide future maintenance and service under the contract.
      - Number and scope of conditions attached to the Bid.
      - Record of payments for taxes, licenses or other monies due to the Village.

5. **Rejection of Bids:**
   A. The Village reserves the right to cancel invitations for Bids or requests for bids without penalty when it is in the best interest of the Village. Notice of cancellation shall be sent to all individuals or entities solicited.
   B. The Village reserves the right to reject any or all Bids, to waive any minor informality or irregularity in any Bid, to negotiate changes and/or modifications with the lowest responsible Bidder and to make an award to the response deemed to be the most advantageous to the Village.
   C. Any Bid not conforming to the specifications or requirements set forth by the Village in the Bid request may be rejected.
   D. Bids may also be rejected if they are made by a Bidder that is deemed non-responsible dueto a lack of qualifications, capacity, skill, character, experience, reliability, financial stability or quality of services, supplies, materials, equipment or labor.

6. **Equal Opportunity:** The Bidder will not discriminate against any employee or applicant for employment because of race, color, religion, sex, ancestry, national origin, place of birth, age or handicap unrelated to bona fide occupational qualifications.

7. **Non-Discrimination:** The Bidder, its employees, and subcontractors agree not to commit unlawful discrimination and agree to comply with applicable provisions of the Illinois Human Rights Act, the U.S. Civil Rights Act and Section 504 of the Federal Rehabilitation Act, and rules applicable to each.

8. **Execution of Documents:** The Bidder, in signing the Bid on the whole or any portion of the work, shall conform to the following requirements:
   A. Bids shall be signed by the Bidder. If the Bidder is a corporation, the proposal shall bear the name of the corporation, and shall be signed by an officer authorized to bind the corporation, and be sealed with the corporate seal.
   B. Bids that are signed for a partnership shall be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there shall be attached to the Bid a power of attorney evidencing authority to sign the Bid, executed by the partners.
   C. Bids received from any listed Contractor in response to an invitation for bids shall be entered on the abstract of Bids and rejected. Bids, quotations, or offers received from any listed Contractor shall not be evaluated for the award or included in the competitive range, nor shall discussions be conducted with a listed offer or during a period of ineligibility. If the period of ineligibility expires or is terminated prior to award, the village may, but is not required to, consider such bids, quotations, or offers.

CONTRACT

In consideration of the mutual promises set forth below, the Village of Oswego, Illinois, a municipal corporation and political subdivision of the State of Illinois, (hereinafter "Village"), and _____ (hereinafter, "Contractor") enter into this Contract as of the _____ day of _____ 2021, and hereby agree as follows:

The entire Bid Packet, together with all exhibits, specifications and attachments, the Bidder's Bid, and this Contract shall become a part of this Contract unlessotherwise specified. The Village assumes that submission of a bid means that the person submitting the bid has familiarized himself with all conditions and intends to comply with themunless noted otherwise. Where the terms of this Contract conflicts with the terms of the Technical Specifications, the Technical Specifications shall control to the extent of the conflict.

1. **Definitions:** The definitions set forth in the Bid Packet are incorporated herein.

2. **Conditions:** The Contractor is responsible for being familiar with all conditions, instructions, warranties, and documents governing this project and Bid. Failure to make such investigation and preparations shall not excuse the Contractor from the performance of the duties and obligations imposed under the terms of this contract.

3. **Retainage During Guarantee Period**. For each Progress Payment, Contractor shall receive 90% of the Progress Payment amount, and the Village shall hold 10% of such Progress Payment as retainage (the" Retainage Amount"). The Village may utilize the Retainage Amount to cure any deficiency in the Contractor' s performance that is identified prior to Final Acceptance (as defined below). Not less than three days prior to the Village utilizing any of the Retainage Amount, the Village shall notify the Contractor of (i) the deficiency in Contractor' s performance,(ii) the Village' s intention to utilize the Retainage Amount or some portion thereof, (iii) the nature and anticipated time of commencement of the Village' s curative activities, and(iv) an estimate of the Retainage Amount to be used. If, prior to the commencement of the Village' s curative activities, the Contractor notifies the Village of its intent to cure its deficiency in a timely fashion (as determined by the Village' s anticipated time of commencing curative activities), then the Village shall defer proceeding with its curative activities and allow the Contractor to undertake its own corrective action.

4. **Billing/Invoicing.** All billing and invoicing will be at the completion of the job with detailed itemized billing. Billing will include the date, the work performed, and the total cost. After receipt of a correct invoice, payments shall be due and owing by the Village in accordance with the terms and provisions of the Local Government Prompt Payment Act, 50 ILCS 505/1 et seq.

   If in the opinion of the Village, the Contractor has not or is not satisfactorily performing the work covered by this specification, and within forty-eight (48) hours of receipt of a written demand from the Village, for performance, has not cured any defect in performance specifically itemized in such demand, the Village may, at its option:

   A. Withhold payment;
   B. Consider all or any part of this contract breached and terminate the Contractor; or

C. May hire another Contractor to cure any defects in performance or complete all work covered by this specification for the remaining term of this contract.
D. Any demand for performance shall be specifically delivered to the Contractor by personal delivery, or by certified or registered US Mail.

Contractor shall be responsible for providing all reasonable access to Village employees and agents for inspection, re-inspection, and testing of the work. Until Final Payment, Contractor shall, promptly, and without charge, repair, correct, or replace any part of the Work that is defective, damaged, flawed, or unsuitable or that fails to strictly conform to the requirements of the Contract or Specifications.

5. **Insurance and Bond Requirements.** Contractor shall procure and maintain for the duration of the Agreement insurance against claims for injuries to persons, damages to property, and/or other applicable damages that may arise in connection with the performance of work and/or services under this Agreement as follows:

A. Minimum Scope of Insurance – The insurance coverage to be procured and maintained by Contractors shall be at least as broad as the following:
   i. Commercial General Liability Insurance. Commercial general liability insurance with minimum coverage amounts of $2,000,000 general aggregate; $2,000,000 products-completed operations aggregate; and $1,000,000 each occurrence for bodily injuries, death, and property damage, and personal injury resulting from any one occurrence, including the following endorsements, coverages, and/or conditions:
      1. Shall name the Village as an additional insured in accordance with the obligations and conditions set forth below.
      2. Blanket contractual liability coverage, to the extent permitted under Illinois law, including, but not limited to, Contractor's contractual indemnity obligations under the Agreement.
      3. Premises-Operations and Independent Contractors.
      4. Broad form property damage coverage.
      5. Personal injury coverage.
      6. Must be endorsed as Primary and Non-Contributory as to any other insurance of the Additional Insureds.
      7. If the Additional Insureds have other insurance that is applicable to the loss, such other insurance shall be on an excess or contingent basis to any Subcontractor's policy.
   ii. Comprehensive Automobile Liability Insurance. Comprehensive automobile liability insurance with minimum coverage amounts of $1,000,000 any one accident for bodily injuries, death, and property damage resulting from any one occurrence, including all owned, hired, and non-owned vehicles.
   iii. Workers' Compensation and Employers Liability Insurance. Statutory Workers' Compensation coverage complying with the law of the State of Illinois and Employers' Liability Insurance with minimum limits at $1,000,000 each accident, including occupational disease coverage with a limit of $1,000,000 per employee, subject to policy minimum limit of $1,000,000 per annum.

iv. Umbrella / Excess Liability Insurance Umbrella / Excess Liability Insurance. Umbrella or excess liability insurance is written over the underlying employer's liability, commercial general liability, and automobile liability insurance described above with minimum coverage amounts of $2,000,000 per occurrence and $2,000,000 general aggregate, with coverage at least as broad as the underlying policies.

v. Professional Liability Insurance. Contractor shall procure and maintain professional liability insurance coverage: Each Occurrence: $1,000,000.00. Such professional liability coverage shall be maintained for at least two years after completion of work and/or services under the Agreement. Evidence of such insurance shall be provided upon request from the Village during this two-year period.

B. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by the Village. At the option of the Village, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Village, its officials, employees, agents, and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigation, claim administration and defense expenses.

C. Contractor's Obligations. The Contractor shall have the following obligations with regard to required insurance under the Agreement:

i. The insurance policies required under this Agreement shall be endorsed to contain the following provisions: the Village and its officers, officials, employees, agents, and volunteers are to be covered as additional insureds on each of the policies with respect to liability arising out of ongoing and completed operations performed by or on behalf of the Contractor, including materials, parts, or equipment furnished in connection with such work or operations and automobiles, owned, leased, hired or borrowed by or on behalf of the Contractor. General liability coverage shall be provided in the form of an endorsement to Contractor's insurance at least as broad as ISO Form CG 20 10 11 85, or if not available, through both ISO Form CG 20 10, or CG 20 26 and CG 2037; 10 01 Edition date. All additional insured coverage shall be for both ongoing and completed operations.

ii. The Contractor shall provide evidence of the required insurance coverages under this Agreement by providing a copy of the actual policy/policies, endorsement(s) and certificates of insurance evidencing such coverages. All certificates of insurance required to be obtained by the Contractor shall provide that coverages under the policies named shall not be canceled, modified, reduced or allowed to expire without at least thirty (30) days prior written notice given to the Village. All certificates evidencing coverage extended beyond the date of final payment shall be provided at the time of the final Pay Request.

iii. The Contractor shall provide immediate notice to the Village upon the cancelation of any insurance policy or policies required hereunder.

iv. All insurance required of the Contractor shall state that it is Primary and Non-Contributory Insurance as to all additional insureds with respect to all claims arising out of operations by or on their behalf. If the Village has other applicable insurance coverages, those coverages shall be regarded as excess over the additional insured coverage. Contractor shall, with respect to all insurance required under this Agreement, endorse or require each policy to waive any and all rights of subrogation for losses and or damages arising from the work and/or services provided by the Contractor against the Village or other Additional Insured except where not permissible by law.

v. The Contractor shall require that every Subcontractor of any tier working on the Project associated with this Agreement to obtain insurance of the same types and amounts as that required of Contractor, naming the same as additional insureds subject to the same restrictions and obligations as set forth in the Contractor's insurance required under the Agreement, including waivers of subrogation in favor of the Village.

vi. Under no circumstances shall the Village be deemed to have waived any of the insurance requirements of this agreement by any act or omission, including, but not limited to:
    1. Allowing work by the Contractor or any Subcontractor of any tier to start before receipt of the required insurance policy, endorsement, and/or certificates of insurance; or
    2. Failure to examine, or to demand the correction of any deficiency, of any insurance policy, endorsement, and/or certificate of insurance received.

vii. The Contractor agrees that the obligation to provide insurance is solely the responsibility of the Contractor and the Subcontractors of any tier and cannot be waived by any act or omission of the Village.

viii. The purchase of insurance by the Contractor under this Agreement shall not be deemed to limit the liability of the Contractor in any way, for damages suffered by the Village in excess of policy limits or not covered by the policies purchased by the Contractor.

ix. The Contractor shall notify the Village, in writing, of any possible or potential claim for personal injury or property damage arising out of the work and/or services of this Agreement promptly whenever the occurrence giving rise to such a potential claim becomes known to the Contractor.

x. The Contractor further agrees to cause contractual liability endorsements to be issued by the insurance companies and attached to the above-mentioned policies to include under the coverage therein an extended obligation on the part of the insurers to insure against Contractor's contractual liability hereunder and to indemnify the Village and its agents against loss, liability, costs, expenses, attorneys' fees, and court costs, and further agrees that said coverage shall be afforded therein against all claims arising out of the operation of any structural work law or law imposing liability arising out of the use of scaffolds, hoists, cranes, stays, ladders, supports, or other mechanical contrivances.

xi. All insurance and performance and payment bonds required hereunder shall be placed with an insurer or insurers authorized to conduct business in the State of Illinois with a current A.M. Best's rating of no less than A, unless otherwise deemed, in writing, acceptable to the Village.

6. **Indemnification.** To the fullest extent permitted by Illinois law, Contractor shall indemnify, defend, save and hold the Village, their trustees, officers, employees, agents, attorneys and lenders harmless from and against all claims, damages, losses, and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from performance of the work and/orservices under the Agreement, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, anyone directly or indirectly employed by Contractor, or anyone for whose acts Contractor may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section.

7. **Force Majeure.** Whenever a period of time is provided for in this Agreement for the Contractor or the Village to do or perform any act or obligation, neither party shall be liable for any delays or inability to perform if such delay is due to a cause beyond its control and without its fault or negligence including, without limitation: a) Acts of nature; b) Acts or failure to act on the part of any governmental authority other than the Village or Contractor, including, but not limited to, enactment of laws, rules, regulations, codes or ordinances subsequent to the date of this Agreement; c) Acts or war; d) Acts of civil or military authority; e) Embargoes; f) Work stoppages, strikes, lockouts, or labor disputes; g) Public disorders, civil violence, or disobedience; h) Riots, blockades, sabotage, insurrection, or rebellion; i) Epidemics or pandemics; j) Terrorist acts; k) Fires or explosions; l) Nuclear accidents; m) Earthquakes, floods, hurricanes, tornadoes, or other similar calamities; n) Major environmental disturbances; or o) Vandalism. If a delay is caused by any of the force majeure circumstances set forth above, the time period shall be extended for only the actual amount of time said the party is so delayed. Further, either party claiming a delay due to an event of force majeure shall give the other party written notice of such event within three (3) business days of its occurrence, or it shall be deemed to be waived.

8. **Liquidated Damages.** Time is of the essence in the performance of this Contract. Should the Contractor fail to complete the work within the specified time stipulated in the contract or within such extended time as may have been allowed, the Contractor shall be liable and shall pay to the Village the amount of $500.00, not as a penalty but as liquidated damages, for each day of overrun in the contract time or such extended time as may have been allowed. The liquidateddamages for failure to complete the contract on time are approximate, due to the impracticality of calculating and proving actual delay costs. These deductions are for the costof delay to account for administration, engineering, inspection, supervision, and other costs and expenses during periods of extended and delayed performance. The costs of delay represented by this schedule are understood to be a fair and reasonable estimate of the costs that will be borne by the Village during an extended and delayed performance by the Contractor of the work.

9. **Engineer**. The Engineer on this project is Strand Associates, Inc. (Strand). During construction, Strand will review shop drawings, respond to requests for information, and make site visits. The Contractor shall indemnify the Engineer in the same manner as the Village is indemnified as stated above. The Engineer shall also be provided with a Certificate of Insurance and endorsements confirming the Engineer as an Additional Insured in the same manner as the Village as stated above.

10. **Contract Term.** The Contract shall begin upon contract approval and terminate uponcompletion of work.

11. **Change Orders.** After the contract is awarded, additional purchases or modifications may be made under the contract, or the terms of the contract may be extended, without rebidding the materials, supplies, services or equipment involved, provided that the change order:
    A. Is not of such a size or nature as to undermine the integrity of the original Bidding process; and
    B. Is germane to the original contract; and

C. Does not exceed twenty percent (20%) of the originally contracted amount; and
D. It is approved by the Board of Trustees, or in the event the change order is for less than twenty-five thousand dollars ($25,000.00), by the Village Administrator

12. **Compliance with Laws and Regulations.** In addition to the bid and performance bonds set forth above, Contractor must furnish and pay for satisfactory any other security required by law or by the specifications for this particular project. Upon receipt of the performance bond, the Village will return the Bid bond to the Contractor. In addition:
    A. The Contractor must comply with all applicable laws prerequisite to doing business in the state.
    B. The Contractor must have a valid Federal Employer Tax Identification Number or Tax Identification Number (for individuals).
    C. The Contractor must provide a Statement of Compliance with provisions of the State and Federal Equal Opportunity Employer requirements.
    D. The Contractor must provide evidence of any professional or trade license required by law or local ordinance for any trade or specialty area in which the Contractor is seeking a contract award. Additionally, the Contractor must disclose any suspension or revocation of such license held by the company, or of any director, officer or manager of the company. Any material changes to the Contractor's status, at any time, must be reported in writing to the Village within 14 days of its occurrence. Failure to comply with this requirement is grounds for the Contractor to be deemed non-responsible.
    E. Contractor is solely responsible for procuring all necessary permits, licenses, and other governmental approvals and authorizations necessary in connection with the Project.

13. **Independent Contractor.** There is no employee/employer relationship between the Contractor and the Village. Contractor is an Independent Contractor and not the Village's employee for all purposes, including, but not limited to, the application of the Fair Labors Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the Worker's Compensation Act (820 ILCS 305/1, et *seq.*). The Village will not (i) provide any form of insurance coverage, including but not limited to health, worker's compensation, professional liability insurance, or other employee benefits, or (ii) deduct any taxes or related items from the monies paid to Contractor. The performance of the services described herein shall not be construed as creating any joint employment relationship between the Contractor and the Village, and the Village is not and will not be liable for any obligations incurred by the Contractor, including but not limited to unpaid minimum wages and/or overtime premiums, nor does there exist an agency relationship or partnership between the Village and the Contractor.

14. **Approval and Use of Subcontractors.** The Contractor shall perform the Services with its own personnel and under the management, supervision, and control of its own organization unless otherwise approved by the Village in writing. All subcontractors and subcontracts used by the Contractor shall be at the discretion of the Village and in advance by the Village. The Village's approval of any subcontractor or subcontract shall not relieve the Contractor of full responsibility and liability for the provision, performance, and completion of the Work in full compliance with, and as required by or pursuant to, this Contract. If the Contractor chooses to use subcontractors to perform any of the Work, the Work performed under any subcontract

shall be subject to all of the provisions of this Contract in the same manner as if performed by employees of the Contractor. Every reference in this Contract to "Contractor" shall be deemed to also apply to all subcontractors of the Contractor. Every subcontract entered into by the Contractor to provide the Work, or any part thereof shall include a provision binding the subcontractor to all provisions of this Contract.

If any personnel or subcontractor fails to perform the part of the Work undertaken by it in a manner satisfactory to the Village, the Contractor shall immediately upon notice from the Village remove and replace such personnel or subcontractor. The Village shall have no claim for damages, for compensation in excess of the contract price, or for a delay or extension of the contract time as a result of any such removal or replacement.

15. **Waiver of Lien**. The Contractor shall, from time to time at the Village's request, but in any event prior to Final Payment, provide to the Village such receipts, releases, certifications, and other evidence as necessary to establish that there are no liens against the Work or the public funds held by the Village. This shall not operate to relieve the Contractor's surety or sureties from any of their obligations under the Bonds, or vest any right, interest, or entitlement fin any subcontractor or supplier.

16. **Assignment.** Neither the Village nor the Contractor shall assign or transfer any rights or obligations under this Agreement without the prior written consent of the other party.

17. **Governing Law.** This Contract and the rights of Owner and Contractor under this Contract shall be interpreted according to the internal laws of the State of Illinois. The venue for any action related to this Contract will be in the Circuit Court of Kendall County, Illinois.

18. **Changes in Law.** Unless otherwise explicitly provided in this Contract, any reference to laws shall include such laws as they may be amended or modified from time to time.

19. **Time.** The Contract Time is of the essence in the performance of this Contract. Except where otherwisestated, references in this Contract to days shall be construed to refer to calendar days.

20. **Termination.** The Village shall have the right at any time and for any reason (without any penalty) to terminate, in whole or in part, this Contract, provided that the Village shall provide Contractor at least thirty (30) days' prior written notice of such termination whereupon this Agreement shall automatically terminate immediately after the 31st day.
    A. When this contract, or any portion hereof, is terminated or canceled by the Village, and the Contractor released before all items of work included in this contract has been completed, payment may be made be prorated as a percentage of completion of the actual work at contract unit prices, and no claims for loss of anticipated profits or other damages will be made and are hereby waived.
    B. Termination of a contract, as stated above, will not relieve the Contractor or his/her surety of the responsibility of replacing defective work or materials.

21. **Piggybacking Clause.** This contract may be used to purchase supplies, equipment or perform any work on facilities or properties under the jurisdiction of the Village of Oswego This Contract may also be used as a joint purchase agreement between the Village, Oswego

Community School District 308, Oswegoland Park District, Oswego Library District, Oswego Township, Oswego Fire Protection District, as well as any other agencies at the discretion of the Village.

22. **Severability**. The provisions of this Contract shall be interpreted when possible to sustain their legality and enforceability as a whole. In the event any provision of this Contract or the Contract Documents shall be held invalid, illegal, or unenforceable by a court of competent jurisdiction, neither the validity of the remaining part of such provision or of any other provisions of this Contract shall be affected.

23. **Severability**. The provisions of this Contract shall be interpreted when possible to sustain their legality and enforceability as a whole. In the event any provision of this Contract or the Contract Documents shall be held invalid, illegal, or unenforceable by a court of competent jurisdiction, neither the validity of the remaining part of such provision or of any other provisions of this Contract shall be affected.
24. **Amendments**. No modification, addition, deletion, revision, alternation, or any other change to this Contract shall be effective unless and until such change is reduced to writing and executed by the Village and Contractor.
25. **Additional Items.** The Contractor hereby**:**
    A. Certifies that it is not barred from Bidding or contracting with the Village as a result of a violation of either Paragraph 33E-3 (Bid rigging) or 33E-4 (Bid rotating) of Act 5, Chapter 720 of the Illinois Compiled Statutes regarding criminal interference with public contracting; and
    B. Swears under oath that it is not delinquent in the payment of any tax administered by the Illinois Department of Revenue as required by Chapter 65, Act 5, paragraph 11-42.1 of the Illinois Compiled Statutes; and
    C. States that is has a written sexual harassment policy as required by the Illinois Human Rights Act (775 ILCS 5/2-105(A) (4) a copy of which shall be provided to the Village upon request; and
    D. Agrees to comply with the requirements of the Illinois Human Rights Act regarding Equal Employment Opportunities as required by Section 2-105 of the Illinois Human Rights Act (775 ILCS 5/2-105) and agrees to comply with the Equal Employment Opportunity Clause, Section 750, Part 750, Chapter X, Subtitle B of Title 44 of the Illinois Administrative Code incorporated herein by reference; and
    E. Agrees to comply with the civil rights standards set forth in Title VII of the Civil Rights Act as mandated in Executive Order No. 11246, U.S.C.A. Section 2000e n.114 (September 24, 1965); and
    F. Agrees to comply with the Substance Abuse Prevention on Public Works Projects Act (820 ILCS 265/1 et seq.) if this project is a "public work" within the meaning of the Illinois Prevailing Wage Act (820 ILCS 130/.01 et seq.) and prohibit substance abuse while performing such work and has a substance abuse prevention program; and
    G. Agrees to provide a drug-free workplace pursuant to the Drug-Free Workplace Act (30 ILCS 580/1 et seq.) (25 or more employees under a contract of more than $5,000 or for individuals only when greater than $5,000); and

H. Agrees to comply with the Substance Abuse Prevention on Public Works Projects Act (820 ILCS 265/1 et seq.) if this project is a "public work" within the meaning of the Illinois Prevailing Wage Act (820 ILCS 130/.01 et seq.) and prohibit substance abuse while performing such work and has a substance abuse prevention program; and
I. Agrees to provide a drug-free workplace pursuant to the Drug-Free Workplace Act (30 ILCS 580/1 et seq.) (25 or more employees under a contract of more than $5,000 or for individuals only when greater than $5,000); and
J. Agrees to comply with the Employment of Illinois Workers on Public Works Act (30 ILCS 570/0.01 et seq.) and employ Illinois laborers if at the time of this contract is executed or if during the term of this contract there is excessive unemployment in Illinois as defined in the Act.

[SIGNATURE PAGE FOLLOWS]

CONTRACT SIGNATURES

IN WITNESS WHEREOF the parties hereto have executed or caused to be executed by their duly authorized agents, this contract in DUPLICATE, each of which shall be deemed original, on the day and year first written.

Village of Oswego, Illinois,
a municipal corporation

By: _____
Village President

Attest:

_____
Village Clerk

CONTRACTOR:

By: _____
Signature

_____
Print Name and Title

Attest:

_____
Witness

BID COST SHEET

The undersigned, having examined the specifications, and all conditions affecting the specified project, offer to furnish all services, labor, and incidentals specified for the price below.

I (We) propose to complete the following project as more fully described in the specifications for the following:

Description	Estimated Quantity	Unit	Bid Unit Price	Bid Price
Tank Shrouding	1	LS	$	$
Surface Prepare Tank Exterior	1	LS	$	$
Recoat Tank Exterior with Five-Coat System	1	LS	$	$
Surface Prepare Tank Interior Wet	1	LS	$	$
Recoat Tank Interior Wet with Four-Coat System	1	LS	$	$
Surface Prepare Tank Interior Dry Shaft, Riser Pipe, and Access Tube	1	LS	$	$
Recoat Tank Interior Dry Shaft, Riser Pipe, and Access Tube with Two-Coat System	1	LS	$	$
Spot-Prepare Tank Interior Dry Bell	1	LS	$	$
Overcoat Tank Interior Dry Bell with Two-Coat System	1	LS	$	$
Furnish and Install New Cathodic Protection System, INCL All Associated Wire and Conduit	1	LS	$	$
Remove and Dispose of Riser Pipe INCL Insulation, Jacketing, and Expansion Joint	1	LS	$	$
Furnish and Install New Schedule 40 Steel Riser Pipe INCL Expansion Joint	1	LS	$	$
Furnish and Install New Riser Pipe Insulation and Jacketing	1	LS	$	$
Furnish and Install New Smooth-End Sampling Tap on Riser Pipe	1	LS	$	$
Seam Seal Interior Wet Roof Plates	1	LS	$	$
Remove Existing Pallet Vent and Install New Welded-On Failsafe Vent	1	LS	$	$
Furnish and Install Downturned 90-Degree Elbow and No. 24 Screen on Overflow Pipe	1	LS	$	$

Furnish and Install Counterweight Valve on Tank Overflow	1	LS	$	$
Replace Light Fixtures INCL FAA Obstruction Lights	1	LS	$	$
Remove Existing Freezeproof Tank Drain Valve and Replace with New	1	LS	$	$
Remove and Replace 30-Inch-Diameter Roof Access Cover and Manway	1	LS	$	$
Furnish and Install Door Switch on Main Bell Door and Associated Wiring and Conduit to SCADA Panel in Filter Building	1	LS	$	$
Miscellaneous Caulking	1	LS	$	$
Install Welded Grab Bars at Platforms and Tank Roof	1	LS	$	$
Install Handrail and Kickplate on Tank Roof	1	LS	$	$
Weld Steel Curbs Above Painter's Hatch and Sidewall Door	1	LS	$	$
Furnish and Install Rubber Covering on Access Tube Vent	1	LS	$	$
Temporarily Remove and Reinstall Ultrasonic Flow Meter	1	LS	$	$
Remove Conduit and Cables From Ladder Siderail; Install Welded Tabs Adjacent to Ladder Supports and Attach Conduit and Cables	1	LS	$	$
Furnish and Install Breaker in Existing Lighting Panel INCL Cover for Lighting Panel	1	LS	$	$
Holiday Testing of Interior Wet Followed by Coating Repair	1	LS	$	$
Mobilization, Demobilization, Disinfection	1	LS	$	$
Cash Allowance for Spot Prepare and Spot Recoat Additional Tank Exterior with Three-Coat System	20	SF	$	$
Cash Allowance for Pit Filling in Different Locations Within the Interior Wet	10	EA	$	$

Total Project Cost including all Cash Allowances: $_____

Signature of Authorized Representative *Date*

DETAIL EXCEPTION SHEET

Any exception must be clearly noted on this sheet. Failure to do so may be the reason for rejection of the bid. It is not our intention to prohibit any potential Contractor from bidding by virtue of the specifications, but to describe the material(s) and service(s) actually required.

The Village reserves the right to accept or reject any or all exceptions.

Contractor's exceptions are:

SUBCONTRACTOR LISTING

Provide the name, contact information, and value of work for each and every subcontractor which will be employed on this project.

Subcontractor No. 1

Business Name

Address *City, State, Zip Code*

Contact Person *Telephone Number*

Value of Work *Nature of Work*

Subcontractor No. 2

Business Name

Address *City, State, Zip Code*

Contact Person *Telephone Number*

Value of Work *Nature of Work*

Subcontractor No. 3

Business Name

Address *City, State, Zip Code*

Contact Person *Telephone Number*

Value of Work *Nature of Work*

REFERENCES

Enter below current business references for whom you have performed work similar to that required by this bid.

Reference No. 1

Business Name

Address *City, State, Zip Code*

Contact Person *Telephone Number*

Dates of Service *Nature of Work*

Reference No. 2

Business Name

Address *City, State, Zip Code*

Contact Person *Telephone Number*

Dates of Service *Nature of Work*

Reference No. 3

Business Name

Address *City, State, Zip Code*

Contact Person *Telephone Number*

Dates of Service *Nature of Work*

CONTRACTOR BID AGREEMENT

TO:
Village of Oswego
100 Parkers Mill
Oswego, IL 60543

Project Name: _____

The undersigned Bidder, in compliance with your advertisement for Bids for work as specified, and related documents prepared by or at the direction of the Village of Oswego, Owner, and being familiar with all conditions surrounding the work, including availability of labor and material, do hereby propose to furnish materials, labor, equipment, and services and pay for same and shall perform all work required for the completion of the Project, in accordance with the Contract documents and at the price provided.

Bidder certifies this Bid to be for the project described in the Instruction to Bidders document and to be in accordance with plans, specifications, and Contract Documents, including the invitation for Bids.

In no event shall any delays or extensions of time be construed as cause or justification for payment of extra compensation to the Contractor. Any claims for an increase of the Contract time shall be made in writing to the Village within seven (7) days of the cause.

_____
Company Name

_____
Address *City, State, Zip Code*

_____
Phone Number *Email Address*

_____
Printed Name of Authorized Representative *Title*

_____
Signature of Authorized Representative *Date*

APPENDIX A

CONTRACTOR POLICY FOR ENTERING AND WORKING IN VILLAGE BUILDINGS

Village of Oswego
Contractor Policy for Entering and Working in Village Buildings
(Effective July 15, 2021)

****All contractors shall read and comply with the following policy. ****
For the protection of the Village's workforce, visitors and contractors, the Village of Oswego is taking additional measures for all contractors conducting work on behalf of the Village of Oswego on or at Village facilities.

Compliance with applicable public health guidelines
The Village of Oswego complies and will enforce with all contractors the relevant health guidelines regarding COVID-19. In accordance with Center for Disease Control and Prevention guidelines, the Village requires face coverings for all individuals who are not fully vaccinated when in Village facilities or when in outdoor spaces and unable to maintain social distancing.

The Village will require proof of vaccination or compliance with COVID-19 mitigation protocols, including the use of face coverings, social distancing and health screenings any time the contractor is entering a Village facility, in common spaces, or during in-person meetings, or in out-door settings when it is not possible to maintain adequate social distance.

The Village will require compliance with any updates to public health guidelines, including those guidelines that impose additional restrictions on operations.

Contractor Symptom Assessment
The Village encourages employees who are feeling ill to not report to work in order to reduce the spread of communicable diseases. The Village prohibits work within Village facilities by any individual who is not fully vaccinated and exhibits symptoms related to COVID-19, has known contact with an individual who is positive for COVID-19, or is otherwise instructed to self-quarantine by any medical professional. To that end, the Village is requiring proof of vaccination or certification that they do not meet any of the above criteria for all contractors prior to entering any Village facility. Vaccinated individuals who have known or suspected exposure to COVID-19 and begin to show the following symptoms are also prohibited from working on site.

COVID19 symptoms will be considered those symptoms as defined by the CDC and may be updated. The CDC identifies the following symptoms as indicative of COVID19:

1. Cough
2. Shortness of breath or difficulty breathing
3. Temperature – Using the provided no touch thermometers
4. Chills
5. Repeated shaking with chills
6. Muscle pain/unusual fatigue
7. Headache
8. Sore throat
9. New loss of taste or smell

Symptom tracking process

A. When entering any Village facilities, all contractors will be required to show proof of vaccination or wear a face covering and complete the attached Symptom Self-Assessment Survey sheet

(Attachment A). Contractors should circle yes if they have experienced any symptoms indicative of COVID19 in the last 12 hours. Touchless thermometers are available at the Village's primary facilities for contractor use. Please clean the thermometer before and after use. The Symptom Self-Assessment Survey sheet will be provided to the Village Representative. All forms will then be submitted to the Village's Facilities department to be held confidentially. The Village will take all reasonable measures to maintain confidentiality related to health information.

B. Any contractor who has a consistent body temperature reading of over 100.4 degrees Fahrenheit (a consistent body temperature is (2) two temperature readings taken (1) one minute apart), or answers "Yes" to any of the other above listed questions/symptoms on the Symptom Self-Assessment Survey is required to advise their Village Representative by phone immediately.

C. If the contractor responds affirmatively to any of the symptoms, the contractor will be required to exit the building. The contracting company will be required to contact the Village Representative immediately, to provide the following information:

- Did your employee have contact with any Village Staff Members?
- Did your employee have contact with other staff members from your company, on the way to the site, or onsite?

D. Any contractor who begins to experience any of the above symptoms during their shift, shall immediately notify their supervisor. At that time, the contractor should end his or her shift.

E. If a contractor is required to leave a site because of COVID-19 symptoms, that contractor will be required to remain off Village of Oswego Properties, until that the employee can provide proof to their supervisor, that they are free of COVID-19 symptoms for a minimum of 14 days, or proof of a negative COVID-19 test on day 7 or later.

F. Should any contractor begin experiencing symptoms of COVID19 within 14 days of conducting work for the Village, he or she is required to contact the Village.

_____

Company Name

_____

Printed Name of Authorized Representative *Title*

_____

Signature of Authorized Representative *Date*

Village of Oswego
Symptom Self-Assessment Survey

Company: _____

Contractor Name: _____

Village facility: _____ Date: _____Time: _____

Please circle Yes if you have experienced any of the following in the last 12 hours:

Cough	Yes	No
Shortness of breath/difficulty breathing	Yes	No
Temperature in excess of 100.4	Yes	No
Chills	Yes	No
Repeated shaking with chills	Yes	No
Muscle pain/unusual fatigue	Yes	No
Headache	Yes	No
Sore throat	Yes	No
New loss of taste or smell	Yes	No

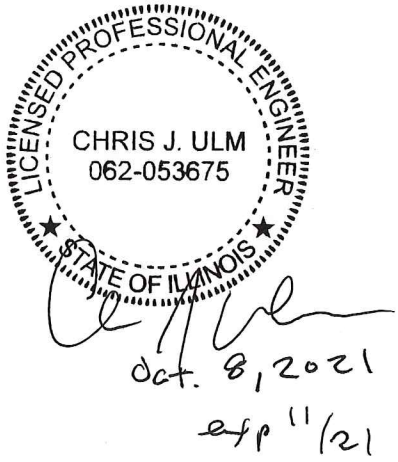
Please answer the following questions by circling Yes or No

1. I am currently experiencing symptoms similar to COVID19. Yes No
2. I have been in contact with a COVID-positive patient in the last 14 days. Yes No
3. I have been advised to self-quarantine in the last 14 days. Yes No

Signature: _____

APPENDIX B–TECHNICAL SPECIFICATIONS

VILLAGE OF OSWEGO
OSWEGO, ILLINOIS
FOX CHASE TOWER REHABILITATION
CONTRACT 21-6070-005



Prepared by:

STRAND ASSOCIATES, INC.®
IDFPR No. 184-001273
1170 South Houbolt Road
Joliet, IL 60431
www.strand.com

Issued for Bid
October 8, 2021

STRAND ASSOCIATES®

SECTION 00 01 10

TABLE OF CONTENTS

VILLAGE OF OSWEGO
OSWEGO, ILLINOIS
FOX CHASE TOWER REHABILITATION
CONTRACT 21-6070-005

	Pages Through
DIVISION 01–GENERAL REQUIREMENTS	
SUMMARY OF WORK	01 11 00-5
CONTRACT CONSIDERATIONS	01 29 00-1
COORDINATION, FIELD ENGINEERING, AND MEETINGS	01 31 00-3
SUBMITTALS	01 33 00-7
REGULATORY REQUIREMENTS	01 41 00-2
REFERENCE STANDARDS AND DEFINITIONS	01 42 00-6
QUALITY CONTROL	01 45 00-2
TEMPORARY FACILITIES	01 50 00-3
FIELD OFFICES AND SHEDS	01 52 13-2
TEMPORARY CONTROLS	01 57 00-3
MATERIALS AND EQUIPMENT	01 60 00-4
CUTTING, PATCHING, AND ALTERATIONS	01 73 29-5
CONTRACT CLOSEOUT	01 77 00-3
STARTING OF SYSTEMS	01 91 00-5
WAGE RATES	7
DIVISION 02–EXISTING CONDITIONS	
DEMOLITION	02 41 00-2
DIVISION 05–METALS	
METAL FABRICATIONS	05 50 00-7
HANDRAILS AND RAILINGS	05 52 00-2
DIVISION 09–FINISHES	
STEEL WATER STORAGE TANK PAINTING	09 67 16-17
DIVISION 26–ELECTRICAL	
GENERAL ELECTRICAL REQUIREMENTS	26 05 00-5
WIRE	26 05 19-4
SECONDARY GROUNDING	26 05 26-1
SUPPORTING DEVICES	26 05 29-2
CONDUIT	26 05 33-4
BOXES	26 05 35-2

	Pages Through
ELECTRICAL IDENTIFICATION	26 05 53-2
CONTROLS AND INSTRUMENTATION	26 09 00-6
SCADA SYSTEM I/O LISTING	26 09 90-1

DRAWINGS–APPENDIX C

TITLE SHEET	1
EXISTING SITE PLAN	2
TANK ELEVATION AND LOGO	3

APPENDICES (NOT PART OF CONTRACT DOCUMENTS)

APPENDIX D–ORIGINAL CONSTRUCTION DRAWINGS	14
APPENDIX E–FOX CHASE TOWER ELEVATED TANK OBSERVATION REPORT	23

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

PART 1–GENERAL

1.01 DIVISION ONE

A. The requirements of Division 01 apply to all sections of the Contract.

1.02 PROJECT SCOPE

A. CONTRACTOR shall provide all items, articles, materials, operations or methods mentioned or scheduled on the Drawings or herein specified: including all labor, supervision, equipment, incidentals, taxes, and permits necessary to complete the Work as described within the Contract Documents. CONTRACTOR shall install all items provided by OWNER as mentioned or scheduled on the Drawings or herein specified.

1.03 CONTRACT DOCUMENTS–INTENT AND USE

A. Intent of Documents:
   1. Singular notations and specifications shall be considered plural where application is reasonably inferred.
   2. Mention or indication of extent of work under any division or Specification section is done only for convenience of CONTRACTOR and shall not be construed as describing all work required under that division or section.
   3. Some individual sections may contain a list of related sections. The list of related sections in individual sections is provided for the convenience of CONTRACTOR and is not necessarily all-inclusive. CONTRACTOR may not rely upon this listing for determination of scope of work. Other sections of the Specifications not referenced in individual sections shall apply as required for proper performance of the Work.
   4. Command type sentences may be used in the Contract Documents. These sentences refer to and are directed to CONTRACTOR.
   5. Symbols for various elements and systems are shown on the Drawings. Should there be any doubt regarding the meaning or intent of the symbols used, a written interpretation shall be obtained from ENGINEER.

B. Use of Documents:
   1. CONTRACTOR shall examine all Specifications and Drawings for the Work, including those that may pertain to Work CONTRACTOR does not normally perform with its own forces.
   2. CONTRACTOR shall use all of the Project Drawings and Specifications:
      a. For a complete understanding of the Project.
      b. To determine the type of construction and systems required.
      c. For coordination with other contractors.
      d. To determine what other work may be involved in various parts or phases.
      e. To anticipate and notify others when work by others will be required.
      f. And all other relevant matters related to the project.
   3. CONTRACTOR is also bound by all requirements of the Contract Documents which are applicable to, pertain to, or affect its Work as may be shown or inferred by the entire set of Project Drawings and Specifications.

1.04 CONSTRUCTION REQUIREMENTS

A. CONTRACTOR shall achieve Substantial Completion, including rehabilitation of the tank and startup performed, by October 4, 2022. CONTRACTOR shall achieve Final Completion, including all project requirements, by November 1, 2022. CONTRACTOR shall have five weeks from the time construction commences to Substantial Completion. CONTRACTOR may choose to complete the Work in the spring between April 11, 2022, and June 27, 2022; or in the fall between September 19, 2022, and November 28, 2022.

B. General Information and Requirements:
   1. Removal of the tank from service shall be minimized to the extent possible so the rehabilitation may take place.
   2. Normal working hours are 7 A.M. until 3:30 P.M., Monday through Friday.
   3. Operation of the water supply facilities will be the responsibility of OWNER. CONTRACTOR shall cooperate with the water utility operation staff at all times, and removal of any operating units from service shall be coordinated by CONTRACTOR with OWNER and ENGINEER. Prior to removing or placing any unit process in or out of service, CONTRACTOR shall request in writing authorization from OWNER. CONTRACTOR shall attach to all requests for placing unit process in service, the laboratory results for bacteriological test showing that safe samples were obtained.
   4. CONTRACTOR shall maintain roadways open at all times to allow for one-way traffic.

1.05 CONTRACTOR USE OF SITE

A. General:
   1. The “area of the site” referred to in these Specifications shall be as shown on the Drawings. If the “area of the site” is not shown, OWNER's property lines, the Project right-of-way and/or any easements obtained for the Project shall be considered the “area of the site.”
   2. Construction activities shall be confined within the “area of the site” limits.
   3. From the start of work to completion CONTRACTOR is responsible for the care of the site and the premises which are affected by operations of Work of this Contract.
   4. Except for permanent site improvements provided under the Contract, CONTRACTOR shall restore property disturbed during the Work, to the conditions which previously existed.
   5. Work in occupied spaces shall be restricted to specified Work and essential activities, such as making necessary connections and extending services or constructing temporary access ways. Such work shall be scheduled in advance with OWNER.

B. Parking and Deliveries:
   1. CONTRACTOR is responsible for control of traffic by vehicles and persons within the limits of its operations.
   2. Parking for employees, subcontractors, and agents of CONTRACTOR shall be in areas subject to approval of OWNER.
   3. Access to the site for delivery of construction material or equipment shall be subject to approval of OWNER.

1.06 EXISTING SERVICES, OVERHEAD UTILITIES, AND UNDERGROUND FACILITIES INCLUDING STRUCTURES

A. Interruption of existing services and systems including heating, ventilating, air conditioning, water, sanitary, lighting and power, signal and security systems, and similar work shall be kept to an absolute minimum and shall be limited to times approved by OWNER.

B. If deemed necessary by OWNER, such work shall be accomplished after OWNER's normal office hours.

C. Work shall not commence until all labor, materials, and equipment are available so Work can continue without interruption or delay.

D. Should uncharted or incorrectly charted services or Underground Facilities be encountered during installation, notify OWNER and consult with utility owner immediately.

E. Cooperate with OWNER and utility companies in keeping respective services and Underground Facilities in operation and repair any damage.

F. CONTRACTOR shall not interrupt existing services and Underground Facilities occupied and used by OWNER or others, except when permitted in writing by OWNER.

G. Any accidental interruption of services and Underground Facilities shall be repaired immediately, including provision of temporary facilities until permanent repairs can be made.

H. Prior to any excavation, demolition, or drilling on site, CONTRACTOR shall contact owners of the Underground Facilities in and near the construction area of the intent to excavate, demolish, or drill. As part of this notification requirement, CONTRACTOR shall contact "JULIE" (811 or 1-800-892-0123). CONTRACTOR shall be aware that not all owners participate in "JULIE." A call to this agency shall not absolve CONTRACTOR of the requirements for contacting owners of all Underground Facilities in and near the construction area. CONTRACTOR shall give reasonable advance notice to "JULIE" and other owners for the notification which shall not be less than the minimum advance notification required.

I. Locations and elevations of services and Underground Facilities as shown on the Drawings are approximate. It shall be CONTRACTOR's responsibility to determine their exact location when in their vicinity. To this end, CONTRACTOR shall proceed with caution in the excavation and preparation of the Site so the exact location of services and Underground Facilities can be determined. CONTRACTOR shall include in the Contract Price any costs for temporary or permanent relocations of such services and Underground Facilities required to complete the Work unless specifically indicated otherwise in the Specifications.

J. Where potential grade conflicts might occur with existing services and Underground Facilities, CONTRACTOR shall uncover such services and Underground Facilities sufficiently in advance of construction so that elevations may be determined to allow any necessary adjustments to be made.

K. CONTRACTOR shall coordinate with overhead utility companies prior to the Work. CONTRACTOR shall provide all necessary temporary and permanent support relocation or temporary and permanent restraint to maintain overhead utilities in service.

L. CONTRACTOR shall keep an accurate and complete record of all such services and Underground Facilities encountered and shall provide OWNER a copy of this record. The record shall include a description of the item encountered, opinion as to conditions, and adequate measurements and depths so that the item can be located in the future.

M. CONTRACTOR shall inspect all services and Underground Facilities for condition and soundness. Unsound conditions shall be reported to OWNER immediately after exposing. CONTRACTOR shall not proceed with the Work until the service or facility owner has been notified. Service or facility owner shall then be given time to inspect and correct, if required, the service or Underground Facility. CONTRACTOR may make claim under the provisions of Articles 11 and 12 of the General Conditions should CONTRACTOR feel a price or time adjustment is justified.

N. Any additional costs incurred because of failure of CONTRACTOR to report the condition of any and all existing services and Underground Facility encountered shall be paid for by CONTRACTOR.

O. Whenever ENGINEER feels it is necessary to explore and excavate to determine the location of existing services and Underground Facilities, CONTRACTOR shall make explorations and excavations for such purposes. If CONTRACTOR is required to perform additional Work in making the explorations and excavations, extra compensation will be allowed as provided for in the General Conditions.

1.07 PROTECTION OF WORK AND IMPROVEMENTS

A. CONTRACTOR shall protect the property of OWNER, existing improvements, and the Work installed by CONTRACTOR and others from abuse, damage, dust, debris, and other objectionable materials resulting from construction activities.

B. CONTRACTOR shall provide suitable covers, partitions, or other dust and fume containment devices to suit construction operations.

C. CONTRACTOR shall keep property, existing improvements, and the Work including structures, mains, fittings, and accessories free from dirt and foreign matter at all times.

D. CONTRACTOR shall provide temporary plugging of openings, holes, and pipe ends that are existing or that CONTRACTOR has installed.

E. Property, improvements, and Work damaged by CONTRACTOR shall be repaired or replaced by CONTRACTOR to the satisfaction of OWNER.

F. CONTRACTOR is cautioned that existing public and private streets, alleyways, and roads may not hold up to typical construction traffic or activities. CONTRACTOR shall repair all streets, alleyways, roads, and shoulders damaged by its construction activities to these streets shall be replaced or repaired to their original condition at CONTRACTOR's expense.

1.08 AVAILABILITY OF LANDS

A. Easements were not obtained for this Project. CONTRACTOR shall confine its operations, equipment and storage areas to the lands and rights-of-way in which the Project is to be located. CONTRACTOR may enter into written agreements with property owners for use of other lands during construction. Copies of such agreements shall be provided to OWNER.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 29 00

CONTRACT CONSIDERATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Cash allowances.
   2. Measurement and Payment–Unit Prices.

1.02 CASH ALLOWANCES

A. See Paragraph 13.02 of the General Conditions for costs to be included in allowances.

B. Refer to sections of the specifications identified in the Bid Form for specific information on use of cash allowances.

C. The Bid shall include the amount equal to the specified quantity times the unit price.

1.03 MEASUREMENT AND PAYMENT–UNIT PRICES

A. Measurement methods are delineated in the individual Specification sections.

B. CONTRACTOR shall take measurements and compute quantities. ENGINEER will check measurements and quantities.

C. Incidental Items of Work: Any items of Work shown on the Drawings or called for in the Specifications, but not included in the Bid Form, shall be considered incidental items of Work. The cost of incidental items of Work shall be included in the prices bid for adjacent Work.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 31 00

COORDINATION, FIELD ENGINEERING, AND MEETINGS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Coordination.
   2. Field engineering.
   3. Progress meetings.

1.02 COORDINATION

A. CONTRACTOR shall coordinate scheduling, submittals, and work of the various sections of the work to provide an efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. CONTRACTOR shall verify utility requirements and characteristics of operating equipment are compatible with building utilities and coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

C. CONTRACTOR shall coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on the Drawings and shall follow routing shown for pipes, ducts, and conduit as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas, except as otherwise indicated, CONTRACTOR shall conceal pipes, ducts, and wiring within the construction and coordinate locations of fixtures and outlets with finish elements.

E. CONTRACTOR shall coordinate completion and cleanup of Work of separate sections in preparation for substantial completion and for portions of Work designated for OWNER's occupancy.

F. After OWNER occupancy of premises, CONTRACTOR shall coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents to minimize disruption of OWNER's activities.

1.03 FIELD ENGINEERING

A. CONTRACTOR shall locate and protect property stakes, legal survey monuments, benchmarks, and survey control and reference points. CONTRACTOR shall pay for replacement of disturbed property stakes and legal survey monuments by a Registered Land Surveyor acceptable to OWNER and for replacement of benchmarks and survey control and reference points provided by ENGINEER.

B. CONTRACTOR shall provide field engineering services as required to establish elevations, lines, and levels utilizing recognized engineering survey practices.

C. CONTRACTOR shall furnish all required plummets and graduated poles to check all Work.

D. If stakes and boards have to be reset because of negligence of CONTRACTOR, CONTRACTOR shall bear the cost of such work.

E. If laser beam is used, CONTRACTOR shall check its Work against intermediate grade stakes provided between manholes. Prior to initial use of the laser, CONTRACTOR shall set up laser on ground surface and check line and gradient controls. Lasers not functioning properly shall be immediately removed.

F. If existing property stakes not within the limits of the trench are removed or damaged by CONTRACTOR, CONTRACTOR shall bear the cost of replacement. Replacement shall be made by a legal survey performed by a licensed Land Surveyor hired by OWNER. Cost for survey shall be deducted from the Contract Price.

G. CONTRACTOR shall be responsible for all lines, elevations, and measurements of buildings, structures, piping, utilities, and other work executed by CONTRACTOR under the Contract. CONTRACTOR must exercise proper precaution to verify figures before laying out the Work and will be held responsible for any error resulting from its failure to exercise such precaution.

1.04 PROGRESS MEETINGS

A. Progress meetings will be held throughout progress of the Work at intervals agreed to by OWNER, ENGINEER, and CONTRACTOR. Interval will generally be monthly.

B. CONTRACTOR's project manager, job superintendent, major subcontractors, and suppliers shall attend as appropriate to address agenda topics for each meeting. CONTRACTOR's representatives shall have authority to bind CONTRACTOR to decisions at the meetings.

C. The project schedule shall be updated monthly and shall be reviewed at each progress meeting.

D. CONTRACTOR shall also provide the following information in written form at each meeting.
   1. Construction progress, including:
      a. Activities completed this reporting period.
      b. Activities in progress this reporting period.
      c. Activities scheduled to commence this reporting period.
   2. Description of problem areas.
   3. Current and anticipated delays.
      a. Cause of the delay.
      b. Corrective action and schedule adjustments to correct the delay.
      c. Impact of the delay on other activities, on milestones, and on completion dates.
   4. Changes in construction sequence.

E. ENGINEER will prepare and distribute minutes to all attending parties.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Whenever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards.
   2. To facilitate CONTRACTOR's understanding of the design intent, procedures have been established for advance submittal of design data and for its review or rejection by ENGINEER.
   3. The type of submittal requirements specified in this section include construction progress schedule, submittal schedule, shop drawings, product data, samples, maintenance manuals, and other miscellaneous work-related submittals.

B. Related work described elsewhere: More detailed requirements for submittals are described in other sections of these specifications for some materials and equipment. They are to be considered additional requirements to supplement the requirements specified in this section. Submittals shall conform to Article 7 of the General Conditions.

C. Definitions: "Electronic Submittal" is defined as any submittal transmitted electronically to ENGINEER for review.

1.02 IDENTIFICATION OF SUBMITTALS

A. CONTRACTOR shall completely identify each submittal and resubmittal by showing at least the following information:
   1. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
   2. Name and location of project and identification number.
   3. Drawing number and specifications section number to which the submittal applies.
   4. Include the date of each submittal or resubmittal.

1.03 GROUPING OF SUBMITTALS

A. Unless otherwise specifically permitted by ENGINEER, CONTRACTOR shall make all submittals in groups containing all associated items so that information is available for checking each item when it is received.

B. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.

1.04 TIMING OF SUBMITTALS

A. CONTRACTOR shall make all submittals far enough in advance of scheduled dates of installation to provide required time for reviews, for securing necessary approval, for possible revision and resubmittal, and for placing orders and securing delivery.

B. The review period for submittals that are received after 3 P.M. shall commence on the following business day.

1.05 CONSTRUCTION PROGRESS AND SUBMITTAL SCHEDULES

A. Submit preliminary schedules within 10 days of the effective date of the Agreement.

B. Revise schedules incorporating any comments provided at the schedule review conference required in GC.2.05 and resubmit.

C. As a minimum, the construction progress schedule shall consist of a horizontal bar chart with a separate line for each major portion of Work or operation, identifying first workday of each week.

D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration for each activity. Identify activities that are on the critical path.

E. Include line items for milestones (if any), Substantial, and Final Completion.

F. Submit updated schedules with each Application for Payment, identifying changes since previous version.

G. Indicate estimated percentage of completion for each item of Work at each submission.

H. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.

1.06 SHOP DRAWINGS

A. Shop drawings shall include specially prepared technical data for this project including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form for general application to a range of similar projects. Shop drawings shall be submitted for all manufactured or fabricated items. See individual technical sections for special requirements.

B. CONTRACTOR shall make all shop drawings accurately to scale and sufficiently large to show all pertinent aspects of the item and its method of connection to the work.

C. Shop drawings shall be checked, approved, and stamped by CONTRACTOR in accordance with the General Conditions before transmittal to ENGINEER for review and approval.

D. Complete shop drawings and descriptive data shall be submitted on all manufactured or fabricated items prior to 50% completion of the Work. Applications for payment beyond 50% of the Contract amount will not be recommended for payment until all shop drawings are submitted, including the required hard copies, or a revised schedule for any remaining submittals is agreed to by OWNER and ENGINEER.

E. CONTRACTOR shall submit shop drawings following the electronic submittal procedure described below. If electronic submittal is impossible, CONTRACTOR may request

ENGINEER to review hard copy submittals on a limited basis. ENGINEER may request to review hard copy submittals on a limited basis for submittals that are over 100 pages in length. If ENGINEER agrees to or requests hard copy submittal review, CONTRACTOR shall submit six color copies of shop drawings and descriptive data to ENGINEER for approval. Three copies of these will be returned to CONTRACTOR if approved. If shop drawings are not approved or if they are stamped “Approved as Noted-Resubmit,” two corrected copies will be returned to CONTRACTOR for use in resubmittal. If CONTRACTOR desires more than three approved copies, submitted quantity shall be increased accordingly.

F. Shop drawings shall be submitted in 3-tab report covers, binder clips, or large envelopes.

G. Shop drawings submitted to ENGINEER will be reviewed and stamped “Approved,” “Approved as Noted,” “Approved as Noted-Resubmit,” or “Not Approved.” CONTRACTOR shall resubmit the above number of corrected shop drawings for all shop drawings stamped “Approved as Noted-Resubmit” and “Not Approved” and will continue this process until shop drawings are stamped “Approved” or “Approved as Noted.” If drawings are stamped “Approved as Noted-Resubmit,” fabrication may proceed in accordance with the marked-up shop drawings. Installation shall not proceed until shop drawings have been resubmitted and stamped “Approved” or “Approved as Noted.”

H. If shop drawings are stamped “Approved as Noted” or “Approved as Noted-Resubmit” and CONTRACTOR does not agree with revisions or cannot conform with revisions, fabrication shall not proceed and shop drawings shall be resubmitted with explanation of CONTRACTOR’s position.

I. All shop drawings used for construction site activities shall bear the “Approved” or “Approved as Noted” stamp of ENGINEER.

J. Arrangements may be made between CONTRACTOR and ENGINEER to provide additional copies of “Approved” shop drawings for field activity purposes.

K. PDF Submittal Procedures:
   1. Summary:
      a. Shop drawing and product data submittals shall be transmitted to ENGINEER in electronic (PDF) format.
      b. The intent of PDF submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
      c. The PDF submittal process is not intended for color samples, color charts, or physical material samples.
   2. Procedures:
      a. CONTRACTOR shall review and apply a stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
      b. CONTRACTOR shall transmit each cover letter and submittal to ENGINEER as an e-mail attachment.
      c. ENGINEER will return the reviewed shop drawing via e-mail with a transmittal letter, after review, indicating the status of the shop drawing review.
      d. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of CONTRACTOR.

e. Electronically submitted shop drawings shall follow the following format:
   (1) All files shall be delivered in PDF format with a minimum resolution of 300 dpi unless otherwise requested by ENGINEER. Scanned in material shall be scanned in color and any markings by CONTRACTOR shall be made in red. Pages shall be rotated to the appropriate position for easy reading on a computer monitor such that the majority of text is vertical.
   (2) Files shall be delivered without security features activated.
   (3) Shop Drawings shall be uploaded as individual files. Files combined into a zip drive are not acceptable. All pages of one submittal should be contained in one file.
   (4) The file shall open to a cover page containing, at a minimum, the following information:
      (a) CONTRACTOR's stamp.
      (b) Name, e-mail, and telephone number of the individual who may be contacted for further information.
      (c) Project number.
      (d) Submittal number.
      (e) Submission date, if resubmittal, all previous submission dates.
      (f) Index detailing contents and the total number of pages in the submittal.

f. Once a shop drawing has been "Approved" or "Approved as Noted," CONTRACTOR shall provide three hard color copies of the "Approved" or "Approved as Noted," shop drawings to ENGINEER. CONTRACTOR is responsible for the hard copy color replication of ENGINEER's "Approved" or "Approved as Noted," shop drawings for use by CONTRACTOR. Hard copy shop drawings shall be submitted in 3-ring binders or 3-tab report covers.

L. Shop drawings shall include verification that the item meets applicable codes and standards.

1.07 COLORS AND PATTERNS

A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product, CONTRACTOR shall submit accurate color charts and pattern charts to ENGINEER for OWNER's review and selection.

B. Unless all available colors and patterns have identical wearing capabilities and are identically suited for the installation, CONTRACTOR shall completely describe the relative capabilities of each.

1.08 SAMPLES AND FIELD MOCKUPS

A. CONTRACTOR shall provide samples and field mockups where noted or specified.

B. Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.

C. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product and full range of color, texture, and pattern.

D. Samples shall have labels firmly attached, bearing the following information:
   1. Name of project.
   2. Description of product and finish.
   3. Name of CONTRACTOR.
   4. Trade name and number of product.
   5. Standards met by the product.

E. Approval of samples must be obtained prior to proceeding with any work affected by material requiring sample approval.

F. Samples, unless otherwise noted, become the property of OWNER.

G. In situations specifically approved by ENGINEER, the retained sample may be used in the construction as one of the installed items.

H. Field Mockups:
   1. CONTRACTOR shall erect field mockups at the project site in a location acceptable to ENGINEER and OWNER.
   2. When accepted by ENGINEER, the mockup will become the basis for comparison of the actual work.
   3. Remove mockup at conclusion of the work if it was not incorporated into the work.

1.09 PRODUCT DATA

A. CONTRACTOR shall provide product data as required to supplement shop drawings.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by CONTRACTOR to illustrate a material, product, or system for some portion of the work.

C. CONTRACTOR shall collect required product data into one submittal for each unit of work or system.

D. CONTRACTOR shall include manufacturer’s standard printed recommendations for application and use, compliance with standards, performance characteristics, wiring and piping diagrams and controls, component parts, finishes, dimensions, required clearances, and other special coordination requirements.

E. CONTRACTOR shall mark each copy of standard printed data to identify pertinent products, models, options, and other data.

F. CONTRACTOR shall supplement manufacturer’s standard data to provide information unique to the work.

1.10 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by ENGINEER.

B. Shop Drawings and Product Data:
   1. Revise initial drawings or data and resubmit as specified for initial submittal.
   2. Itemize in a cover letter any changes which have been made other than those requested by ENGINEER.

C. See SC-7.16 for additional information regarding resubmittals.

1.11 MANUFACTURER'S DIRECTIONS

A. Manufactured articles, materials, and equipment shall be stored, commissioned, operated, applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer, unless specified to the contrary.

B. Wherever specifications call for work to be performed or materials to be installed in accordance with the manufacturer's printed instructions or directions, CONTRACTOR shall furnish copies as required for shop drawings of those instructions or directions to ENGINEER before installing the material or performing the work.

1.12 MAINTENANCE MANUAL

A. Prior to 75% completion of the Contract or at a minimum of 45 days prior to the scheduled start-up date of any individual item of equipment, whichever is earlier, CONTRACTOR shall furnish to ENGINEER four complete copies of a maintenance manual for all equipment furnished. Applications for payment beyond 75% of the contract amount will not be recommended for payment until all maintenance manuals are submitted or a revised schedule for remaining maintenance manuals is agreed to by OWNER and ENGINEER.

B. The manuals shall include manufacturer's instructions for maintenance and operation for each item of mechanical and electrical equipment. Manuals shall be specific for the equipment as installed; provide project specific inserts as required. Manuals shall contain: operation instructions, lubrication schedules, types and quantities, preventative maintenance program, spare parts list, parts lists, I.D. No. and exploded views, assembly instructions, parts supplier location, trouble shooting and startup procedures and, where applicable, test data and curves.

C. All sheets shall have reduced dimensions as described for shop drawings, and shall be furnished in 3-ring binders or 3-tab report covers.

D. CONTRACTOR is responsible for producing an electronic version of the Equipment Operations and Maintenance (O&M) Manuals Manual. The Electronic Equipment O&M Manual shall be delivered in Portable Document Format (PDF). The entire manual may be converted to PDF via scanning or other method of conversion. Drawings or other graphics must be converted to PDF format and made part of the PDF document. The CONTRACTOR shall provide all Equipment O&M Manuals in the electronic format as defined below.

E. The filename for the Equipment O&M Manual submittal will be provided with the request for final Equipment O&M Manuals. Filenames use the "eight dot three" convention (XX XX XX_YY.PDF) where XX XX XX is the specification section number and YY is an ID number. No one file shall be larger than 10 MB. If technical problems require that the submittal be divided into more than one file, a letter extension shall be added to the end of each filename.

F. The number of files shall be kept to a minimum. Equipment O&M Manuals that span more than one file shall have the final Bookmark "Return to Table of Contents" which shall take the User to the first file on the Equipment O&M Manual.

G. All text (word processed), spreadsheets, and electronic graphics shall be delivered in portable document format (*.PDF). The resolution of all scanned images shall be a minimum of 300 dpi unless otherwise requested by ENGINEER. Scanned images shall be processed with the “original image with hidden text” option (Adobe Acrobat 6 or higher). This results in a clear image and provides for optical character recognition (OCR) and word search functionality. Graphical files shall be fully searchable. All submittals must be indexed with the Adobe Catalog feature. Placement and structure of index files shall be in accordance with Adobe's recommendations to minimize problems when transferring files. Successful searches for words or strings in the PDF document shall demonstrate proof of OCR.

H. Rotate pages viewed in landscape to the appropriate position for easy reading on a computer monitor.

I. Bookmarks shall be created in the navigation frame for each entry in the Table of Contents. Three levels deep is usually enough (i.e., “Chapter,” “Section,” “Subsection”); however, complex submittals like instrumentation and electrical may be required at the discretion of ENGINEER. When setting bookmarks for Chapter level heading, the page shall be displayed at Full Page. Section and Subsection level heading pages shall be displayed as a magnified view. Bookmarks shall be displayed as subordinate (to other bookmarks in their hierarchy set so that only the Chapter level headings are displayed.

J. Thumbnails shall be generated and embedded in each PDF file.

K. Files shall be delivered without Security features activated. Password protected files will be unacceptable.

L. The opening view for PDF files shall be set as follows:
   1. Initial View: Bookmarks and Page
   2. Magnification: Fit In Window
   3. Page Layout: Single Page

M. The file shall open to the cover page of the Equipment O&M Manual with bookmarks to the left. The first bookmark shall be the name of Equipment O&M Manual.

N. CONTRACTOR shall reprocess any portion of the document that does not view or print to OWNER's satisfaction.

O. CONTRACTOR is fully responsible for obtaining any and all copyright permissions associated with conversion of this information to electronic format.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. OSHA requirements.
2. 35 Ill. Adm. Code 1100.
3. Roadway limits.
4. Permits.
5. Wage rates.

1.02 OSHA REQUIREMENTS

A. All work including site safety, equipment, materials, and fabricated items provided under the Contract shall comply with the provisions of the “Occupational Safety and Health Act.”

1.03 35 ILL. ADM. CODE 1100

A. CONTRACTOR shall comply with 35 Ill. Adm. Code 1100 when disposing of clean construction or demolition debris (CCDD) or uncontaminated soil at a CCDD or uncontaminated soil fill operation.

1.04 ROADWAY LIMITS

A. CONTRACTOR shall comply with roadway weight restrictions including seasonal weight restrictions.

1.05 PERMITS

A. No permits were obtained by OWNER for this Project. CONTRACTOR shall obtain required permits. Where the requirements of any permit are more restrictive than the Drawings or the Specifications, the permit requirements shall govern.

B. A building permit will be required from OWNER. However, OWNER will waive fees associated with the permit.

1.06 WAGE RATES

A. CONTRACTOR and any subcontractor shall pay all laborers, workers, and mechanics performing work under the Contract not less than the prevailing wage rates adopted by OWNER or determined by the court on review and filed with the Secretary of State in Springfield. A copy of the Schedule of Prevailing Wage Rates is attached hereto.

B. CONTRACTOR shall keep or cause to be kept a record of employees and wages paid as required by the Prevailing Wage Act (820 ILCS 130/1-12). CONTRACTOR shall also require each subcontractor employed on the project to keep these same records. In accordance with Illinois Public Act 94-0515, CONTRACTOR shall submit certified payroll records on a

monthly basis to OWNER, along with a statement affirming that such records are true and accurate, that the wages paid to each worker are not less than the required prevailing rate and that CONTRACTOR is aware that filing records he or she knows to be false is a Class B misdemeanor.

C. The certified payroll records shall include for every worker employed on the project the name, address, telephone number, social security number, job classification, hourly wages paid in each pay period, number of hours worked each day, and starting and ending time of work each day.

D. If at the time this Contract is executed, or if during the term of this Contract, there is excessive unemployment in Illinois as defined in the Employment of Illinois Workers on Public Works Act, 30 ILCS 570, as two consecutive months of unemployment exceeding 5%, CONTRACTOR agrees to employ a work force that is comprised of at least 90% Illinois laborers. An “Illinois laborer” is defined as any person who has resided in Illinois for at least 30 days and intends to become or remain an Illinois resident.

E. See Wage Rate Forms bound at the end of Division 01.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 42 00

REFERENCE STANDARDS AND DEFINITIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Reference Standards:
      a. Throughout the Contract Documents, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.
      b. Where materials or workmanship are required by these Contract Documents to meet or exceed the specifically named code or standard, it is CONTRACTOR's responsibility to provide materials and workmanship which meet or exceed that specifically named code or standard.
      c. It is also CONTRACTOR's responsibility, when so required by the Contract Documents, to deliver to ENGINEER all required proof that the material or workmanship, or both, meet or exceed the requirements of the specifically named code or standard.
   2. Definitions:
      a. A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including the Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon.
      b. Certain terms used in the Contract Documents are defined generally in this section to supplement definitions of the Agreement, General Conditions, Supplementary Conditions, and other general contract documents.
      c. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the Work.

B. Related Work Described Elsewhere: The specific naming of codes or standards occurs on the Drawings and in other sections of these Specifications.

1.02 QUALITY ASSURANCE

A. Familiarity with Pertinent Codes and Standards:
   1. It is CONTRACTOR's responsibility to verify the requirements of the specifically named codes and standards and to verify that the items procured for use in this Work meet or exceed the specified requirements.
   2. When required by individual sections of these specifications, CONTRACTOR shall obtain a copy of each pertinent code or standard and maintain the copies at the job site during submittals, planning, and progress of the Work until Substantial Completion of the Work is attained.

B. Overlapping or Conflicting Requirements:
   1. Where compliance with two or more industry standards or sets of requirements are specified, and the overlapping of those standards or requirements establishes different

or conflicting minimums or levels of quality, the most stringent requirement (which is generally recognized to be also most costly) is intended and will be enforced, unless more detailed language written directly into Contract Documents clearly indicates that a less stringent requirement is acceptable.

2. Refer all uncertainties to ENGINEER for decision before proceeding.

1.03 REFERENCE STANDARDS

A. Applicable standards of the construction industry are made a part of the Contract Documents by reference as if copied directly into the Contract Documents, or as if published copies were bound herewith. See Article 3.02 of the General Conditions for additional provisions regarding references.

B. Standards referenced directly in the Contract Documents or by governing regulation, have precedence over nonreferenced standards which are recognized in industry for applicability to the Work.

C. Nonreference standards are hereby defined to have no particular applicability to the work except as a general measurement of whether the Work complies with standards recognized in the construction industry.

D. Reference standards and codes listed in these specifications may include, but are not necessarily limited to, standards or codes published by the following agencies and organizations:

1. AA — Aluminum Association
   1525 Wilson Boulevard, Arlington, VA 22209

2. AAMA — American Architectural Manufacturer's Association
   1827 Walden Office Square Suite 550, Schaumberg, IL 60173-4268

3. AASHTO — American Association of State Highway & Transportation Officials
   444 North Capitol Street NW Suite 249, Washington, DC 20001

4. ACI — American Concrete Institute
   38800 Country Club Drive, Farmington Hills, MI 48331-3439

5. AI — Asphalt Institute
   2696 Research Park Drive, Lexington, KY 40511-8480

6. AISC — American Institute of Steel Construction
   One East Wacker Drive Suite 700, Chicago, IL 60601-1802

7. AISI — American Iron and Steel Institute
   25 Massachusetts Avenue NW Suite 800, Washington, DC 20001

8. ANSI — American National Standards Institute
   25 West 43rd Street, New York, NY 10036

9. APA	American Plywood Association 7011 South 19th, Tacoma, WA 98466-5333
10. API	American Petroleum Institute 1220 L Street NW, Washington, DC 20005-4070
11. ARI	Air-Conditioning & Refrigeration Institute 4100 North Fairfax Drive Suite 200, Arlington, VA 22203
12. ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers 1791 Tullie Circle NE, Atlanta, GA 30329
13. ASME	American Society of Mechanical Engineers Two Park Avenue, New York, NY 10016-5990
14. ASSE	American Society of Sanitary Engineering 901 Canterbury Suite A, Westlake, OH 44145
15. ASTM	ASTM International 100 Barr Harbor Drive, West Conshohoken, PA 19428-2959
16. AWI	Architectural Woodwork Institute 46179 Westlake Drive Suite 120, Potomac Falls, VA 20165-5874
17. AWPA	American Wood Protection Association P.O. Box 361784, Birmingham, AL 35236-1784
18. AWS	American Welding Society 8669 Doral Boulevard Suite 130, Doral, FL 33166
19. AWWA	American Water Works Association 6666 West Quincy Avenue, Denver, CO 80235
20. BHMA	Builder's Hardware Manufacturers Association 355 Lexington Avenue 15th floor, New York, NY 10017
21. BIA	Brick Industry Association 1850 Centennial Park Drive Suite 301, Reston, VA 20191
22. CRSI	Concrete Reinforcing Steel Institute 9333 North Plum Grove Road, Schaumburg, IL 60173
23. DOT	U.S. Department of Transportation 1200 New Jersey Avenue, SE, Washington, DC 205940
24. EJMA	Expansion Joint Manufacturers Association 25 North Broadway, Tarrytown, NY 10591

25. FM	FM Global FM Global Corporate Offices, 270 Central Avenue, Johnston, RI 02919
26. FTI	Facing Tile Institute Box 8880, Canton, OH 44711
27. GA	Gypsum Association 6525 Belcrest Road Suite 480, Hyattsville, MD 20782
28. GANA	Glass Association of North America 800 SW Jackson Street Suite 1500, Topeka, KS 66612-1200
29. ICC	International Code Council 500 New Jersey Avenue NW 6th Floor, Washington, DC 20001
30. IES	Illuminating Engineering Society 120 Wall Street, Floor 17, New York, NY 10005-4001
31. MIL	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue, Philadelphia, PA 19120
32. NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Road Building C Suite 312, Glen Ellyn, IL 60137
33. NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive, Herndon, VA 20171-4662
34. NECA	NECA National Electrical Contractors Association 3 Bethesda Metro Center Suite 1100, Bethesda, MD 20814
35. NEMA	National Electrical Manufacturers Association 1300 North 17th Street Suite 1752, Rosslyn, VA 22209
36. NFPA	National Fire Protection Association 1 Batterymarch Park, Quincy, MA 02169-7471
37. NIST	National Institute of Standards and Technology (U.S. Department of Commerce), 100 Bureau Drive, Stop 1070 Gaithersburg, MD 20899-1070
38. NRCA	National Roofing Contractors Association 10255 West Higgins Road Suite 600, Rosemont, IL 60018-5607
39. NSF	National Sanitation Foundation International P.O. Box 130140, 789 North Dixboro Road, Ann Arbor, MI 48113-0140

40. OSHA — Occupational Safety & Health Administration
200 Constitution Avenue NW, Washington, DC 20210

41. PCA — Portland Cement Association
5420 Old Orchard Road, Skokie, IL 60077

42. PCI — Prestressed Concrete Institute
200 West Adams Street Suite 2100, Chicago, IL 60606

43. SAE — Society of Automotive Engineers
SAE World Headquarters
400 Commonwealth Drive, Warrendale, PA 15096-0001

44. SDI — Steel Deck Institute
P.O. Box 25, Fox River Grove, IL 60021

45. SDI — Steel Door Institute
30200 Detroit Road, Westlake, OH 44145-1987

46. SIGMA — Sealed Insulating Glass Manufacturers Assoc.
401 North Michigan Avenue Suite 2400, Chicago, IL 60611

47. SJI — Steel Joist Institute
234 Cheves Street, Florence, SC 29501

48. SMACNA — Sheet Metal and Air Conditioning
Contractor's National Association
4201 Lafayette Center Drive, Chantilly, VA 20151-1219

49. SSPC — Society for Protective Coatings
40 24th Street 6th Floor, Pittsburgh, PA 15222-4656

50. TCA — Tile Council of America
100 Clemson Research Boulevard, Anderson, SC 29625

51. UL — Underwriters Laboratories
333 Pfingston Road; Northbrook, IL 60062

1.04 SUBMITTALS

A. For OWNER's records, CONTRACTOR shall submit copies of permits, licenses, certifications, inspection reports, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

1.05 DEFINITIONS

A. Indicated:
   1. The term “indicated” is a cross-reference to details, notes, or schedules on the drawings, to other paragraphs or schedules in the specifications and to similar means of recording requirements in the Contract Documents.
   2. Where terms such as “shown,” “noted,” “scheduled,” and “specified” are used in lieu of “indicated,” it is for the purpose of helping the reader locate cross-reference, and no limitation is intended except as specifically noted.

B. Approve (or Words of Similar Nature):
   1. Where used in conjunction with ENGINEER's response to submittals, requests, applications, inquiries, reports, and claims by CONTRACTOR, the meaning of the term “approve” will be held to the limitation of ENGINEER's responsibilities and duties as specified in Paragraph 1.02.B.1. of the General Conditions.
   2. In no case will “approval” by ENGINEER be interpreted as a release of CONTRACTOR from responsibility to fulfill requirements of the Contract Documents.

C. Minimum Requirements:
   1. Indicated requirements are for a specific minimum acceptable level of quality or quantity, as recognized in the industry.
   2. Actual work must comply with (or within specified tolerances) or exceed minimums.
   3. CONTRACTOR shall refer uncertainties to ENGINEER before proceeding.

D. Abbreviations: Abbreviations, where not defined in the Contract Documents, will be interpreted to mean the normal construction industry terminology.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes:
   1. Quality Assurance–Control of Installation.
   2. Tolerances.
   3. Manufacturers' Field Services and Reports.

1.02 QUALITY ASSURANCE–CONTROL OF INSTALLATION

A. CONTRACTOR shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.

B. CONTRACTOR shall comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, CONTRACTOR shall request clarification from ENGINEER before proceeding.

D. CONTRACTOR shall comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Work shall be performed by persons qualified to produce workmanship of specified quality.

F. CONTRACTOR shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

A. CONTRACTOR shall monitor tolerance control of installed products to produce acceptable work and shall not permit tolerances to accumulate.

B. CONTRACTOR shall comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, CONTRACTOR shall request clarification from ENGINEER before proceeding.

C. CONTRACTOR shall adjust products to appropriate dimensions; position before securing products in place.

1.04 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification sections or when requested by ENGINEER, CONTRACTOR shall require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, and quality of workmanship.

B. CONTRACTOR shall submit qualifications of observer to ENGINEER 30 days in advance of required observations.

C. CONTRACTOR shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. CONTRACTOR shall submit report in duplicate within 30 days of observation to ENGINEER for information.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Temporary utilities.
   2. Temporary stairs and access.
   3. Temporary support facilities.
   4. Removal of temporary facilities.

B. CONTRACTOR shall arrange for and provide temporary facilities as required for proper and expeditious prosecution of the Work.

C. CONTRACTOR shall pay all costs, except as otherwise specified, until final acceptance of the Work unless OWNER makes arrangements for use of completed portions of the Work after substantial completion in accordance with the provisions of the General Conditions.

D. CONTRACTOR shall make all temporary connections to utilities and services in locations acceptable to OWNER and local authorities having appropriate jurisdiction.
   1. Furnish all necessary labor and materials.
   2. Make all installations in a manner subject to the acceptance of such authorities and OWNER.
   3. Maintain such connections.
   4. Remove temporary installation and connection when no longer required.
   5. Restore services and sources of supply to proper operating conditions.

1.02 TEMPORARY UTILITIES

A. Temporary Toilets: CONTRACTOR shall provide and maintain sanitary temporary chemical toilets located where approved by OWNER and in sufficient number required for the work force employed by CONTRACTOR.

B. Temporary Electrical Services:
   1. Existing outlets and wiring shall not be used for motors larger than fractional HP or for welding equipment. Circuits for larger motors and welding equipment may be provided with special circuits to mains of electrical panels at the expense of those trades requiring them, provided that special permission is obtained from OWNER and ENGINEER and that the installation is made by skilled electricians.
   2. Any temporary electrical services required during power outages shall be obtained and paid for by CONTRACTOR.
   3. All temporary lighting required for construction shall be provided by CONTRACTOR.
   4. Temporary lights shall be equipped with heavy-duty electric cords and lamp guards. They must not be suspended by the power supply cord unless it is designed for this use.
   5. All utility charges for installation of the temporary services shall be paid for by CONTRACTOR. All metering installation charges and all energy charges for electric current used for temporary lighting and power are to be paid by CONTRACTOR.
   6. No permanent electrical equipment or wiring shall be used without express written permission of OWNER. Such approval, if given, shall not affect guarantee period. If OWNER authorizes use of permanent service facilities, CONTRACTOR shall pay all metering costs until acceptance or occupancy (whichever occurs first) of building by OWNER.

C. Weather Protection and Temporary Heat: CONTRACTOR shall provide weather protection to protect the Work from damage because of freezing, rain, snow, and other inclement weather.

D. Temporary Water: CONTRACTOR shall supply its own water during construction. CONTRACTOR shall also provide its own piping, valves, and appurtenances for its requirements. Connection to the existing water system shall be coordinated with OWNER and shall meet all code requirements including disinfection and backflow prevention.

E. Temporary Fire Protection: CONTRACTOR and Subcontractor(s) who maintain or provide an enclosed shed or trailer shall provide and maintain in operating order in each shed or trailer a minimum of one fire extinguisher. More extinguishers shall be provided as necessary. Fire extinguishers shall be minimum dry chemical, nonfreezing-type, UL rating 2A-30BC, with 10-pound capacity for Class A, B, and C fires.

F. CONTRACTOR's and Subcontractor(s)' personnel shall refrain from smoking during excavation, laying pipe, backfilling, and other work at the Site which may involve potential contact with explosive vapors or gasoline products.

1.03 TEMPORARY STAIRS AND ACCESS

A. CONTRACTOR shall provide and maintain all equipment such as temporary stairs, ladders, ramps, runways, chutes, and so on as required for proper execution of the Work. CONTRACTOR shall be responsible for providing its own scaffolds, hoists, etc.

B. All such apparatus, equipment, and construction shall meet all requirements of OSHA, the labor laws, and other applicable State and local laws. Provide stairs with handrails. As soon as possible and where applicable, permanent stairs shall be installed.

C. As soon as permanent stairs are created, provide temporary protective treads, handrails, and shaft protection.

D. Provide barricades at hazardous locations, complete with signs, temporary general lighting, warning lights, and similar devices as required.

1.04 TEMPORARY SUPPORT FACILITIES

A. CONTRACTOR shall provide whatever facilities and services which may be needed to properly support primary construction process and meet compliance requirements and governing regulations.

B. CONTRACTOR shall not use permanent facilities except as otherwise indicated, unless authorized by OWNER.

1.05 REMOVAL OF TEMPORARY FACILITIES

A. Remove temporary materials, equipment, services, and construction as soon as practicable but no later than just prior to substantial completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities and restore existing facilities used during construction to specified, or to original, condition.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 52 13

FIELD OFFICES AND SHEDS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Materials, equipment, and furnishings.
   2. Construction.
   3. Environmental control.
   4. CONTRACTOR facilities.
   5. Preparation.
   6. Maintenance and cleaning.
   7. Removal.

PART 2–PRODUCTS

2.01 MATERIALS, EQUIPMENT, AND FURNISHINGS

A. Materials, equipment, and furnishings shall be serviceable, new or used, and adequate for required purpose.

2.02 CONSTRUCTION

A. Portable or mobile buildings or buildings shall be constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

B. CONTRACTOR shall provide structurally sound, secure, weathertight enclosures for office and storage spaces.

C. Temperature transmission resistance of floors, walls, and ceilings shall be compatible with occupancy and storage requirements.

D. Exterior materials shall be weather resistant.

E. Interior materials in offices shall consist of sheet type materials for walls and ceilings, prefinished or painted; resilient floors and bases.

F. Lighting for offices shall be 50 footcandles minimum at desk top height, with exterior lighting at entrance doors.

G. Provide appropriate type fire extinguisher at each office and each storage area.

H. Interior materials in storage sheds shall be as required to provide specified conditions for storage of products.

2.03 ENVIRONMENTAL CONTROL

A. Heating, cooling, and ventilating for offices shall consist of automatic equipment to maintain comfort conditions; 70°F heating and 78°F cooling.

B. Heating and ventilation for storage spaces shall be as needed to maintain products in accordance with Contract Documents and to provide adequate lighting for maintenance and observation of products.

2.04 CONTRACTOR FACILITIES

A. CONTRACTOR shall provide facilities to meet CONTRACTOR's needs and to provide space for Project meetings.

B. Provide telephone as required for CONTRACTOR's needs.

PART 3–EXECUTION

3.01 PREPARATION

A. CONTRACTOR shall fill and grade sites for temporary structures to provide drainage away from buildings.

3.02 MAINTENANCE AND CLEANING

A. CONTRACTOR shall maintain approach walks free of mud, water, and snow.

3.03 REMOVAL

A. Upon final acceptance and completion of the Work, CONTRACTOR shall remove field offices, foundations, utility services, and debris and shall restore areas.

END OF SECTION

SECTION 01 57 00

TEMPORARY CONTROLS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Dust Control.
   2. Water, Erosion, and Sediment Control.
   3. Noise Control.
   4. Traffic Control.
   5. Site Security.
   6. Daily Cleanup.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 DUST CONTROL

A. CONTRACTOR shall execute the Work by methods to minimize raising dust from construction operations.

B. CONTRACTOR shall provide positive means to prevent airborne dust from dispersing into atmosphere.

C. CONTRACTOR shall provide partitions, enclosures, etc., within buildings as necessary to confine dust and protect adjacent areas.

3.02 WATER, EROSION, AND SEDIMENT CONTROL

A. CONTRACTOR shall grade site to drain and shall maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. CONTRACTOR shall protect Site from puddling or running water.

C. CONTRACTOR shall provide erosion control measures as necessary to control discharge of sediment laden water to surface waters and wetlands.

D. Except as provided for in the document, overland discharge of water from dewatering operations shall not be allowed. Depending on water quality, such water shall either be piped directly to the surface water or shall be directed to sedimentation basins or other such structures or features prior to discharge to surface waters so as not to cause damage to existing ground and improvements, erosion, or deposition in the discharge area.

E. CONTRACTOR shall use jute or synthetic netting, silt fences, straw bales, dikes, channels, and other applicable measures to prevent erosion of soils disturbed by its construction operation.

F. Restoration of the Site shall proceed concurrently with the construction operation. See Drawings and Specifications for erosion control measures in addition to that which may be required above.

G. Erosion control measures shall comply with the following document: "Standard Specifications for Soil Erosion and Sediment Control," of the Illinois Environmental Protection Agency, IEPA/WPC 87-012.

3.03 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by construction operations.

3.04 TRAFFIC CONTROL

A. CONTRACTOR shall be responsible for providing all signs, barricades, flagmen, and other traffic control devices in the construction zone.

B. Do not close or obstruct roadways without approval of OWNER.

C. Conduct operations with minimum interference to roadways.

D. Maintain one-way traffic on streets at all times.

E. All traffic control measures shall meet the requirements of Illinois Manual on Uniform Traffic Control Devices for Streets and Highways, Latest Edition, and the Standard Specifications for Traffic control Items, Latest Edition.

3.05 SITE SECURITY

A. CONTRACTOR shall have the sole responsibility of safeguarding the Site perimeter to prevent unauthorized entry to the Site throughout the duration of the Project. CONTRACTOR shall at all times provide such permanent and temporary fencing or barricades or other measures as may be necessary to restrict unauthorized entry to its construction area including construction in public rights-of-way or easements. Site security measures shall include safeguards against attractive nuisance hazards as a result of construction activity.

B. CONTRACTOR shall at all times be responsible for the security of the Work including materials and equipment. OWNER will not take any responsibility for missing or damaged equipment, tools, or personal belongings. CONTRACTOR shall have the sole responsibility of safeguarding the Work and the Site throughout the duration of the Project.

3.06 DAILY CLEANUP

A. CONTRACTOR shall clean up the Site and remove all rubbish on a daily basis.

B. CONTRACTOR shall clean up public streets and highways and remove any dirt, mud, or other materials due to project traffic on daily basis and shall comply with all local and state ordinances and permit requirements.

END OF SECTION

SECTION 01 60 00

MATERIALS AND EQUIPMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: CONTRACTOR shall be responsible for the delivery, handling, storage and protection of all material and equipment required to complete the Work as specified herein.

B. Related Sections and Divisions: Specific requirements for the handling and storage of material and equipment are described in other sections of these Specifications.

1.02 PRODUCTS

A. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.

B. CONTRACTOR shall not use materials and equipment removed from existing construction, except as specifically required, or allowed, by the Contract Documents.

C. When any construction deviations from the Drawings and/or Specifications necessary to accommodate equipment supplied by CONTRACTOR, result in additional costs to CONTRACTOR or other contractors, such additional costs shall be borne by CONTRACTOR. CONTRACTOR shall also pay any additional costs necessary for revisions of Drawings and/or Specifications by ENGINEER.

D. Each major component of equipment shall bear a nameplate giving the name and address of the manufacturer and the catalogue number or designation.

1.03 TRANSPORTATION AND HANDLING

A. Materials, products and equipment shall be properly containerized, packaged, boxed, and protected to prevent damage during transportation and handling.

B. CONTRACTOR shall not overload any portion of the structure in the transporting or storage of materials.

C. CONTRACTOR shall not damage other construction by careless transportation, handling, spillage, staining or impact of materials.

D. CONTRACTOR shall provide equipment and personnel to handle products, including those provided by OWNER, by methods to prevent soiling and damage.

E. CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

F. CONTRACTOR shall handle product by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

1.04 DELIVERY AND RECEIVING

A. CONTRACTOR shall arrange deliveries of products in accordance with the Progress Schedule, allowing time for observation prior to installation.

B. CONTRACTOR shall coordinate deliveries to avoid conflict with the Work and conditions at the Site; work activities of other contractors or OWNER; limitations on storage space; availability of personnel and handling equipment and OWNER's use of premises.

C. CONTRACTOR shall deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.

D. CONTRACTOR shall clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.

E. Immediately on delivery, CONTRACTOR shall inspect shipment to review that:
   1. Product complies with requirements of Contract Documents and reviewed submittals.
   2. Quantities are correct.
   3. Accessories and installation hardware are correct.
   4. Containers and packages are intact and labels legible.
   5. Products are protected and undamaged.

1.05 STORAGE AND PROTECTION

A. General:
   1. CONTRACTOR shall store products, immediately on delivery, in accordance with manufacturer's instructions, with all seals and labels intact and legible.
   2. Any additional off-site space required shall be arranged by CONTRACTOR.
   3. CONTRACTOR shall allocate the available storage areas and coordinate their use by the trades on the job.
   4. CONTRACTOR shall arrange storage in a manner to provide access for maintenance of stored items and for observation.

B. In enclosed storage, CONTRACTOR shall:
   1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.
   2. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
   3. Provide ventilation for sensitive products as required by manufacturer's instructions.
   4. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
   5. Store solid materials such as insulation, tile, mechanical and electrical equipment, fittings, and fixtures under shelter, in original packages, away from dampness and other hazards.
   6. Store liquid materials away from fire or intense heat and protect from freezing.

C. At exterior storage, CONTRACTOR shall:
   1. Store unit materials such as concrete block, brick, steel, pipe, conduit, door frames, and lumber off ground, out of reach of dirt, water, mud and splashing.
   2. Store tools or equipment that carry dirt outside.
   3. Store large equipment so as not to damage the Work or present a fire hazard.

4. Cover products subject to discoloration or deterioration from exposure to the elements, with impervious sheet material and provide ventilation to avoid condensation.
5. Completely cover and protect any equipment or material which is prime coated or finish painted with secured plastic or cloth tarps. Store out of reach of dirt, water, mud and splashing.
6. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
7. Provide surface drainage to prevent erosion and ponding of water.
8. Prevent mixing of refuse or chemically injurious materials or liquids.
9. Cover aggregates such as sand and gravel in cold wet weather.
10. Remove all traces of piled bulk materials at completion of work and return site to original or indicated condition.

1.06 MAINTENANCE OF STORAGE

A. CONTRACTOR shall periodically inspect stored products on a scheduled basis.

B. CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements, and verify that manufacturer required environmental conditions are maintained continually.

C. CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of Contract Documents.

D. CONTRACTOR shall perform scheduled maintenance of equipment in storage as recommended by the manufacturer. A record of the maintenance shall be kept and turned over to ENGINEER when the equipment is installed.

1.07 INSTALLATION REQUIREMENTS

A. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise specified.

B. After installation, CONTRACTOR shall protect all materials and equipment against weather, dust, moisture, and mechanical damage.

C. CONTRACTOR shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment until completion and final acceptance of the Work by OWNER. Damaged material and equipment shall be immediately removed from the Site.

1.08 EQUIPMENT WARRANTIES

A. Warranties shall be nonprorated, include all parts and labor, and be in written form. Warranties shall specifically exclude buyer's indemnification language. Warranty language shall not eliminate manufacturer’s responsibility for sizing of the equipment. During warranty period, manufacturer shall be responsible for any travel expenses, outside contractor fees, and rental equipment fees associated with providing warranty service. Manufacturer shall pay expenses incurred for repairs and parts replacement not made by manufacturer if

manufacturer's response is not within 72 hours of notification by OWNER. Warranty language shall be provided with the shop drawings.

1.09 CONCRETE EQUIPMENT BASE

A. Cast-in-place concrete equipment bases shall be provided for all new and relocated equipment including electrical control panels, motor control centers, switchgear, etc. Concrete equipment bases shall be provided by CONTRACTOR except where specifically noted to be provided by others. Bases shall be 3-1/2 inch minimum height and shall be a minimum of 3 inches larger than equipment being supported. Grouting of equipment bases shall be as recommended by equipment manufacturer.

B. Concrete and grout shall meet applicable sections of the specifications.

C. Provide all anchor bolts, metal shapes and templates to be cast in concrete or used to form concrete for support of equipment.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 73 29

CUTTING, PATCHING, AND ALTERATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: CONTRACTOR shall be responsible for all cutting, fitting, patching, and other alterations required to complete the Work as specified herein or to:
   1. Make its several parts fit together properly.
   2. Uncover portions of the Work to install improperly sequenced Work.
   3. Remove and replace defective Work.
   4. Remove and replace Work not conforming to requirements of the Contract Documents.
   5. Remove samples of installed Work as specified for testing.
   6. Provide penetrations of surfaces for installation of piping and electrical conduit.
   7. Rehabilitate or renovate existing spaces.

1.02 REFERENCES

A. ANSI A10 Safety Requirements for Construction and Demolition.

1.03 QUALITY ASSURANCE

A. CONTRACTOR shall perform all cutting, patching, and alterations in strict accordance with pertinent requirements of these Specifications.

B. Except as modified by governing codes, CONTRACTOR shall comply with the applicable provision and recommendations of ANSI A10.

1.04 SUBMITTALS

A. CONTRACTOR shall submit a written request to OWNER well in advance of executing any cutting or alteration which affects the following:
   1. Work of OWNER or any separate contractor.
   2. Structural value or integrity of any element of the Project.
   3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
   4. Efficiency, operational life, maintenance, or safety of operational elements.
   5. Visual qualities of sight-exposed elements.

B. The request shall include:
   1. Description of affected work.
   2. The necessity for cutting, patching, or alteration.
   3. Effect on work of OWNER, any separate contractor, or on the structural or weather-proof integrity of the Project.
   4. Description of proposed work to include:
      a. Scope of cutting, patching, or alteration.
      b. Trades who will execute the work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.

5. Alternatives to cutting and patching.
6. Written permission of any separate contractor whose work will be affected.

C. Submit written notice to OWNER designating the date and the time the Work will be uncovered or executed.

1.05 SCHEDULING AND COORDINATION

A. All work under this section shall be coordinated with OWNER's work forces and those of other contractors and shall be accomplished at times acceptable to OWNER.

B. Before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the existing structures, notify ENGINEER and OWNER 72 hours in advance and obtain OWNER's approval before proceeding with this phase of the work. Temporary facilities, if required, shall be in place prior to disruption of service.

PART 2–PRODUCTS

2.01 NEW MATERIALS

A. For replacement of work removed, CONTRACTOR shall use materials which comply with the pertinent sections of these Specifications.

B. All new materials for patching and extending work shall match existing products and work.

C. CONTRACTOR shall determine type and quality of existing products by inspection and any necessary testing and workmanship by use of existing as the standard.

2.02 SALVAGEABLE MATERIAL

A. Materials or items designated to be reinstalled or to become the property of OWNER shall be as specified or as shown on the Drawings.

B. CONTRACTOR shall remove such items with care under the supervision of the trade responsible for reinstallation.

C. CONTRACTOR shall store these materials (off-site if necessary) and protect from damage until they are incorporated into the new work.

D. Materials or items damaged in its removal shall be replaced by CONTRACTOR with similar new material at no additional cost to OWNER.

2.03 UNSALVAGEABLE MATERIALS

A. Materials or items demolished and not designated to become the property of OWNER or not designated to be reinstalled shall become the property of CONTRACTOR and shall be removed from the site and legally and properly disposed of by CONTRACTOR.

B. Materials shall be removed by CONTRACTOR in a manner that will avoid damage to materials or equipment to remain.

PART 3–EXECUTION

3.01 INSPECTION

A. CONTRACTOR shall inspect existing conditions including elements subject to movement or damage during cutting, patching, and other alterations.

B. After uncovering the work, CONTRACTOR shall inspect conditions affecting installation of new products or performance of new work.

C. CONTRACTOR shall report unsatisfactory or questionable conditions to ENGINEER in writing.

D. CONTRACTOR shall not proceed with work until unsatisfactory or questionable conditions are resolved.

E. Beginning of cutting, patching, and alterations work means acceptance of existing conditions by CONTRACTOR.

3.02 PREPARATION AND PROTECTION

A. CONTRACTOR shall provide temporary bracing, shoring, needling, and support of the structure during alterations work as necessary to prevent collapse, settling, or deflection and to protect persons and property from injury or damage.

B. Temporary supports must adequately carry all existing and imposed load.

C. CONTRACTOR shall provide and maintain temporary protection of surface finishes, equipment, and adjacent work designated to remain where demolition, removal, and new work is being done, connections are being made, materials are being handled, or equipment is being removed.

D. CONTRACTOR shall provide temporary partitions or barriers to contain all dust, dirt, and debris from entering into finished areas or areas where OWNER is operating, storing, or manufacturing products.

E. CONTRACTOR shall provide adequate fire protection in accordance with local Fire Department requirements.

F. CONTRACTOR shall provide waterproofing, weather protection, heat, and other facilities for that portion of the work which may be exposed by cutting and patching, demolition, or other alterations.

G. CONTRACTOR shall cut, move, or remove items as necessary for access to alterations and renovations work and replace and restore at completion of work.

H. CONTRACTOR shall prepare surfaces and remove surface finishes to provide for proper installation of new work and new finishes.

I. CONTRACTOR shall be responsible for any damage to the existing structure or its contents directly or indirectly by its crews or those of its subcontractors.

3.03 PERFORMANCE

A. CONTRACTOR shall accomplish all work of cutting, removal, demolition, patching, or other alterations using only persons skilled in the appropriate trade.

B. CONTRACTOR shall execute the work in a careful and orderly manner with the least possible disturbance to the public.

C. CONTRACTOR shall execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.

D. CONTRACTOR shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.

E. CONTRACTOR shall fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

F. CONTRACTOR shall thoroughly clean and prepare all surfaces to receive new finish or covering to completely remove all dirt, dust, grease, oil, paint, loose materials, and soil.

G. CONTRACTOR shall refinish entire surface as necessary to provide an even finish to match adjacent finishes:
   1. For continuous surfaces, refinish to nearest intersection.
   2. For an assembly, refinish entire unit.

3.04 DEMOLITION, CUTTING, AND REMOVAL

A. Cutting and removal of construction shall be performed by CONTRACTOR so as not to cut or remove more than is necessary and so as not to damage adjacent work.

B. CONTRACTOR shall cut out embedded anchorages and attachment items as required to properly provide for patching and repair of the respective finishes.

C. CONTRACTOR shall not cut structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

D. CONTRACTOR shall not cut operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance.

E. CONTRACTOR shall not cut work exposed to view (exterior or interior) in a manner resulting in noticeable reduction of visual qualities as determined by OWNER.

F. Construction that is to remain which is loosened, cracked, or otherwise damaged or defaced as a result of careless cutting or demolition and is unsuitable for use intended shall be removed and replaced at no additional cost to OWNER.

G. CONTRACTOR shall clean demolished areas and remove debris, waste, and rubbish from the building at the conclusion of each day’s work.

H. CONTRACTOR shall not let piled waste material endanger the structure.

3.05 PATCHING, EXTENDING, AND MATCHING

A. Patching work shall conform to the standards of the Specifications where applicable, and where not specified, work shall conform to the highest standards of the applicable trade.

B. CONTRACTOR shall patch construction to match adjacent work unless noted otherwise.

C. Patching or restoration shall be carried to natural breaks (e.g., corners) wherever possible.

D. CONTRACTOR shall provide adequate support to substrate for patching finishes.

E. Transitions:
   1. Where new work abuts or finishes flush with existing work, CONTRACTOR shall make the transition as smooth as possible.
   2. Patched work shall match adjacent work in texture and appearance so as to make the patch or transition invisible to the eye at a distance of 3 feet.
   3. Where masonry, tile, plaster, metal, or other finished surface is cut in such a way that a smooth transition is not possible, CONTRACTOR shall terminate the existing surface in a neat fashion along a straight line at a natural line of division and provide trim appropriate to the finished surface.
   4. CONTRACTOR shall restore existing work that is damaged during patching operations to a condition equal to its construction at the time of the start of work.

3.06 UNANTICIPATED MECHANICAL AND ELECTRICAL WORK EXPOSED

A. Where unanticipated mechanical piping or electrical conduit is exposed during removal of partitions or walls, removal or rerouting shall be accomplished by CONTRACTOR as applicable.
   1. Rerouted piping shall be located and shall be connected to maintain all functions in proper operations.
   2. Abandoned piping may be left in place where it is buried in floors or walls, providing that it is completely disconnected from its source.
   3. There shall be no “dead end” gas, water, sewer, or vent piping existing in the completed work.
   4. Unless otherwise shown, abandoned piping, ductwork, conduit, or other mechanical or electrical items in chases, vertical enclosures, or concealed above ceilings shall be completely removed.

B. Removals, capping, or otherwise terminating services which are abandoned shall be accomplished without additional cost to OWNER.

C. Relocation of services resulting from unanticipated conflicts of new and existing work in concealed spaces shall be paid for in accordance with the General Conditions.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Closeout procedures.
   2. Final cleaning.
   3. Adjusting.
   4. Project record documents.
   5. Warranties.

1.02 CLOSEOUT PROCEDURES

A. CONTRACTOR shall provide submittals to ENGINEER that are required by governing or other authorities.

B. CONTRACTOR shall comply with General Conditions and Supplementary Conditions and complete the following before requesting ENGINEER's observation of the Work or designated portion thereof for substantial completion.
   1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates, and similar required documentation for specific units of Work, enabling OWNER's unrestricted occupancy and use.
   2. Submit record documentation, maintenance manuals, tools, spare parts, keys, and similar operational items.
   3. Submit consent of surety (if surety required in Contract).
   4. Complete final cleaning, touch-up work of marred surfaces, and remove temporary facilities and tools.

1.03 FINAL CLEANING

A. It is CONTRACTOR's responsibility to completely clean up the inside and outside of all structures and the construction site at the completion of the Work.

B. CONTRACTOR shall clean areas of the building in which painting and finishing work is to be performed just prior to the start of this work and maintain these areas in satisfactory condition for painting and finishing. This cleaning includes:
   1. Removal of trash and rubbish from these areas.
   2. Broom cleaning of floors.
   3. Removal of any plaster, mortar, dust, and other extraneous materials from finish surfaces, including but not limited to exposed structural steel, miscellaneous metal, masonry, concrete, mechanical equipment, piping, and electrical equipment.

C. In addition to the cleaning specified above and the more specific cleaning that may be required in various technical sections of the Specifications, CONTRACTOR shall prepare the Project for occupancy by a thorough cleaning throughout, which shall include the following:

1. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
2. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
3. Replace filters of operating equipment.
4. Clean debris from roofs, gutters, downspouts, and drainage systems.
5. Clean site; sweep paved areas, rake clean landscaped surfaces.
6. Remove waste and surplus materials, rubbish, and construction facilities from the Site.

1.04 ADJUSTING

A. CONTRACTOR shall adjust operating products and equipment to provide smooth and unhindered operation.

1.05 PROJECT RECORD DOCUMENTS

A. CONTRACTOR shall maintain on Site one set of the following record documents to record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer’s instruction for assembly, installation, and adjusting.

B. CONTRACTOR shall make entries that are complete and accurate, enabling future reference by OWNER.

C. CONTRACTOR shall store record documents separate from documents used for construction.

D. CONTRACTOR shall record information concurrent with construction progress.

E. Specifications: CONTRACTOR shall legibly mark and record at each Product section description of actual products installed, including the following:
   1. Manufacturer’s name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by addenda and modifications.

F. Record Drawings: CONTRACTOR shall legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of the work.
   4. Field changes of dimension and detail.
   5. Details not on original Contract drawings.

1.06 WARRANTIES

A. CONTRACTOR shall provide warranties beyond project one-year warranty as required by technical sections and as follows.

B. Submit warranty information as follows:
   1. Provide notarized copies.
   2. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers, and provide Table of Contents and assemble in three-ring binder with durable cover.
   3. Submit with request for certificate of Substantial Completion.
   4. For items of work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance listing date of acceptance as start of warranty period.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 91 00

STARTING OF SYSTEMS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. General.
   2. Equipment and system installation.
   3. Starting equipment and systems.
   4. Start-up and testing.

B. CONTRACTOR shall perform the Work described in the following subsections.

1.02 GENERAL

A. The number of days for manufacturer's services stated in the Specifications shall be considered as the minimum number of days. Should additional time be required for services because of equipment malfunction or other problem, such time shall be at the expense of CONTRACTOR, with no change in Contract Price.

B. "Days" specified shall consist of 8-hour days on-site, excluding travel time.

C. CONTRACTOR shall designate and provide one person to be responsible for scheduling, coordinating, and expediting the specified services. Scheduling the services shall be done in cooperation with, and with the prior approval of ENGINEER and OWNER. Such schedule shall be arranged with the appropriate subcontractors, manufacturers, and suppliers with sufficient time to allow their compliance with the service requirements.

D. CONTRACTOR shall manage equipment checkout such that checkout has been completed and deficiencies addressed prior to demonstration and training. Scheduling training prior to checkout may result in cancellation when checkout cannot be completed prior to training.

1.03 EQUIPMENT AND SYSTEM INSTALLATION

A. Competent and experienced technical personnel shall represent the manufacturers of all equipment and systems for as many days as may be necessary to provide proper installation and to resolve assembly or installation problems at the site that are attributable to, or associated with, the equipment furnished. This requirement applies to manufacturers for all equipment furnished, whether or not specifically set forth in the Specifications.

B. Where a manufacturer's certificate is called for in this Specification Section, the manufacturer's representative shall provide the attached certificate stating that the equipment or system has been installed in accordance with the manufacturer's instructions and has been inspected by a manufacturer's authorized representative, that it has been serviced with the proper initial lubricants, that applicable safety equipment has been properly installed, that the proper electrical and mechanical connections have been made, and that any other manufacturer requirements have been met. This certification shall be provided to

ENGINEER and OWNER prior to the start-up. This certificate is in addition to the manufacturer's standard startup reports, checklists, and other pertinent information.

C. Functional (or run) testing is required for all equipment and systems. The manufacturer's representative shall supervise the functional test, which shall include checking for proper rotation, alignment, speed, excessive vibration, and noisy operation. The Manufacturer's Certificate of Proper Installation shall state that proper adjustments have been made and that the equipment or system is ready for start-up.

D. Manufacturer shall demonstrate, using laser alignment equipment, if appropriate, that the installed equipment has been aligned properly. Final acceptance of equipment will not be granted until manufacturer has demonstrated to ENGINEER that acceptable alignment to tolerances have been achieved. For pumps with motors 7.5 hp and larger, the acceptable shaft alignment tolerances shall be as recommended in the pump manufacturer's written instructions and shall include parallel offset and angular gap measurements.

1.04 STARTING EQUIPMENT AND SYSTEMS

A. Where field testing and start-up services are called for in the Specifications, or when technical assistance is necessary as a result of any malfunction of the equipment or system furnished, the manufacturer's representative shall provide such services.

B. Manufacturer's representative shall also conduct and/or assist with performance testing, as required by the Specifications. These services shall continue until such times as the applicable equipment or system has been successfully tested for performance and has been accepted by OWNER for full-time operation.

C. Coordinate schedule for start-up of various equipment and systems. Coordination includes, but is not limited to, communication with subcontractors, suppliers, OWNER, and ENGINEER. CONTRACTOR shall confirm that all necessary work is complete and that the equipment and systems can be operated in conjunction with all associated processes.

D. Notify ENGINEER and OWNER a minimum of 7 days prior to start-up of each item.

E. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions that may cause damage.

F. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

G. Verify wiring and support components for equipment are complete and tested.

H. Execute start-up under supervision of applicable manufacturer's representative and CONTRACTOR's personnel in accordance with manufacturers' instructions.

I. Require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up and to supervise placing equipment or system in operation. Authorized representative shall provide approval for starting of systems in writing where specified.

J. Equipment manufacturer shall provide a written report covering checkout, testing, inspections, and start-up and shall identify any deficiencies noted. Report shall be submitted

to ENGINEER. CONTRACTOR shall be responsible for correcting all deficiencies noted in report.

1.05 START-UP AND TESTING

A. Prior to acceptance of any portion of the Work, start-up and testing of all equipment and testing of all materials furnished on the Project by CONTRACTOR shall have been conducted in the presence of representatives of CONTRACTOR, OWNER, and ENGINEER and also manufacturer if requested by OWNER or ENGINEER.

B. CONTRACTOR shall provide whatever temporary installations and conditions are necessary in order to perform start-up and testing operations on all equipment and materials furnished under the Contract. Temporary connections and equipment necessary during start-up and testing operations shall include, but not be limited to, temporary piping and electrical power and control equipment and devices, temporary connection from various parts of the systems and any other labor, materials, fuel, devices, or items that may be required for start-up and testing operations. Temporary conditions shall include filling with water, if necessary, to check equipment and materials.

C. All temporary installations and conditions shall be removed by CONTRACTOR upon completion of start-up and testing.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 EQUIPMENT SYSTEMS REQUIRING CERTIFICATION OF PROPER INSTALLATION

A. Cathodic Protection System in Section 09 67 16.

END OF SECTION

TS No. _____

EQUIPMENT START-UP AND O&M TRAINING SCHEDULING FORM
STRAND ASSOCIATES, INC.®

PROJECT _____ CLIENT _____

CONTRACT _____

CONTRACTOR _____ Date: _____

The following equipment is scheduled for start-up on _____

EQUIPMENT NAME: _____ SPECIFICATION SECTION: _____

MANUFACTURER: _____ MINIMUM HOURS OF TRAINING: _____

DATE O&M MANUALS SUBMITTED: _____

Specification Section 01 91 00 requires that start-up and operation and training be conducted by a qualified manufacturer's representative prior to placing equipment in operation. Review Specification Sections 01 33 00 and 01 45 00 and the individual equipment sections for start-up and training requirements. OWNER may find it necessary to propose alternate dates for training based on conflicts with other training and staff availability. The Operation and Maintenance Manuals must be submitted prior to training.

After the equipment or system has been properly installed and is functioning correctly, submit a written report in accordance with Specification Section 01 45 00.

Submit the completed form to ENGINEER and OWNER at least 7 days prior to start-up and training.

Proposed Training Date: _____ Time of Training: _____

Factory-trained representative giving training:

Name(s): _____

Company: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

CERTIFICATE OF PROPER INSTALLATION

Project _____

Equipment _____

Specification Section _____

Contract _____

I hereby certify the equipment supplier/manufacturer has inspected this equipment and that it has been properly installed, adjusted, and calibrated. I further certify this equipment may now be operated for test purposes and/or normal use.

MANUFACTURER'S REPRESENTATIVE

Signature _____ Date _____

Name (print) _____

Title _____

Representing _____

CONTRACTOR

Signature _____ Date _____

Name (print) _____

Title _____

This form shall be completed and submitted to ENGINEER prior to OWNER training.

WAGE RATES

Will County Prevailing Wage Rates posted on 10/4/2021

						Overtime								
Trade Title	**Rg**	**Type**	**C**	**Base**	**Foreman**	**M-F**	**Sa**	**Su**	**Hol**	**H/W**	**Pension**	**Vac**	**Trng**	**Other Ins**
ASBESTOS ABT-GEN	All	ALL		44.40	45.40	1.5	1.5	2.0	2.0	16.10	14.21	0.00	0.90	
ASBESTOS ABT-MEC	All	BLD		38.85	41.96	1.5	1.5	2.0	2.0	14.42	12.61	0.00	0.82	
BOILERMAKER	All	BLD		52.61	57.34	2.0	2.0	2.0	2.0	6.97	22.34	0.00	1.40	
BRICK MASON	All	BLD		48.56	53.42	1.5	1.5	2.0	2.0	11.70	21.06	0.00	1.03	
CARPENTER	All	ALL		50.86	55.95	2.0	2.0	2.0	2.0	11.79	27.24	0.00	0.79	
CEMENT MASON	All	ALL		45.00	47.00	2.0	1.5	2.0	2.0	11.15	29.32	0.00	0.55	
CERAMIC TILE FINISHER	All	BLD		42.80	42.80	1.5	1.5	2.0	2.0	11.45	14.27	0.00	0.94	
COMMUNICATION TECHNICIAN	All	BLD		40.00	44.00	1.5	1.5	2.0	2.0	16.19	14.91	0.00	0.75	1.96
ELECTRIC PWR EQMT OP	All	ALL		56.55	62.05	1.5	1.5	2.0	2.0	12.94	19.11	0.00	3.17	
ELECTRIC PWR GRNDMAN	All	ALL		44.11	62.05	1.5	1.5	2.0	2.0	10.10	14.91	0.00	2.48	
ELECTRIC PWR LINEMAN	All	ALL		56.55	62.05	1.5	1.5	2.0	2.0	12.94	19.11	0.00	3.17	
ELECTRICIAN	All	BLD		48.50	52.87	1.5	1.5	2.0	2.0	16.64	20.26	0.00	1.23	4.21
ELEVATOR CONSTRUCTOR	All	BLD		60.42	67.97	2.0	2.0	2.0	2.0	15.87	19.31	4.83	0.64	
GLAZIER	All	BLD		47.73	49.23	1.5	2.0	2.0	2.0	14.99	23.42	0.00	1.43	
HEAT/FROST INSULATOR	All	BLD		51.80	54.91	1.5	1.5	2.0	2.0	14.42	15.36	0.00	0.82	
IRON WORKER	All	ALL		46.00	50.60	2.0	2.0	2.0	2.0	12.71	28.01	0.00	1.00	
LABORER	All	ALL		45.90	46.65	1.5	1.5	2.0	2.0	16.55	14.71	0.00	0.90	
LATHER	All	ALL		50.86	55.95	2.0	2.0	2.0	2.0	11.79	27.24	0.00	0.79	
MACHINIST	All	BLD		50.68	53.18	1.5	1.5	2.0	2.0	8.93	8.95	1.85	1.47	
MARBLE FINISHER	All	ALL		37.00	50.10	1.5	1.5	2.0	2.0	11.70	19.10	0.00	0.93	
MARBLE MASON	All	BLD		47.71	52.48	1.5	1.5	2.0	2.0	11.70	20.53	0.00	1.02	
MATERIAL TESTER I	All	ALL		35.90		1.5	1.5	2.0	2.0	16.55	14.71	0.00	0.90	
MATERIALS TESTER II	All	ALL		40.90		1.5	1.5	2.0	2.0	16.55	14.71	0.00	0.90	
MILLWRIGHT	All	ALL		50.86	55.95	2.0	2.0	2.0	2.0	11.79	27.24	0.00	0.79	
OPERATING ENGINEER	All	BLD	1	53.60	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	BLD	2	52.30	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	BLD	3	49.75	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	BLD	4	48.00	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	BLD	5	57.35	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	BLD	6	54.60	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	BLD	7	56.60	57.60	2.0	2.0	2.0	2.0	21.40	18.60	2.00	2.40	

OPERATING ENGINEER	All	FLT	1	59.35	59.35	1.5	1.5	2.0	2.0	20.90	17.85	2.00	2.15	
OPERATING ENGINEER	All	FLT	2	57.85	59.35	1.5	1.5	2.0	2.0	20.90	17.85	2.00	2.15	
OPERATING ENGINEER	All	FLT	3	51.50	59.35	1.5	1.5	2.0	2.0	20.90	17.85	2.00	2.15	
OPERATING ENGINEER	All	FLT	4	42.80	59.35	1.5	1.5	2.0	2.0	20.90	17.85	2.00	2.15	
OPERATING ENGINEER	All	FLT	5	60.85	59.35	1.5	1.5	2.0	2.0	20.90	17.85	2.00	2.15	
OPERATING ENGINEER	All	FLT	6	41.00	59.35	1.5	1.5	2.0	2.0	20.90	17.85	2.00	2.15	
OPERATING ENGINEER	All	HWY	1	51.80	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	HWY	2	51.25	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	HWY	3	49.20	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	HWY	4	47.80	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	HWY	5	46.60	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	HWY	6	54.80	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
OPERATING ENGINEER	All	HWY	7	52.80	55.80	1.5	1.5	2.0	2.0	21.40	18.60	2.00	2.40	
PAINTER	All	ALL		49.30	55.46	1.5	1.5	1.5	2.0	13.01	14.74	0.00	1.87	
PAINTER - SIGNS	All	BLD		40.74	45.75	1.5	1.5	2.0	2.0	3.04	3.90	0.00	0.00	
PILEDRIVER	All	ALL		50.86	55.95	2.0	2.0	2.0	2.0	11.79	27.24	0.00	0.79	
PIPEFITTER	All	BLD		52.00	55.00	1.5	1.5	2.0	2.0	11.60	21.85	0.00	2.92	
PLASTERER	All	BLD		45.50	48.23	1.5	1.5	2.0	2.0	16.75	19.04	0.00	1.25	
PLUMBER	All	BLD		52.80	55.95	1.5	1.5	2.0	2.0	16.45	16.75	0.00	1.47	
ROOFER	All	BLD		46.70	50.70	1.5	1.5	2.0	2.0	11.23	13.91	0.00	0.91	
SHEETMETAL WORKER	All	BLD		51.83	54.42	1.5	1.5	2.0	2.0	11.22	19.08	0.00	1.45	2.46
SPRINKLER FITTER	All	BLD		51.75	54.50	1.5	1.5	2.0	2.0	13.90	17.00	0.00	0.75	
STONE MASON	All	BLD		48.56	53.42	1.5	1.5	2.0	2.0	11.70	21.06	0.00	1.03	
TERRAZZO FINISHER	All	BLD		44.54	44.54	1.5	1.5	2.0	2.0	11.45	16.64	0.00	0.97	
TERRAZZO MASON	All	BLD		48.38	51.88	1.5	1.5	2.0	2.0	11.45	18.10	0.00	1.00	
TILE MASON	All	BLD		49.75	53.75	1.5	1.5	2.0	2.0	11.45	17.98	0.00	1.02	
TRAFFIC SAFETY WORKER	All	HWY		38.50	40.10	1.5	1.5	2.0	2.0	8.90	8.90	0.00	0.90	
TRUCK DRIVER	All	ALL	1	41.70	42.25	1.5	1.5	2.0	2.0	10.15	11.39	0.00	0.15	
TRUCK DRIVER	All	ALL	2	41.85	42.25	1.5	1.5	2.0	2.0	10.15	11.39	0.00	0.15	
TRUCK DRIVER	All	ALL	3	42.05	42.25	1.5	1.5	2.0	2.0	10.15	11.39	0.00	0.15	
TRUCK DRIVER	All	ALL	4	42.25	42.25	1.5	1.5	2.0	2.0	10.15	11.39	0.00	0.15	
TUCKPOINTER	All	BLD		48.25	49.25	1.5	1.5	2.0	2.0	8.79	20.47	0.00	1.01	

Legend

Rg Region

Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers

C Class
Base Base Wage Rate
OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.
OT Sa Overtime pay required for every hour worked on Saturdays
OT Su Overtime pay required for every hour worked on Sundays
OT Hol Overtime pay required for every hour worked on Holidays
H/W Health/Welfare benefit
Vac Vacation
Trng Training
Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations WILL COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATIONS TECHNICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice, sound and vision production and reproduction, telephone and telephone interconnect, facsimile, equipment and appliances used for domestic, commercial, educational and entertainment purposes, pulling of wire through conduit but not the installation of conduit.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under: Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Heavy Duty Self-Propelled Transporter or Prime Mover; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, One, Two and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-Form Paver; Straddle Buggies; Operation of Tie Back Machine; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators (remodeling or renovation work); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall.

Class 7. Mechanics; Welders.

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines: ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types: Creter Crane: Spider Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dredges; Elevators, Outside type Rack & Pinion and Similar Machines; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Heavy Duty Self-Propelled Transporter or Prime Mover; Hydraulic Backhoes; Backhoes with shear attachments up to 40' of boom reach; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Operation of Tieback Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Traffic Barrier Transfer Machine; Trenching; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; Hydro Excavating (excluding hose work); Laser Screed; All Locomotives, Dinky; Off-Road Hauling Units (including articulating) Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper - Single/Twin Engine/Push and Pull; Scraper - Prime Mover in Tandem (Regardless of Size); Tractors pulling attachments, Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Vacuum Trucks (excluding hose work); Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. SkidSteer Loader (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Dowell Machine with Air Compressor; Gradall and machines of like nature.

OPERATING ENGINEER - FLOATING

Class 1. Craft Foreman; Master Mechanic; Diver/Wet Tender; Engineer; Engineer (Hydraulic Dredge).

Class 2. Crane/Backhoe Operator; Boat Operator with towing endorsement; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender.

Class 3. Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more); Tug/Launch Operator; Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock, or Scow, Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment Units or More); Off Road Trucks; Deck Hand, Tug Engineer, Crane Maintenance (50 Ton Capacity and Under) or Backhoe Weighing (115,000 pounds or less); Assistant Tug Operator.

Class 5. Friction or Lattice Boom Cranes.

Class 6. ROV Pilot, ROV Tender

TRAFFIC SAFETY - Effective November 30, 2018, the description of the traffic safety worker trade in this County is as follows: Work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary, non-temporary or permanent lane, pavement or roadway markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled Dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yeards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

SECTION 02 41 00

DEMOLITION

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: All demolition, removal, and salvage work as described herein and as shown on the drawings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. CONTRACTOR shall submit permits and notices, if required, authorizing building demolition.

1.03 QUALITY ASSURANCE

A. CONTRACTOR shall perform demolition, removal, and salvage in conformity with applicable federal, state, and local safety practices and code requirements.

B. CONTRACTOR shall contact all public utilities and shall shut off, cut and cap all utility services in accordance with utility requirements, codes, rules and regulations.

C. Obtain and pay for all necessary permits, licenses and certificates required.

1.04 SEQUENCE

A. No demolition, removal, or salvage work shall commence until approval to proceed has been granted by OWNER. Such work shall be completed in accordance with the construction sequence included in Division 01 of these specifications and in accordance with the construction phases of this project and work to be done by other contractors.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 INTERIOR PIPING, DUCTWORK, AND APPURTENANCES

A. CONTRACTOR shall remove all piping, ductwork, and appurtenances as indicated. The location and elevations of existing piping are approximate.

B. CONTRACTOR shall remove all supports for piping, ductwork, and appurtenances indicated to be removed. Repiping and connections to new piping shall be as specified for new piping.

Remaining piping and tubing, not reconnected for new piping, shall be fitted with an appropriate blind flange or plugged and insulated as required.

C. CONTRACTOR shall patch all holes resulting from removal of piping, ductwork, appurtenances, and their supports. Patching of concrete shall be with nonshrink grout and as indicated. Patching of masonry shall be with matching material toothed in. Patch other material as indicated.

3.02 SALVAGE

A. OWNER has first right of refusal to all material, piping, and equipment removed.

B. All equipment, material, and piping, except as specified hereinafter, within the buildings and structures to be demolished and additional items as noted shall be removed by CONTRACTOR. CONTRACTOR shall inspect each structure and determine the type and amount of equipment, materials, and piping to be removed.

C. All equipment, material, and piping, except as specified hereinafter, within the limits of the demolition and additional items noted to be removed, will become the property of CONTRACTOR if OWNER does not claim under first right of refusal and shall be removed from the project site. Comply with State and local ordinances and regulations for disposing of materials.

D. If CONTRACTOR chooses to dispose of materials in a Clean Construction or Demolition Debris (CCDD) fill operation, CONTRACTOR shall provide all required testing, certifications and fees associated with using the CCDD fill operation.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Shop-fabricated carbon steel and aluminum items, including grab bars and curbs.
   2. Stair treads and nosings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A36–Carbon Structural Steel.

B. ASTM A53–Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

C. ASTM A123–Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

D. ASTM A143–Practice for Safeguarding Against Embrittlement of Hot-Dipped Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

E. ASTM A153–Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

F. ASTM A240–Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

G. ASTM A276–Stainless Steel Bars and Shapes.

H. ASTM A307–Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.

I. ASTM A384–Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.

J. ASTM A385–Practice for Providing High-Quality Zinc Coatings (Hot-Dip).

K. ASTM A500–Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

L. ASTM A780–Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

M. ASTM A992–Structural Steel Shapes.

N. ASTM A1008–Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

O. ASTM A1011–Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.

P. ASTM B209–Aluminum and Aluminum-Alloy Sheet and Plate.

Q. ASTM B211–Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.

R. ASTM B221–Aluminum and-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.

S. AWS A2.0–Standard Symbols for Welding, Brazing, and Nondestructive Examination.

T. AWS A5.4–Stainless Steel Electrodes for Shielded Metal Arc Welding.

U. AWS D1.1–Structural Welding Code–Steel.

V. AWS D1.2–Structural Welding Code–Aluminum.

W. AWS D1.6–Structural Welding Code–Stainless Steel.

X. ASTM F593–Standard Specifications for Stainless Steel Bolts, Hex Cap Screws, and Studs.

Y. ASTM F594–Standard Specification for Stainless Steel Nuts.

1.03 DESIGN REQUIREMENTS

A. All fabrications shall meet applicable code requirements including OSHA.

1.04 SUBMITTALS FOR REVIEW

A. Comply with pertinent provisions of Section 01 33 00–Submittals.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, sections, elevations, and details where applicable.

C. Mill Test Reports: Submit indicating structural strength and composition.

D. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.05 QUALITY ASSURANCE

A. Fabricate steel members in accordance with AISC Code of Standard Practice.

B. Welders Certificates: Certify welders employed on the work, verifying AWS qualification within the previous 12 months.

1.06 QUALIFICATIONS

A. Qualify welding processes and welding operators in accordance with AWS *Standard Qualifications Procedures*.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials to job site properly marked to identify the structure for which it is intended and at such intervals to allow uninterrupted progress of the work. Marking shall correspond to markings indicated on the shop drawings.

B. Store all members off the ground using pallets, platforms, or other supports.

C. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures.

D. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to OWNER.

PART 2–PRODUCTS

2.01 MATERIALS–CARBON STEEL

A. Steel Sections:
   1. ASTM A36 (channels, angles, plates).
   2. ASTM A992 (wide flange sections).
   3. Pipe: ASTM A53, Grade B.
   4. Tubes: ASTM A500, Grade B.
   5. Silicon content of steel members to be hot-dipped galvanized shall be in the range of 0 to 0.04%. Submit mill test reports confirming compliance.

B. Sheet Steel: ASTM A1011.

C. Plain Washers: Round carbon steel complying with FS FF-W-92.

D. Bolts and Nuts: ASTM A307 Grade A, or galvanized to ASTM A153 for galvanized components for exterior use and where built into exterior walls.

E. Lock Washers: Helical spring-type carbon steel complying with FS FF-W-84.

F. Welding Electrodes: Comply with AWS D1.1. E70XX electrodes for carbon steel. For ASTM A992 steel and any other steel with 50 ksi or greater yield strength, use only E7018 or other E70XX electrodes specifically permitted by AWS D1.1.

G. Select fasteners for the type, grade, and class required.

2.02 MATERIALS–ALUMINUM

A. Extruded Aluminum: ASTM B221, Alloy 6061, Temper T6.

B. Sheet Aluminum: ASTM B209, Alloy 3005.

C. Aluminum-Alloy Bars: ASTM B211, Alloy 6061, Temper T6.

D. Bolts, Nuts, and Washers: Steel, galvanized to ASTM A153.

E. Welding Materials: AWS D1.2; type required for materials being welded.

2.03 FABRICATION

A. Fabrication and Assembly:
1. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the approved shop drawings.
2. Properly mark and match-mark materials for field assembly and for identification as to structure and site for which intended.
3. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
4. Where finishing is required, complete the assembly, including welding of units, before start of finishing operation.
5. Provide finish surfaces of members exposed in the final structure free of markings, burrs, and other defects.

B. Connections:
1. Bolts and washers of all types and sizes shall be provided for completion of all field erection.
2. Comply with AWS Code for procedures, appearance, and quality of welds used in correcting welded work.
3. Assemble and weld built-up sections to produce true alignment of axes without warp.
4. Welding shall be done by the shielded arc process.
5. All welds shall be chipped, ground smooth, and primed immediately after fabrication.

C. Workmanship:
1. Use materials of size and thickness shown or, if not shown, of size and thickness to produce strength and durability in the finished product.
2. Work to dimensions shown or accepted on the Shop drawings using proven details of fabrication and support.
3. Form exposed work true to line and level, with accurate angles and surfaces, and with straight sharp edges.
4. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing works.
5. Cap all open ends of pipe and structural tubing.
6. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush; match and blend with adjoining surfaces.
7. Provide for anchorage of the type shown. Coordinate with supporting structures. Fabricate and space the anchoring devices to provide adequate support for intended use.
8. Cut, reinforce, drill, and tap miscellaneous metal work as indicated to receive hardware and similar items.

2.04 FINISHES

A. Carbon steel surfaces shall be prepared by abrasive blasting to SSPC-SP10.

B. Do not prime surfaces where galvanizing or field welding is required.

C. Immediately after surface preparation, prime paint carbon steel items with one coat in accordance with manufacturer's instructions and Section 09 67 16–Steel Water Storage Tank Painting.

D. Structural Steel Members: Galvanize after fabrication to the requirements in this section and ASTM A123.

E. Surfaces that will be inaccessible after assembly or erection shall be finish painted prior to assembly or erection.

F. Galvanizing:
   1. All items, except piping designated to be galvanized, shall be hot-dipped galvanized in accordance with ASTM Specification A123 and A153. Piping shall be hot-dipped galvanized in accordance with ASTM A53. Furnish a Certificate of Compliance stating that the galvanizing complies with ASTM Specifications and Standards and all other applicable requirements specified herein.
   2. Fabrication of items to be galvanized shall be in accordance with ASTM A143, A384, and A385. Structural steel shall be fabricated generally in accordance with Class 1 guidelines as shown in *Recommended Details for Galvanized Structures* as published by the American Hot Dip Galvanizer's Association, Inc.
   3. Galvanized items shall be handled, transported, and stored to prevent damage or staining to the coating. Maintain adequate ventilation and continuous drainage.
   4. Silicon content for steel to be hot-dipped galvanized shall be in the range of 0 to 0.04%.
   5. Steel work shall be precleaned utilizing a caustic bath, acid pickle and flux, or shall be blast cleaned and fluxed. In either case, all surface contaminants and coatings shall be removed.
   6. All welding shall be performed in accordance with the American Welding Society publication D19.0-72, *Welding Zinc Coated Steel*. All uncoated weld areas shall be touched up.

G. Aluminum shall have a mill finish unless otherwise specified. Any aluminum in contact with concrete or dissimilar metal shall be coated with multiple coats of bituminous paint, minimum 10 mils dry.

PART 3–EXECUTION

3.01 EXAMINATION

A. Correct conditions detrimental to the proper and timely completion of the work.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Furnish setting drawings, diagrams, templates, instructions, and directions for installation of anchorages such as concrete inserts, anchor bolts, and miscellaneous items having integral anchors which are to be embedded in concrete construction.

B. Coordinate delivery of such items to project.

C. Clean and strip primed steel items to bare metal where site welding is required.

3.03 INSTALLATION

A. Setting Precast Anchorages:
   1. Clean bearing surfaces free from bond-reducing materials, and roughen to improve bond to surfaces. Clean the bottom surface of bearing plates.
   2. After the bearing members have been positioned and plumbed, tighten and anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
   3. Pack grout solidly between bearing surfaces and plates so that no voids remain.

B. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction including threaded fasteners for concrete inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

C. Cutting, Fitting, and Placement:
   1. Perform cutting, drilling, and fitting for installation of miscellaneous metal fabrications.
   2. Set work accurately in location, alignment, and elevation and make plumb, level, true, and free from rack measured from established lines and levels.
   3. Fit exposed connections accurately together to form tight hairline joints.
   4. Weld connections that are not to be left as exposed joints, grind joints smooth, and touchup shop paint coat or galvanizing repair.

3.04 FIELD WELDING

A. Comply with AWS Code for procedures of manual shielded metal arc welding (steel, stainless steel) and gas metal arc welding (aluminum), appearance and quality of weld made, and methods in correcting welding work.

3.05 TOUCH-UP PAINTING

A. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.

3.06 GALVANIZING REPAIR

A. Areas damaged by welding, flame-cutting, or during handling, transport, or erection shall be repaired by one of the following methods whenever damage exceeds 3/16 inch in width.
   1. Cold Galvanizing Compound:
      a. Surfaces to be reconditioned with zinc-rich paint shall be clean, dry, and free of oil, grease, and corrosion products.
      b. Areas to be repaired shall be power disc-sanded to bright metal. So that a smooth reconditioned coating can be effected, surface preparation shall extend into the undamaged galvanized coating.
      c. Touch-up paint shall be an organic cold-galvanized compound having a minimum of 94% zinc dust in the dry film.
      d. The paint shall be spray- or brush-applied in multiple coats until a dry film thickness of 8 mils minimum has been achieved. A finish coat of aluminum paint shall be applied to provide a color blend with the surrounding galvanizing.
      e. Coating thickness shall be verified by measurements with a magnetic or electromagnetic gauge.

2. Zinc-Based Solder:
    a. Surfaces to be reconditioned with zinc-based solder shall be clean, dry, and free of oil, grease, and corrosion products.
    b. Areas to be repaired shall be wire-brushed.
    c. Heat shall be applied slowly and broadly close to but not directly onto the area to be repaired. The zinc-based solder rod shall be rubbed onto the heated metal until the rod begins to melt. A flexible blade or wire brush shall be used to spread the melt over the area to be covered. The zinc-based solder shall be applied in a minimum thickness of 2 mils.
    d. Coating thickness shall be verified by measurements with a magnetic or electromagnetic gauge.

3.07 SCHEDULE

A. The following schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.

B. Roof access hatch: Shop-primed finish.

END OF SECTION

SECTION 05 52 00

HANDRAILS AND RAILINGS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes steel and aluminum handrails, railings, and fittings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A53–Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

B. ASTM B241–Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

1.03 DESIGN REQUIREMENTS

A. Railings and handrails shall be designed in accordance with and meet the applicable requirements of the Occupational Safety and Health Act and the 2009 International Building Code.

B. Submit engineering calculations for all rails, posts, and connections demonstrating compliance with the design requirements. Calculations shall be stamped by an Illinois Structural Engineer.

PART 2–PRODUCTS

2.01 STEEL PIPE RAILING SYSTEM

A. Rails and posts shall be ASTM A53 pipe, Grade B, 1 1/2-inch standard pipe.

B. Furnish and install 4-inch by 1/4-inch toeboards.

C. Provide expansion joints in railing and toeboards at expansion joints in structures and as necessary to prevent buckling or buildup of stresses. Expansion joints shall be located within 1 foot of posts.

D. Finished joints shall be smooth.

E. All rails, posts, and toeboards shall be shop-primed with an epoxy primer per Section 09 67 16–Steel Water Storage Tank Painting.

F. Posts shall be anchored to the top of walls and decks with a flange base plate. Base plate shall reinforce the bottom end of the post as required to meet OSHA design criteria.

G. Steel expansion bolt anchoring system, in accordance with manufacturer's recommendations, shall be used.

2.02 ALUMINUM RAILING SYSTEM

A. Provide a mechanically joined pipe railing system, Tabco 2500 Railing System as manufactured by Tuttle Aluminum and Bronze Co. or equal.

B. Rails shall be ASTM B241, Aluminum Alloy 6063-T6, 6005-T5, or 6105-T5, Schedule 40, 1 1/2-inch-diameter pipe extrusion.

C. Posts shall be ASTM B241, Aluminum Alloy 6063-T6, 6005-T5, or 6105-T5, 1 1/4-inch by 2 1/4-inch tube extrusion.

D. Furnish and install 4-inch by 1/4-inch toeboards where required by OSHA 1910.29(k).

E. Provide expansion joints in railing and toeboards at expansion joints in structures and as necessary to prevent buckling or buildup of stresses. Expansion joints shall occur within 1 foot of posts.

F. Finished joints shall be smooth.

G. All rails, posts, toeboards, and connectors shall have a M10C22A41 clear anodized finish.

H. Posts shall be anchored to the top of walls and decks with a flange base plate. Base plate shall reinforce the bottom end of the post as required to meet OSHA design criteria.

I. Stainless steel expansion bolt anchoring system, in accordance with manufacturer's recommendations, shall be used.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install all railing in accordance with approved shop drawings and manufacturer's instructions providing a complete installation.

B. Install components plumb and level, accurately fitted, and free from distortion or defects.

C. Clean all components as recommended by railing manufacturer.

END OF SECTION

SECTION 09 67 16

STEEL WATER STORAGE TANK PAINTING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Cleaning of sediment, miscellaneous repairs, surface preparation, containment shrouding, and application of paints and coatings. Work also includes installation of a failsafe vent, cathodic protection equipment, new handrailing system on tank roof, potential riser pipe replacement, and some minor repairs.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

C. The tank capacity is rated at 300,000 gallons. OWNER has a Neptune meter reading antenna on the tank roof, electronic equipment in the tank bell, and an antenna cable between the equipment and the antenna. This equipment shall remain and be protected. There are AT&T and Verizon antennae mounted to the tank riser stem. There is a Verizon cellular shelter approximately 30 feet southeast of the tower base. AT&T equipment is located inside the tank. The AT&T and Verizon cellular antennae and cables will be removed and protected by the cellular companies during construction.

D. The tank was constructed in 1992 and has not been repainted. Additional tank history details can be found in the original tank drawings and in the Elevated Tank Observation Report included in Appendix D and E, respectively.

E. Allowances:
1. CONTRACTOR shall include in the Bid an allowance for filling ten pits in different locations within the interior wet in accordance with Section 09 67 16, Paragraph 3.03.O.
2. CONTRACTOR shall include in the Bid an allowance for spot preparing and spot recoating an additional tank's exterior with a three-coat system in a similar manner as described in Section 09 67 16, Paragraph 3.02.C. Additional storage tank is at a different site within the Village of Oswego. CONTRACTOR shall coordinate with OWNER to determine what portions of additional tank exterior are to be recoated and what Tnemec, or equal, products to use.

1.02 REFERENCES–LATEST EDITIONS OF EACH REFERENCE AT THE TIME OF BIDDING SHALL APPLY

A. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.

B. ASTM D2247–Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

C. ASTM D3363–Standard Test Method for Film Hardness by Pencil Test.

D. ASTM D4060–Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

E. ASTM D4414–Standard Practice for Measurement of Wet Film Thickness by Notch Gages.

F. ASTM D4417–Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.

G. ASTM D4541–Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

H. ASTM D4585–Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation.

I. ASTM D7091–Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals.

J. AWWA–C652–Standard for Disinfection of Water Storage Facilities.

K. AWWA–D100–Standard for Welded Carbon Steel Tanks for Water Storage.

L. AWWA–D102–Coating Steel Water-Storage Tanks.

M. AWWA D107–Composite Elevated Tanks for Water Storage.

N. EPA–Environmental Protection Agency.

O. NACE–National Association of Corrosion Engineers.

P. NAPF–National Association of Pipe Fabricators, Section 500-03–Surface Preparation Standard for Ductile Iron Pipe and Fittings Receiving Special External Coatings and/or Special Internal Linings.

Q. NSF–National Sanitation Foundation-Standard 61.

R. OSHA–Occupational Safety and Health Administration.

S. SSPC–The Society for Protective Coatings–Steel Structures Painting Manual.

T. SSPC-PA2–Procedure for Determining Conformance to Dry Coating Thickness Requirements.

1.03 SUBMITTALS

A. Submittals shall be in accordance with provisions of Division 01.

B. Shop primer proposed for use shall be submitted with all material and equipment submittals. All shop primers shall be of the same type and quality as those specified herein.

C. Submit two copies of manufacturer’s Safety Data Sheets (SDS) for each type of paint and abrasives with the shop drawings. SDS sheets shall be shipped with the materials and posted at the construction site at all times work is in progress. No abrasives or coating

materials will be permitted on-site without approved submittals, except for abrasives to be used in testing.

D. Substitution submittals shall include performance test data, as certified by a qualified testing laboratory, for the ASTM tests specified in Part 2.

E. Submit two copies of the proposed containment system with all tank modifications. Include copies of the system manufacturer's promotional literature, design criteria, and operating instructions for inclusion in the project record files. Containment system design shall be stamped by a licensed Professional Engineer.

F. Color charts shall be submitted for all paint.

G. Layout for lettering and/or logo on the tank shall be submitted.

H. Caulking materials shall be submitted.

I. All other materials and equipment shall be submitted.

J. Provide a submittal for the cathodic protection system.

1.04 QUALITY ASSURANCE

A. Prepainting Meeting:
   1. A prepainting meeting shall be held prior to start of painting.
   2. CONTRACTOR and the paint manufacturer's representative shall be present to review the specifications and project scope.
   3. The paint manufacturer's representative shall review progress at the site as requested by ENGINEER. These are generally expected to be prior to monthly progress meetings.

1.05 REGULATORY REQUIREMENTS

A. Coating Standards:
   1. All paints shall conform to OSHA requirements for allowable exposure to lead, chromate, and other substances regulated as hazardous by the EPA.
   2. All paints shall be NSF Standard 61 approved when they are in contact with potable water or within potable water reservoirs.

B. Agency Requirements:
   1. See Division 01 for EPA and IEPA regulations.
   2. All work shall conform to the Resource Conservation Recovery Act (RCRA).
   3. All work shall conform to the Comprehensive Environment Response Compensation and Liability Act (CERCLA).
   4. All work shall conform to all applicable Illinois Administrative Code rules including Part 652, which adopts the following standards:
      a. AWWA D103-09, Factory-Coated Bolted Carbon Steel Tanks for Water Storage.
      b. AWWA D107-10, Composite Elevated Tanks for Water Storage.
      c. NSF/ANSI 60-2014 Drinking Water Treatment Chemicals–Health Effects.
      d. NSF/ANSI 61-2014 Drinking Water System Components–Health Effects.
      e. NSF/ANSI 372-2011 Drinking Water System Components–Lead Content.

f. SSPC ACS-1/NACE No. 13 Industrial Coating and Lining Application Specialist Qualification and Certification. Qualification and certification documents are required to be submitted with the Bid.

C. Abrasive-Blast Residue Control:
1. All external abrasive-blast residue shall be contained. Containment shall include shrouds from the ground surface to above all working areas and over the top of the tank.
2. Containment shall conform to EPA and IEPA requirements.
a. Containment shall be opaque, allowing daylight penetration.
b. Containment shall be impervious and sections shall not permit escape of residue.
c. Containment attachments on the exterior of the tank shell shall be removed following abrasive blasting and painting.
3. All internal abrasive-blast residue shall be contained. Residue shall be collected and disposed of as specified.
4. See above and Division 01 for OSHA, EPA, and IEPA regulations:
a. Existing coatings were tested for total lead, total chromium, and total cadmium.
b. A copy of the laboratory results report is attached to these specifications.
5. The containment and the tank interior shall be evacuated by the use of dust collection equipment to prevent discharge of dust to the atmosphere.
6. Trim any trees necessary to allow installation of shroud.

D. See Section 01 57 00–Temporary Controls for daily, hourly, and noise limitations by OWNER.

1.06 WARRANTY

A. Fluoropolymer coating shall be provided with a 15-year standard manufacturer guarantee against fading, color shifting, chalking, and corrosion.

B. Warranty inspection shall be completed during the eleventh month following substantial completion. All defective work shall be repaired in accordance with this specification and to satisfaction of OWNER.

PART 2–PRODUCTS

2.01 ABRASIVES

A. Shop abrasives shall provide a blast profile in accordance with the coating manufacturer’s recommendations.

B. Exterior field abrasives shall be fine-grained, low-dust, and silicon-free. Interior wet-field abrasives shall be silicon-free.

2.02 COATING MATERIALS

A. Acceptable Manufacturers:
1. All materials required for painting shall be types and quality as manufactured by Tnemec Company, Inc., Sherwin Williams Company, or equal, unless noted otherwise in the schedule.

2. Where thinning is necessary, only the products of the manufacturer furnishing the paint will be allowed. All such thinning shall be done strictly in accordance with the manufacturer's instructions.
3. Paint and paint products listed in the following specification are set up as standard of quality. Other manufacturer's products will be considered as a substitution if CONTRACTOR and paint manufacturer certify that the products offered are recommended for the service intended, are compatible with the shop primers used, are equal in solids content and composition, are of the same type and provide equal or greater level of performance. Submittal shall, at a minimum, include the following performance data as certified by a qualified testing laboratory.
    a. Abrasion–ASTM D4060, CS-17 Wheel, 1,000 grams load.
    b. Adhesion–ASTM D4541.
    c. Hardness–ASTM D3363.
    d. Humidity–ASTM D2247 and D4585.
    e. Salt (Fog) Spray–ASTM B117.
    f. Exterior Exposure–ASTM D4141, Method C.
4. Accelerated "Fast Dry" formulations of coatings may be permitted if CONTRACTOR requests their use in shop drawings.

B. Exterior:
1. Tnemec Products:
    a. Primer shall be Series 91-H_2O Hydro-Zinc.
    b. Stripe coat shall be Series N140-1255 Beige Pota-Pox Plus.
    c. Intermediate coat shall be Series N140-15BL Tank White Pota-Pox Plus.
    d. Preliminary color coat shall be Series 73 Endura-Shield. Color to be selected by manufacturer upon OWNER selection of finish coat.
    e. Finish coat shall be Series V700 Hydro Flon. Color shall be selected by OWNER.
    f. Name and logo shall be Series V700 Hydro Flon. Colors shall be as selected by OWNER.
2. Sherwin Williams Products:
    a. Primer shall be Corothane I Galvapac zinc primer.
    b. Stripe coat shall be Macropoxy 646 PW, White.
    c. Intermediate coat shall be Macropoxy 646 PW, white.
    d. Preliminary coat shall be Acrolon 218 HS. Color shall be selected by manufacturer upon OWNER selection of finish coat.
    e. Finish coat shall be FluoroKem. Color shall be selected by OWNER.
    f. Name and logo shall be FluoroKem. Colors shall be selected by OWNER.

C. Interior Dry Tank Shaft, Riser Pipe, and Access Tube:
1. Tnemec Products:
    a. Primer coat shall be Series 91-H_2O Hydro-Zinc.
    b. Finish coat shall be Series N140-15BL Tank White Pota-Pox Plus.
2. Sherwin Williams Products:
    a. Primer coat shall be Corothane I Galvapac zinc primer.
    b. Finish coat shall be Macropoxy 646, White.

D. Interior Dry Tank Bell:
1. Tnemec Products:
    a. Primer coat shall be Series N140-1255 Beige Pota-Pox Plus.
    b. Finish coat shall be Series N140-15BL Tank White Pota-Pox Plus.
2. Sherwin Williams Products:
    a. Primer coat shall be Macropoxy 646, Beige.

b. Finish coat shall be Macropoxy 646, White.

E. Interior Wet:
1. Tnemec Products:
a. Primer coat shall be Series N140-15BL Tank White Pota-Pox Plus. Zinc-rich primer will not be allowed.
b. Pit filler shall be Series 215 Surfacing Epoxy.
c. Stripe coat shall be Series N140-1255 Beige Pota Pox Plus.
d. Intermediate coat shall be Series N140-39BL Delft Blue Pota-Pox Plus.
e. Finish coat shall be Series N140-15BL Tank White Pota-Pox Plus.
2. Sherwin Williams Products:
a. Primer coat shall be Macropoxy 646 PW, White. Zinc-rich primer will not be allowed.
b. Pit filler shall be Steel Seam FT-910.
c. Stripe coat shall be Macropoxy 646 PW, Light Blue.
d. Intermediate coat shall be Macropoxy 646 PW, Buff.
e. Finish coat shall be Macropoxy 646 PW, White.

F. Colors: Finish colors not specified herein will be selected by OWNER.

G. Extra Materials: All opened paint containers shall be left in neat stacks within the tank bell.

H. All interior wet unwelded or skip-welded seams shall be sealed and flanged piping caulked. Caulk shall be Sika 1A, or equal.

2.03 REPAIR MATERIALS

A. Cathodic Protection System:
1. Scope:
a. A new impressed current cathodic protection system shall be furnished and installed.
b. Rectifier shall be mounted inside existing building tank as shown on the drawings.
c. Automatically controlled impressed current cathodic protection shall be designed, furnished, installed, and commissioned to provide corrosion control for the interior submerged surface of the water storage tank.
d. The cathodic protection supplier shall provide all engineering services, materials, equipment, labor, and supervision to provide a system as described in this specification. All work shall be in accordance with AWWA D104.
e. The cathodic protection supplier shall be Corrpro, or equal.
f. The specification herein is for the Corrpro System to establish a standard of quality.
2. Design:
a. The system shall be designed by a corrosion engineer who is an individual accredited by the National Association of Corrosion Engineers (NACE) as being a Senior Corrosion Technologist or a Corrosion Specialist with experience in cathodic protection for water storage tanks.
b. The corrosion engineer shall design the system to provide effective corrosion control in accordance with criteria for protection.
c. The criteria for protection shall be based on a tank-to-water potential, IR drop free, within a range of -0.850 volts to -1.050 volts relative to a copper-copper sulfate reference electrode. This potential shall be measured free of voltage gradients (IR drops).

d. This criteria shall be maintained by an automatically controlled rectifier and a long-life anode system.
e. The corrosion engineer shall also base system capacity and performance on:
(1) Total surface area of the tank. Total surface area includes HWL in bowl and wet risers in elevated tanks, which are 30 inches diameter, or larger.
(2) Type of coating and condition of coating.
(3) Total bare surface area to be protected will be a minimum of 25% of total surface area.
(4) Minimum current density of 0.5 MA/ft.^{2} bare surface area.
(5) Chemical analysis of water including resistively expressed in ohm-cm.
(6) Susceptibility of tank to icing.
(7) Minimum anode system life of 20 years.
(8) Selection, dimensions, and layout of system components specified in Section C.
f. The cathodic protection supplier shall submit drawings of the system components and system layout. This design shall be submitted by the tank contractor for OWNER's records.

3. System components:
a. Rectifier: The rectifier unit shall include:
(1) Transformer.
(2) Selenium or silicon rectifying elements.
(3) Circuit breaker(s).
(4) Lightning, surge, and overload protection.
(5) Provision for air-cooling operation.
(6) Voltmeter(s) and ammeter(s).
(7) Weatherproof cabinet in accordance with NEMA 4X requirements.
(8) Provisions to vary current output from 0% to 100% of rated capacity.
(9) Provisions for mounting, grounding, and locking.
(10) Provision for 110 to 120 volts, 60 Hz, single-phase AC power.
(11) DC output capacity in volts and amperes in accordance with design.
(12) Number of circuits or separate rectifiers in accordance with design.
(13) Automatic controller shall be AWWA D104, type A, and shall adjust current output to compensate for changes in water level, temperature of water, water chemistry, and cathodic polarization.
b. Rectifier automatic controller shall include the following provisions:
(1) Utilize long-life reference electrode(s) mounted in tank.
(2) Monitor the tank-to-water potential, free of IR drop.
(3) Automatically adjust the tank-to-water potential, free of IR drop, to a preset value.
(4) Operate within 25 MV of preset value.
(5) Automatically limit current to a preset value.
(6) Utilize potential meter(s) to display tank-to-water potential, free of IR drop.
c. Long-life reference electrode(s): The reference electrode shall consist of a copper-copper sulfate electrode which is manufactured to remain stable (±10 MV) for a minimum of 10 years. The reference electrode to lead wire connection shall be encapsulated to prevent water migration.
d. Anode suspension system:
(1) The anode suspension system for icing tanks shall conform to AWWA D104, Section 4.2.4.1.1, type A Horizontal System and shall consist of a minimum 5/16-inch polyester cord.

(2) The cord shall be secured to steel anchors welded to the side wall of the tank bowl or to the exterior of the dry access column of spherical-type tanks and the side wall of wet risers which are 30 inches diameter, or larger.
(3) All cord-to-cord connections shall be tied and taped.

e. Anode materials:
(1) The anode materials shall be selected in accordance with Design (Section B).
(2) The anode wire shall be continuous and shall have a maximum of two anode-to-header connections. Anode materials shall consist of one of the following:
(a) Minimum 0.062-inch-diameter platinized niobium with 25 micro inches of platinum.
(b) Minimum 0.062-inch-diameter copper-cored titanium with a precious-metal oxide coating.
(3) All anode-to-header cable connections shall be sealed to prevent water migration.

f. Pressure entrance fitting:
(1) The pressure entrance fitting shall accommodate anode and reference electrode lead wires through the side wall of the bowl or riser of the tank.
(2) The pressure entrance fitting shall consist of a minimum 1.5-inch coupling rated at 3,000 pounds.
(3) The fitting shall be manufactured to prevent leakage or water migration through the insulated lead wires.

g. Wiring:
(1) All wiring within the tank shall be insulated to prevent copper conductor to water contact.
(2) All wiring on the exterior of the tank shall be insulated and run in rigid aluminum conduit. All conduit and fixtures shall be routed to remain minimum 4 inches clear from ladder side rails.
(3) Electrical service to the cathodic protection rectifier shall be performed by the electrical subcontractor.

h. Hardware: All hardware used in conjunction with the system shall be protected against corrosion.

i. All materials in contact with the water or exposed within the interior of the tank shall conform to ANSI/NSF 61, “Drinking Water System Components.”

B. Special Vent:
1. Fail-safe vent designed to operate if screen frosts over shall be provided.
2. Screens shall be reinforced with steel frames designed to lift off the bearing surfaces in the event the screens frost over and either positive or negative tank pressure is experienced. Screen blowout provisions during frost conditions shall not be provided. Vent shall be weather-protected type. Entrance of rain or snow shall be prevented by overhanging and overlapping protective cap protruding down to the bottom of the course screens.
3. Stainless steel No. 16 mesh screens shall be provided.
4. Vent shall replace existing 24-inch pallet vent on roof.
5. Vent bottom shall be designed to weld on to tank roof.
6. Vent shall be equal in construction to those provided by Advance Tank and Construction Co., or equal.

C. Riser Pipe:
1. If needed, riser pipe shall be 12-inch, Schedule 40, A53 steel.

2. Provide 1/2-inch, chrome-plated, smooth-end sampling cock, Zurn Z-80401, or equal.
3. Sampling cock shutoff valve shall be threaded stainless steel, locking, WOG valve, Milwaukee Valve Company, model 2855OR-B2-LL, or equal.
4. Provide 12-inch stainless steel, accordion-style, expansion joint near bottom of riser pipe.
5. Provide two 3/4-inch taps with shutoff valves for future use.

D. Piping Insulation:
1. Riser pipe shall be insulated with 2-inch-thick preformed cellular plastic insulation equal to Trymer Rigid Foam with all service jacket from valve pit to bottom of tank.
2. 3-M filament reinforced tape 3 inches wide shall be used to fasten the insulation to the riser pipe and seal the joints.
3. Insulation covering shall extend over all insulation and shall be equal to Childers aluminum jacket 0.016 inches thick with 1-inch minimum overlap.
4. Aluminum or stainless steel sheet metal screws shall be used to hold the aluminum jacket.

E. Overflow Pipe:
1. Six inches.
2. ASTM A53, Grade B steel pipe.
3. Eight-inch-diameter steel flanges for screen.
   a. Four holes in each flange.
   b. 3/8-inch holes to bolt screen between flanges.
   c. Stainless steel bolts.
4. Counterweight valve shall be Protectoseal Series 7300D, or equal.

F. Overflow Pipe Screen:
1. Stainless steel.
2. 24 mesh.
3. 20-gauge wire.

G. Drain Valve: Provide 3-inch, threaded, stainless steel, Shand and Jurs No. 96181-01, freezeproof valve, or equal.

H. Handrailing:
1. Handrailing shall be minimum of 25 feet in diameter and shall be outside of all access hatches on top of the tank. Handrails shall conform to OSHA Standards and shall be able to handle two additional 2,500-pound wind loads from future appurtenances to be imposed on railing. Handrailing shall be uniformly curved from angle steel or pipe tubing. Heights of top rail and intermediate rail shall be positioned as regulated by OSHA. The toerail shall be installed to allow rainwater to pass without ponding. Minimum size of structural members shall be 2-inch Schedule 40 pipe, or 2 by 2 by 1/4 angle iron. There shall be a minimum of 18 vertical supports, oriented each 20 degrees starting at magnetic north.
2. CONTRACTOR shall provide ENGINEER calculations of the loads from the handrail system and drawings for review prior to fabrication of handrail.

I. Roof Manway:
1. Remove existing access cover and manway.
2. Provide and install new manway and cover.
3. Manway shall be 30 inches diameter and have a 4-inch curb.
4. Hatch cover shall be hinged and shall have a downward overlap of 2 inches.

5. Steel for manway and cover shall be as specified herein and Section 05 50 00–Metal Fabrications.

J. Grab Bars: Grab bars shall be designed to support 5,000-pound impact load for use with fall protection equipment.

PART 3–EXECUTION

3.01 PHYSICAL REPAIRS

A. Install Cathodic Protection System:
   1. Minor repairs:
      a. Weld interior wet support brackets.
      b. Weld bulkhead coupling in place.
      c. Install remaining cathodic protection system components.
      d. Provide start-up and maintenance instructions for OWNER.
   2. Workmanship and installation:
      a. The system shall be installed by personnel who are specifically trained and qualified in the installation of cathodic protection systems.
      b. All work will be in accordance with the following requirements:
         (1) Components of the cathodic protection system shall be installed in the manner and at the locations as shown on the design drawings prepared by the corrosion engineer.
         (2) Pressure entrance fitting shall be installed in accordance with AWWA D100, Section 3.13.
         (3) Welding, cutting, and coating shall be in accordance with AWWA Standards D100, D102, and D107.
         (4) Materials and equipment shall be inspected prior to installation. Any defective component shall be repaired or replaced.
         (5) Electrical work shall be in accordance with the National Electrical Code.
         (6) Lead wires shall be installed to prevent damage from abrasion.
         (7) Electrical connections within the tank shall be sealed to prevent water migration.
         (8) The rectifier shall be mounted at a convenient height (eye level) above grade for monitoring and service purposes.
         (9) AC power to the rectifier shall be furnished by the electrical subcontractor.
         (10) Work provided by the cathodic protection supplier shall be completed in a clean and safe manner.
   3. Energizing system:
      a. After the system is installed and the tank is filled, the cathodic protection supplier shall provide start-up service that includes energizing, testing, and adjusting the system for optimum performance of the cathodic protection system.
      b. This start-up service shall be coordinated with OWNER and ENGINEER.
      c. In addition to the start-up service, two complete sets of record drawings and two copies of Owner's Maintenance Manual shall be submitted to ENGINEER.
      d. The cathodic protection system will be placed in standby for between 8 and 12 months following final completion of the tank. The cathodic protection system will be permanently placed in service following the anniversary inspection of the tank interior.

e. The final test, adjustment of the system, and permanent start-up of the system shall be conducted approximately 12 months after the permanent start-up. ENGINEER shall be notified prior to completion of the final test.
f. All testing shall be conducted with a calibrated portable copper-copper sulfate reference electrode and a portable high-impedance voltmeter.
g. A minimum of five locations shall be measured. All test data shall be reviewed and evaluated by a corrosion engineer in accordance with criteria for protection.

4. Guarantee:
a. The cathodic protection system shall be guaranteed against all defects in materials and workmanship and further guaranteed to prevent corrosion, when maintained in continuous operation in accordance with the cathodic protection supplier's instructions, as evidenced by the absence of pitting below the high water line in the tank for a period of 1 year after being permanently placed in service.
b. In the event corrosion is not prevented, CONTRACTOR shall readjust, repair, or replace the system.

B. Fail-Safe Vent:
1. Remove existing welded pallet vent. Cut roof plate as necessary to install new fail-safe vent.
2. Paint vent to match tank exterior.

C. Overflow Pipe:
1. Modify overflow piping to allow discharge onto splash pad with minimum 12-inch air gap. Weld on a downturned elbow to the existing overflow pipe. Elbow shall be flanged at the end to hold the screen.
2. Furnish and install screen in downturned elbow. Bolt screen in between counterweight valve and elbow flange.

D. Structural Steel:
1. Weld steel curbs above painter's hatch and sidewall doors for rainproofing, as shown on the Drawings..
2. Weld new steel components according to Section 05 50 00–Metal Fabrication.

E. Access Tube Vent Cover:
1. Provide rubber covering in appropriate length and width to cover all the way around the access tube opening on top of the tank. No uncovered openings to interior wet shall remain.
2. Retain rubber with a minimum of two stainless steel bands.

F. Caulking: After painting, the interior wet unwelded and skip-welded roof plates and roof stiffener beams shall be seam-sealed with caulk.

G. Cables:
1. Existing cables attached to interior dry ladders shall be moved and reattached to provide 4 inches of clear space from ladder side rails. Attach cables to the ladder supports holding ladders to tank wall. Cables shall be routed along tank wall.
2. Ultrasonic flow meter wiring shall be routed along tank wall in 3/4-inch conduit.

H. Handrailing:
1. Weld all steel for handrailing prior to surface preparing and painting tank. All welding shall be done by a certified welder.
2. Locate all appurtenances as specified.

I. Piping Insulation: After painting, install piping insulation as specified.

3.02 SURFACE PREPARATION

A. General:
1. All surfaces to be painted shall be prepared as specified herein and by the manufacturer's published data sheet and label directions. The objective shall be to obtain a uniform, clean, and dry surface.
2. No painting shall be done before the prepared surfaces are observed by ENGINEER. Surfaces painted without such observation shall be abrasive-blasted clean and repainted.
3. Prior to field blasting, a sample of the blast abrasive shall be provided to ENGINEER for pH testing. Additional samples of subsequent deliveries or batches of blast abrasive shall be provided to ENGINEER for testing.
4. Quality of surface preparations listed below are considered a minimum. If paint manufacturer requires a better preparation for a particular application, it shall be considered a requirement of this specification.

B. Exterior:
1. Abrasive blast all surfaces to Commercial Blast Cleaning SSPC-SP6. Abrasive blast all welds to Near White Blast SSPC-SP 10.
2. All abrasive blasting shall be performed within shrouding as specified herein. No visible dust emissions shall occur.

C. Interior Dry (Tank Bell):
1. Hand-wash all surfaces with clean water and cloths. A solutions of three parts water mixed with one part cleaner shall be used.
2. Spot prepare all abraded and rusted areas to Power Tool Cleaning to Bare Metal SSPC-SP 11 or abrasive blasting to Commercial Blast Cleaning SSPC-SP6. Scarify all other surfaces to Brush Off Blast Clean SSPC-SP7. No visible dust emissions shall occur.
3. All equipment in base cone shall be protected from cleaning and blasting operations.

D. Interior Dry (Platforms, Shaft, and Access Tube): Abrasive blast all interior areas to Near White Grade SSPC-SP 10. No visible dust emissions shall occur.

E. Interior Wet: Abrasive blast all interior areas to Near White Grade SSPC-SP 10. No visible dust emissions shall occur.

F. Piping:
1. All piping shall be surface prepared and repainted. Remove all existing insulation.
2. Clean all abraded and rusted areas to power tool cleaning to Bare Metal SSPC-SP 11 or abrasive blasting to Commercial Blast Cleaning SSPC-SP6.
3. Clean all new steel items by abrasive blasting in shop to near White SSPC-10.
4. Clean all new welds to Hand Tool SSPC-11 utilizing vacuum recovery equipment. No visible dust emissions shall occur.

3.03 APPLICATION

A. Materials shall be delivered to the site in original containers with labels intact and seals unbroken.

B. All materials shall be used as specified by the manufacturer's published data sheets and label directions.

C. Relative humidity conditions as specified by the paint manufacturer's data sheet shall be adhered to. This includes times in which supplemental heat is used.

D. CONTRACTOR shall dry heat and ventilate as needed to obtain painting conditions recommended by the paint manufacturer.

E. No unprotected, unheated exterior painting shall be undertaken when damp weather appears probable, nor when the temperature of the substrate is within 5°F of the minimum specified on the paint manufacturer's data sheet.

F. No paint shall be applied on a wet or damp surface and in no case until the preceding coat is dry and hard. Each coat shall be allowed to dry in accordance with manufacturer's data sheets before the next coat is applied.

G. Drying time shall be construed to mean "under normal conditions." Where conditions are other than normal because of the weather, or because painting must be done in confined spaces, longer drying times will be necessary.

H. Additional coats of paint shall not be applied, nor shall units be returned to service until paints are thoroughly dry and cured.

I. Steel that will be inaccessible in the completed work shall receive the final coat before enclosure.

J. Paint shall be applied to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable. Tops and bottoms of walls and areas that are "cut in" by brush prior to rolling shall have a uniform appearance in comparison with adjoining surfaces.

K. Crevices and other hard to apply areas shall be backrolled/backbrushed in conjunction with application of the field-applied primer or intermediate coats. This includes, but is not limited to, between pipe flanges, pipe flange/pipe barrel joints, equipment fittings, and other narrow openings.

L. Drop cloths shall be used in all areas where painting is done to fully protect other surfaces.

M. Oily rags and waste must be removed from the site each night or kept in an appropriate metal container.

N. Zinc-rich primer used on the exterior shall be continuously agitated during application.

O. After abrasive blast cleaning, ENGINEER's Field Representative will observe the steel surface to determine the repair procedure. The repairs may be made by using epoxy paste or by welding. Pits deeper than 1/8-inch and all holes will be repaired by welding. Pits less than 1/8-inch deep may be repaired with specified pit filler. Pit filler shall be applied after the zinc rich primer has been applied per the appropriate coating specification in this document. Repair all deep pits by welding pit flush with surface of tank. Average size of

deep pits is 1-inch diameter by 1/8-inch deep. Repair all shallow pits by filling with pit filler. Average size of shallow pits is 1-inch diameter by less than 1/8-inch deep. Include 50 deep pits and holes for tank to be repaired by welding and one gallon of epoxy pit filler to repair shallow pits in base bid.

P. Pitted steel identified during the blasting process shall be brought to the attention of ENGINEER and/or their representative. No changes to the approved coating system shall be permitted without written approval from ENGINEER.

Q. Application of the first coat shall follow immediately after surface preparation and cleaning and before rust bloom occurs. Any cleaned areas not receiving first coat within this period shall be re-cleaned prior to application of first coat.

R. Any components of the coating system which require mixing shall be thoroughly stirred with an air-driven explosion-proof mixer for such time as necessary so that the pigment, vehicles, and solvents are thoroughly mixed. The mixed material shall be continuously stirred during application by mechanical spray pot agitators or other means, if required by the manufacturer. All mixing shall be performed in clean containers, free from traces of grease, other types of coatings, or other contaminants. Containers shall be cleaned regularly to remove partially reacted solids. All containers shall be kept covered to prevent contamination by dust, dirt, or rain. Any catalyzed material remaining at the end of the day shall be safely discarded. All fluid lines shall be blown out at the end of each shift, or sooner if necessary.

S. Primer shall not be applied closer than four inches to any surface scheduled for subsequent blasting or welding. The exposed abrasive blasted bare metal must remain visible after the prime coat has been applied. Overlap subsequently applied primer over previously applied primer.

3.04 PAINT SCHEDULE

A. General:
1. The painter shall use some discretion in what should and should not be painted. Do not paint over labels and motor information, bronze or brass, machined surfaces, moving parts where painting may impair movement, hot surfaces which may peel, etc. If in doubt whether a part should be painted, ask ENGINEER.
2. At the completion of the project, all painted surfaces that have been damaged shall be repainted or touched up.
3. The elevated tank shall be painted in accordance with the following schedule and in accordance with the paint manufacturer’s recommendations.
4. All exterior painting shall be performed inside the shroud used for abrasive blasting.

B. Coverage:
1. Tnemec Products:

	Sq. Ft. Coverage	Dry Mil Thickness Per Coat
Series N140 Pota-Pox Plus		
Steel Interior Wet and Dry Bell Interior Primer*	---	3.0 to 5.0
Steel Interior Wet and Exterior Stripe Coat	---	3.0 to 5.0
Steel Interior Wet Intermediate Coat	---	3.0 to 5.0

	Sq. Ft. Coverage	Dry Mil Thickness Per Coat
Steel Interior Wet and Dry Finish Coat	---	4.0 to 6.0
Steel Exterior Intermediate Coat	---	2.0 to 3.0
91 H_2O Hydro-Zinc		
Exterior and Dry Interior Shaft Steel Primer	---	2.5 to 3.5
Series 73 Endura-Shield		
Steel Exterior Preliminary Coat	---	2.0 to 3.0
Series V700 HydroFlon		
Steel Exterior Finish Coat	---	2.0 to 3.0
Logo**	---	2.0 to 3.0

2. Sherwin Williams Products:

	Sq. Ft.** Coverage	Dry Mil Thickness Per Coat
Macropoxy 646 PW		
Steel Interior Wet and Dry Bell Interior Primer*	---	3.0 to 5.0
Steel Interior Wet and Exterior Stripe Coat	---	3.0 to 5.0
Steel Interior Wet Intermediate Coat	---	3.0 to 5.0
Steel Interior Wet and Dry Finish Coat	---	4.0 to 6.0
Steel Exterior Intermediate Coat	---	2.0 to 3.0
Corothane I Galvapac Zinc Primer		
Steel Exterior Primer Coat	---	2.5 to 3.5
Steel Interior Dry Shaft Primer Coat	---	2.5 to 3.5
FluoroKem		
Steel Exterior Finish Coat	---	2.0 to 3.0
Logo**	---	2.0 to 3.0

* Spot-prime interior bell; full coat interior wet.
** Two coats shall be applied.

3. The number of coats specified is based on spray application of the coatings. The specified film thickness is required regardless of the type of coating application. Roller or brush application may require two or more coats to obtain recommended film thickness. No allowance is made here for overspray, waste in handling, mixing, or application. Final total dry film thickness (DFT) shall be equal to that specified. Paint submittals shall note where roller or brush application is proposed and the paint manufacturer's recommendations of number of coats to achieve the required thickness shall be noted.
4. Coating thickness shall be measured per SSPC-PA2. Dry film thickness shall be Level 2 as defined in Paragraph 9.2, except that no single gauge reading shall be less than 80 percent of the specified dry film thickness. Areas that fail to meet this criteria shall be corrected by CONTRACTOR.
5. Primer, intermediate and/or final surface colors shall be of contrasting colors to promote coverage.

C. Paint Schedule:

1. The tank shall be painted by CONTRACTOR in accordance with the following schedule and in accordance with paint manufacturer's recommendation. It is the intent of these specifications that all ferrous metal items scheduled for painting be shop-primed. If items are not shop-coated, surfaces shall be prepared and painted in the field as specified. If any items of new construction are not listed, CONTRACTOR shall request paint system from ENGINEER, and the items shall be painted as part of this Contract without additional cost. All flanged piping annular spaces shall be filled with caulk prior to finish painting.
    a. Shop Priming:
        (1) Shop prime as soon as possible after cleaning and before any rusting occurs on the surface.
        (2) Do not apply paint to edges of items to be welded in the field.
    b. Field Painting:
        (1) Primer: As soon as possible after cleaning and before any rusting occurs, prime all prepared surfaces. This may require two applications at seams and abraded areas if a roller or brush is used. Prime all exterior areas by spray.
        (2) Stripe Coat: Apply stripe coat to all weld seams, edges, corners, nuts, bolts, etc. on interior wet.
        (3) Second Coat (Finish Coat for Interior Dry): Apply one full coat. Touch up any areas of less than total specified DFT.
        (4) Interior Wet: Apply one finish coat. Recoat any areas of less than total specified DFT.
        (5) Exterior: Apply a preliminary color coat and the finish coat. Recoat any areas of less than total specified DFT.
        (6) The name and logo shall be painted following the orientation on the drawings. Location shall be as requested by OWNER. Apply two finish coats to obtain at least 3.0 mils total DFT.
2. Aluminum Items: Exposed areas of structural items such as vents, railings, and grating shall not be painted.
3. Piping Insulation: Aluminum covering shall not be painted. All piping under insulation shall be painted.
4. Electrical Components, including Breaker, Meter, and Control Boxes shall not be painted.
    a. Control equipment, including telephone or telemetering equipment, presently painted shall be painted.
    b. Cathodic protection equipment shall be finish-coated with the standard finishes provided by the manufacturer
    c. Aluminum conduit and accessories shall not be painted.

3.05 FIELD QUALITY CONTROL

A. Examination of work on the site by the paint manufacturer's representative shall be performed when requested by ENGINEER.

B. Dry mil thickness shall conform to those specified. Mil test measurement of steel shall conform to SSPC-PA2 and ASTM D7091.

C. The coatings listed will provide the mil thickness given when applied at the coverages listed. Upon the request of ENGINEER, such surfaces shall be checked by the painter with a calibrated mil thickness gauge and any deficiencies found in the film shall be remedied by additional coat(s) at the expense of CONTRACTOR.

D. Holiday Testing:
   1. The integrity of interior wet coated surface shall be tested for holidays in accordance with NACE Standard SP0188. Contact coating manufacturer for voltage recommendations and curing parameters.
   2. All pinholes and/or holidays shall be marked and repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted in the final coating.

E. All welding shall be completed by an AWS-certified welder. Provide copies of certification prior to work beginning.

F. If OWNER or ENGINEER decides further testing is necessary to determine the integrity of the coatings, destructive testing methods may be used. Test areas shall be repaired by CONTRACTOR at no cost to OWNER.

3.06 CLEANING AND DISINFECTION

A. CONTRACTOR shall disinfect tank to provide tank surface that is free from bacteria. The disinfection procedure shall conform to ANSI 60 and Chlorination Method 3 as described in AWWA C652 and shall be performed in conformance with the paint manufacturer's recommended cure times.

B. In general, the tank shall be filled to 5% capacity and chlorine added to achieve an initial solution of 50 mg/L available chlorine. This solution shall be held for at least 6 hours. The tank shall then be filled to overflow level and held for at least 24 hours.

C. Water used for disinfection shall be flushed from tank and disposed of using a chlorine-reducing agent as provided for in AWWA C652 Appendix B. Tanks shall then be refilled from the distribution system.

D. OWNER will take water samples for bacterial analysis. Two safe samples will be required to be obtained for conformance with disinfection procedure.

E. The interior of the riser pipe shall also be flushed and disinfected. Riser pipe shall be flushed extensively prior to filling and disinfecting. CONTRACTOR shall select the method and submit it to ENGINEER for review.

F. OWNER will provide, at no charge, water to disinfect and fill the tank the first time. Water required to repeat disinfection and filling is to be paid for by CONTRACTOR.

3.07 PROTECTION AND CLEANUP

A. Any ground equipment shall be covered and protected from paint splatter, drips, and overspray.

B. All stains and marks shall be removed from other surfaces upon completion of the work.

C. Site shall be restored to original condition found immediately prior to this project.

END OF SECTION

SECTION 26 05 00

GENERAL ELECTRICAL REQUIREMENTS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes general requirements for all electrical work.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI/NFPA 70–National Electrical Code.

B. ANSI/IEEE C2.

1.03 CONTRACT DOCUMENTS

A. Any device or fixture roughed in improperly and/or not positioned on implied centerlines or as dictated by good practice shall be repositioned at no cost to OWNER.

B. The drawings are generally diagrammatic, and CONTRACTOR shall coordinate the work so that interferences are avoided. Provide all offsets in conduit, fittings, etc., necessary to properly install the work. All offsets, fittings, etc., shall be provided without additional expense to OWNER.

1.04 REGULATORY REQUIREMENTS

A. Conform to ANSI/NFPA 70.

B. Conform to ANSI/IEEE C2.

C. The rules and regulations of the federal, state, local, and civil authorities and utility companies in force at the time of execution of the Contract shall become a part of this specification.

D. Obtain electrical permits and inspections from authority having jurisdiction. Costs for permits and inspections shall be by CONTRACTOR.

1.05 CODES AND ORDINANCES

A. CONTRACTOR is expected to know or to ascertain, in general and in detail, the requirements of all codes and ordinances applicable to the construction and operation of systems covered by this Contract. CONTRACTOR shall know or ascertain the rulings and interpretations of code requirements being made by all authorities having jurisdiction over the work to be performed by them.

B. In preparing Bid, CONTRACTOR shall include the cost of all items and procedures necessary to satisfy the requirements of all applicable codes, ordinances, and authorities, whether or not these are specifically covered by the drawings and specifications. All cases of serious conflict or omission between the drawings, specifications, and codes shall be brought to ENGINEER's attention, as herein before specified. CONTRACTOR shall carry out work and complete construction as required by applicable codes and ordinances and in such a manner as to obtain approval of all authorities whose approval is required.

C. When requested by ENGINEER, CONTRACTOR shall provide written calculations to show compliance with applicable codes or the Contract Documents. This shall include, but not be limited to, conduit and wire sizing, junction and pull box fill and sizing, conductor derating, and voltage drop. CONTRACTOR shall indicate calculation method used as well as compliance with applicable code, drawing, or specification.

1.06 EQUIPMENT PROVIDED UNDER OTHER DIVISIONS

A. Included in this Contract are electrical connections to equipment provided under other divisions. CONTRACTOR shall refer to final shop drawings for equipment being furnished under other divisions, for exact location of electrical equipment, and the various connections required.

1.07 ELECTRICAL DISTRIBUTION SYSTEM

A. Provide a complete electrical distribution system consisting of components indicated on the drawings or specified herein including, but not limited to:
   1. Branch wiring and electrical distribution equipment.
   2. All control wiring.
   3. Access panels and access doors for access to equipment installed by Division 26.
   4. Wiring between system components if equipment is not prewired.
   5. Lighting fixtures.
   6. Support system design and supports for electrical raceways.

B. Provide balancing and adjusting of electrical loads.

C. CONTRACTOR shall instruct OWNER's representative in the operation and maintenance of all equipment. The instruction shall include a complete operating cycle on all apparatus.

D. Provide miscellaneous items for a complete and functioning system as indicated on the drawings and specified herein.

E. A partial list of work not included in Division 26 is as follows: Painting (except as otherwise specified herein).

1.08 DRAWINGS

A. The drawings indicate approximate locations of the various items of the electrical systems. These items are shown approximately to scale and attempt to show how these items should be integrated with building construction. Locate all the various items by on-the-job measurements in conformance with Contract Documents and cooperation with other trades.

B. The drawings are schematic in nature and are not intended to show exact locations of conduit but rather to indicate distribution, circuitry, and control.

1.09 SUBMITTALS

A. CONTRACTOR shall submit to ENGINEER for approval prior to beginning work, shop drawings on the equipment and materials proposed to be furnished and installed. See Section 01 33 00–Submittals for requirements.

B. CONTRACTOR shall, in addition, submit drawings and/or diagrams for review and for job coordination in all cases where deviation from the Contract Drawings are contemplated because of job conditions, interference or substitution of equipment, or when requested by ENGINEER for purposes of clarification of CONTRACTOR's intent.

C. When the manufacturer's reference numbers are different from those specified, provide correct cross-reference number for each item. The shop drawings shall be clearly marked and noted accordingly.

D. When fixtures, equipment, and items specified include accessories, parts, and additional items under one designation, shop drawings shall be complete and include all components.

E. See additional requirements of shop drawings under Division 01–General Requirements.

PART 2–PRODUCTS

2.01 STANDARD PRODUCTS

A. All equipment shall be UL and NEMA approved.

B. All equipment and wiring shall be selected and installed for conditions in which it will perform (e.g., general purpose, weatherproof, raintight, dustproof, or any other special type).

2.02 SUBSTITUTION OF MATERIALS AND EQUIPMENT

A. While it is not the intention of OWNER to discriminate against any manufacturer of equipment which may be equivalent to specified equipment, a strict interpretation of such equivalency will be exercised in considering any equipment offered as a substitute for specified equipment. CONTRACTOR shall submit with each request for approval of substitute material or equipment sufficient data to show conclusively that it is equivalent to that specified in the following respects:
   1. Performance:
      a. Capacity at conditions and operating speeds scheduled shall be equal to or greater than that of the specified equipment.
      b. Energy consumption at the point of rating shall not exceed that of the specified equipment.
      c. Vibration and noise production at the point of rating shall not exceed that of the specified equipment.
   2. Materials of construction.
   3. Gauges, weights, and sizes of all portions and component parts.
   4. Design arrangements, methods of construction, and workmanship.

5. Coatings, finishes, and durability of wearing parts.
6. National reputation of the manufacturer as a producer of first quality equipment of the type under consideration.
7. Availability of prompt, reliable, and efficient service facilities franchised by or affiliated with the equipment manufacturer. This shall include the maintenance of local stocks of critical replacement parts equal to those maintained for the specified equipment.

B. Requests for substitution shall include CONTRACTOR's reason for the request.

C. If ENGINEER does not consider the items equivalent to those specified, CONTRACTOR shall provide those specified.

D. See General Conditions for additional requirements.

PART 3–EXECUTION

3.01 UTILITY SERVICES

A. All costs for temporary service, temporary routing of piping, or any other requirements of a temporary nature associated with the utility service shall be included in the Base Bid.

B. It shall be CONTRACTOR's responsibility to police this situation and protect its equipment.

3.02 CLEANUP AND REMOVAL OF RUBBISH

A. All lighting and appliance panelboards, junction boxes, and pull boxes shall be cleaned of debris and wires neatly arranged with surplus length cut off before installation of covers.

B. All lighting fixture lenses and lamps (interior and exterior fixtures) shall be cleaned at the time of installation, and all lens exteriors shall be cleaned just prior to final inspection.

C. Equipment shall be thoroughly cleaned of all stains, paint spots, dirt, and dust. All temporary labels not used for instruction or operation shall be removed.

3.03 BUILDING ACCESS

A. CONTRACTOR shall arrange for the necessary openings in the building to allow for admittance of all apparatus.

B. When the installation requires openings and access through existing construction and the openings are not provided, CONTRACTOR shall provide the necessary openings.

3.04 EQUIPMENT ACCESS AND LOCATION

A. CONTRACTOR shall coordinate work of this division with that of other divisions so that all systems, equipment, and other components of the building will be installed at the proper time, will fit the available space, and will allow proper service access to those items requiring maintenance. This means adequate access to all equipment, not just that installed under this division. Any components for the electrical systems that are installed without regard to

the above shall be removed and relocated as required to provide adequate access at CONTRACTOR's expense.

B. Where various items of equipment and materials are specified and scheduled, the purpose is to define the general type and quality level, not to set forth the exact trim to fit the various types of ceiling, wall, or floor finishes. Provide materials that will fit properly the types of finishes actually installed.

C. All equipment, junction and pull boxes, and accessories shall be installed to permit access to equipment for maintenance. Any relocation of conduits, equipment, or accessories to provide maintenance access shall be accomplished by CONTRACTOR at no additional cost.

D. Electrical equipment, devices, instruments, hardware, etc., shall be installed with ample space allowed for removal, repair, calibration, or changes to the equipment. Ready accessibility to equipment and wiring shall be provided without moving other equipment that is to be installed or that is already in place.

3.05 WORKMANSHIP

A. Install work using procedures defined in NECA Standard of Installation.

B. Unless otherwise noted, equipment shall be fastened to building structure or equipment framework and not placed on the floor.

C. Where materials, equipment apparatus, or other products are specified by manufacturer, brand name, and type or catalog number, such designation is to establish standards of desired quality and style and shall be the basis of the Bid.

D. Materials and equipment of the types for which there are National Board of Fire Underwriters Laboratories (UL) listing and label service shall be so labeled and shall be used by CONTRACTOR.

E. Location of equipment as shown on the Drawings is within 10 feet of actual position. Any mounting of this equipment within this 10-foot distance shall be performed at no additional cost to OWNER.

END OF SECTION

SECTION 26 05 19

WIRE

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Wire.
   2. Terminal blocks and accessories.
   3. Wiring connections and terminations.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALITY ASSURANCE

A. Manufacturers of Wire: Firms regularly engaged in the manufacture of electrical wire products of the types and ratings needed whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that in this project.

C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.

D. UL Labels: Provide electrical raceways, wire, connectors, outlets, switches, etc., which have been listed and labeled by Underwriters Laboratories.

E. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.03 SUBMITTALS

A. Submit shop drawings and product data under the provisions of Section 01 33 00–Submittals.

B. Submit manufacturer's instructions.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Provide factory-wrapped, waterproof, flexible-barrier material for covering wire on wood reels, where applicable, and weather-resistant fiberboard containers for factory-packaging of wire, connectors, outlets, boxes, lamps, fuses, etc., to protect against physical damage in transit. Do not install damaged wire or other material; remove from project site.

B. Store wire and other material in factory-installed coverings in a clean, dry, indoor space which provides protection against the weather.

PART 2–PRODUCTS

2.01 WIRE

A. All wire for permanent installation shall be new stranded copper delivered to project in unopened cartons or reels, except where specifically noted and be UL listed for the use intended. No wire smaller than 12 AWG shall be used unless specifically noted. The use of multiconductor cable is NOT ALLOWED.

B. Wiring shall be THWN.

C. All available colors shall be used; however, green shall be used only for equipment grounds. Where color-coded wire in larger sizes is not available, one wrap of 1-inch-wide colored self-adhesive tape at each terminal end shall be used for identification. Initial phase color shall be used throughout the run, even for switch legs. Colors must meet code requirements for each class voltage. Do not duplicate colors, including neutral, on different voltages.

D. Color Coding:

	120/240 V
A Phase	Black
B Phase	Red
Neutral	White
Travelers	Yellow
Equipment Ground	Green

2.02 WIRING CONNECTIONS AND TERMINATIONS

A. Provide crimp-type UL or ETL listed terminations for 6 AWG and smaller stranded conductor connections to electrical devices and equipment such as receptacles, switches, and terminal strips. Crimp devices shall be Sta-kon, or equal.

B. Provide insulated, silicone-filled spring wire connectors with plastic caps for 8 AWG conductors and smaller. Connectors shall be King Silicone-Filled Safety Connectors, or equal. Spring wire connectors shall only be allowed in junction, outlet, or switch boxes.

2.03 TERMINAL BLOCKS AND ACCESSORIES

A. Terminal Blocks: ANSI/NEMA ICS 4: UL listed.

B. Power Terminals: Unit construction type, closed-back type, with tubular pressure screw connectors, rated 600 volts.

C. Signal and Control Terminals: Modular construction type, channel-mounted; tubular pressure screw connectors, rated 300 volts.

D. Manufacturer and Model Number: Phoenix Contact UK 5 N, or equal.

PART 3–EXECUTION

3.01 INSPECTION

A. Examine the areas and conditions under which the work is to be installed and notify CONTRACTOR of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 GENERAL WIRING METHODS

A. Install electrical wire and connectors in accordance with the manufacturer's written instructions, applicable requirements of the NEC, the National Electrical Contractors Association's "Standard of Installation," and in accordance with recognized industry practices to ensure that products serve the intended functions. Use appropriate wiring methods and materials for the equipment or environment.

B. Stranded conductors shall be terminated using crimp-type devices specified herein. Conductors may not be wrapped around a terminal screw.

C. Place an equal number of conductors for each phase of a circuit in same raceway.

D. Splice only in junction or outlet boxes. Avoid splices between terminals of interconnecting power and control wiring.

E. Spring wire connectors shall only be used in junction, outlet, or switch boxes. Equipment wireways (e.g., panelboards, disconnects, etc.), and control panels shall not have any spring-wire connectors installed; all terminations shall be on terminal strips.

F. Neatly train, lace, and tie wrap all wiring inside boxes, equipment, and panelboards.

G. The same color shall be used for each numbered wire throughout its entire length.

H. Provide preprinted adhesive or heat shrink-type wire numbering labels at all terminations and splices. Wire numbering preprinted on the conductor, flag-type labels, and individual wraparound numbers (e.g., Brady labels) are not acceptable.

I. Provide a dedicated neutral for each branch circuit or feeder requiring a neutral. Ampacity of neutral conductor shall match that of the branch circuit or feeder.

J. Do not use a pulling means that can damage the raceway.

K. Signal wiring (below 100 volts) must be in a conduit separate from power and/or control wiring (over 100 volts). Signal wire shall include, but not be limited to, loop-powered devices, voice and data communications, and communication wiring (i.e., DeviceNet, RS-232, etc.).

L. Provide junction or pull boxes to facilitate the "pulling in" of wires or to make necessary connections. All raceways and apparatus shall be thoroughly blown out and cleaned of foreign matter prior to pulling in wires.

M. Thoroughly clean wires before installing lugs and connectors.

N. Make splices, taps, and terminations to carry full capacity of conductors without perceptible temperature rise.

3.03 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Use UL-listed wire-pulling lubricant for pulling 4 AWG and larger wires. Wax-based pulling lubricant is not allowed unless it includes a Teflon additive.

B. Install wire in raceway after all mechanical work likely to injure conductors has been completed.

C. Completely and thoroughly swab raceway system before installing conductors.

D. Conductors shall be installed in conduit system in such a manner that insulation is not damaged, conductors are not overstressed in pulling, and walls are not damaged. No splices are permitted except in junction boxes or outlet boxes.

E. CONTRACTOR shall observe code limitation on the number and size of wires in an outlet box. CONTRACTOR shall either lay out work so that the wires do not exceed the particular box limitation or provide larger boxes approved for additional capacity.

F. Panel riser feeder conductors shall be identified with colored tape at panel lugs. The same phase relation shall be maintained throughout.

3.04 FIELD QUALITY CONTROL

A. Inspect wire for physical damage and proper connection.

B. Prior to energizing, check conduit, raceways, outlet boxes, and wire for continuity of circuitry and for short circuits. Correct malfunction when detected.

C. Subsequent to wire hookups, energize circuitry and demonstrate functioning in accordance with these specifications.

D. Perform field inspection and testing according to provisions of this section.

3.05 WIRE INSTALLATION SCHEDULE

A. Install all wiring in raceways except as otherwise noted. This includes all low-voltage wiring such as temperature control and instruments.

END OF SECTION

SECTION 26 05 26

SECONDARY GROUNDING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Electrical equipment and raceway grounding and bonding.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 INSTALLATION

A. Provide a separate insulated equipment grounding conductor for each branch circuit. Provide a dedicated neutral conductor sized to match the circuit conductors for each branch circuit requiring a neutral. Terminate each end on a grounding lug, bus, or bushing.

B. Bond together system neutrals, service equipment enclosures, exposed noncurrent carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and cold water plumbing systems.

C. Ground system, transformer neutrals, and equipment as required by code and local ordinances.

D. Flexible connections do not qualify for ground. All flexible connections must have separate green ground wire from motor base, lighting fixture, or equipment frame to conduit system.

E. Provide a separate grounding conductor system for the grounding of all lighting fixtures and devices installed in the same conduit as the branch circuit conductors. Ground conductors shall be individually connected at each fixture or device.

3.02 TESTING

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

END OF SECTION

SECTION 26 05 29

SUPPORTING DEVICES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Conduit and equipment support members.
   2. Fastening hardware.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

1.03 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 MATERIAL

A. Support Members:
   1. Aluminum in interior locations.
   2. 316 stainless steel, fiberglass, or PVC in exterior locations.

B. Hardware: Stainless steel in exterior locations.

C. Manufacturers: Unistrut P-1000, B-line, Superstrut, or equal.

PART 3–EXECUTION

3.01 INSTALLATION

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors or support members. Do not use spring steel clips and clamps. Provide standoffs as specified in other technical sections.

B. Use toggle bolts or hollow wall fasteners in hollow masonry walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; and wood screws in wood construction.

C. Where support members are used for conduit, cutoff ends shall be ground smooth. Cutoff PVC-coated support members shall be ground smooth and touched up with PVC coating material from the manufacturer.

D. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

E. Do not use powder-actuated anchors.

F. Do not drill structural steel members.

G. Fabricate supports with welded end caps and all welds and surfaces ground smooth for neat appearance. Use hexagon head bolts with steel spring-lock washers under all nuts.

H. Install surface-mounted cabinets with minimum of four anchors.

I. Do not use chain hangers.

END OF SECTION

SECTION 26 05 33

CONDUIT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Rigid aluminum conduit.
   2. Liquidtight flexible metal conduit and fittings.
   3. Conduit seals and special fittings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI C80.5–Electrical Rigid Aluminum Conduit (ERAC).

B. ANSI/NEMA FB 1–Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.

1.03 QUALITY ASSURANCE

A. Manufacturers of Raceways: Firms regularly engaged in the manufacture of electrical raceways of the types and capacities required whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that for the project.

C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.

D. UL Labels: Provide electrical cable, raceways, wire, connectors, outlets, switches, etc., which have been listed and labeled by Underwriters Laboratories.

E. Prior to shipment to the site, all conduit provided shall be new, unused material and may not have been stored outdoors or exposed to weather.

F. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Provide color-coded thread protectors on the exposed threads of threaded rigid metal conduit.

B. Handle conduit carefully to prevent end damage and to avoid scoring the finish.

C. Store conduit inside and protect from weather. When necessary to store outdoors, elevate well above grade and enclose with durable, waterproof wrapping.

PART 2–PRODUCTS

2.01 RIGID METAL CONDUIT AND FITTINGS

A. Rigid Aluminum Conduit: ANSI C80.5. Heavy wall.

B. Conduit bodies for rigid aluminum conduit shall be as manufactured by Appleton, Form 85, or equal, and be constructed of pressure-cast, copper-free aluminum for sizes 2 inches and under, and sand-cast, copper-free aluminum for sizes over 2 inches. Conduit bodies shall have built-in pulling rollers, domed gasketed covers, and stainless steel screws. Covers for conduit bodies must have bolts that thread into the conduit body. Snaptight and wedgenut covers are not allowed. CONTRACTOR shall select body style and size according to application.

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; threaded-type material to match conduit. Split couplings are not allowed.

D. Supports: One-hole or two-hole pipe straps may be used for surface-mounted conduit. Where one-hole straps are used, provide conduit clamp and back spacer. Where standoffs are required, provide pipe straps and supporting devices as specified in Section 26 05 29–Supporting Devices. Support material shall match that of the conduit type provided.

2.02 LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND FITTINGS

A. Conduit: Electrogalvanized single-strip steel with PVC coating and integral grounding conductor. Liquidtight conduit installed in exterior locations shall be sunlight resistant. Conduit shall be UL listed.

B. Fittings: ANSI/NEMA FB 1.

2.03 CONDUIT SEALS AND SPECIAL FITTINGS

A. Conduit Seals: Duct sealing compound, OZ Gedney Type DUX, or equal.

B. Ground Bushings: Appleton, model GIB, or equal.

C. Watertight Hubs: Diecast, insulated and gasketed, rated for wet or dry locations indoors or outdoors. Watertight hubs shall be Appleton HUB, Crouse-Hinds Myers Hubs, or equal.

PART 3–EXECUTION

3.01 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. Size conduits for branch circuit conductors, control wires, and instrumentation cables so as to have not less than 25% spare capacity after installation; 3/4 inch minimum size. Minimum size for liquidtight flexible metal conduit is 1/2 inch.

B. All conduit shall be supported in accordance with the NEC and as specified herein. This shall apply to all conduit types, including flexible conduit.

C. Provide for the proper application, installation, and location of inserts, supports, and anchor bolts for a satisfactory raceway system. Where any component of the raceway system is damaged, replace or provide new raceway system.

D. Conduits shall be attached to building surfaces and not suspended unless installed in a Unistrut-type conduit rack as specified herein. Individual conduits shall not be suspended. Clevis hangers are not allowed.

E. Independently support or attach the raceway system to structural parts of construction in accordance with good industry practice.

F. Conduit attached to building surfaces that may be damp shall be spaced out to avoid rust and/or corrosion using fittings approved for the use. Use back straps on all conduit in damp or wet locations, or mount conduit with Unistrut straps, or equal. Watertight hubs shall be used in all damp locations. Damp locations shall include, but not be limited to, all exterior locations, all areas below grade, and areas within the tank bell and column.

G. Conduits shall be securely fastened to building structure at intervals not exceeding 8 feet or closer, if necessary. Where hangers are necessary, 3/8-inch rod/eyelets/rings/or trapeze type in Unistrut channel and pipe clamps shall be used. Wire or perforated strap iron is not acceptable.

3.02 GENERAL CONDUIT INSTALLATION REQUIREMENTS

A. Ream conduit smooth at ends, cap upon installation, rigidly attach to structural parts of the building, and securely fasten to all outlet boxes, panel cabinets, junction boxes, pull boxes, splicing chambers, safety switches, and all other components of the raceway system.

B. Conduit seals shall be provided where conduits pass from the interior to exterior of the structure.

C. Liquidtight flexible conduit shall be installed in such a manner that liquids tend to run off the surfaces and not drain toward the fittings.

D. All runs of flexible conduit to equipment and devices shall be as short as practicable, of the same size as the conduit it extends, and with enough slack to reduce the effects of vibration to a minimum.

E. Conduits shall be pitched so that drainage is away from all structures.

3.03 CONDUIT PENETRATIONS AND TERMINATIONS

A. Where fittings are brought into an enclosure with a knockout, a gasket assembly consisting of an O-ring and retainer shall be installed on the outside. Fittings shall be insulated throat type.

B. Conduit penetrations for control panels or enclosures containing electronic equipment shall utilize watertight hubs and enter the sides or bottom of the enclosure. Conduits shall not penetrate the top of the enclosures.

C. Conduit penetrations for all exterior enclosures (e.g., junction boxes, control panels, etc.) shall be made on the sides or bottom of the enclosure. Conduits shall not penetrate the top of the enclosure.

D. Where abovegrade conduits pass through masonry walls, grout openings between conduit and walls or floors with sand cement mortar.

3.04 CONDUIT INSTALLATION SCHEDULE

A. The following schedule lists specific conduit types allowed in designated areas. Those areas not listed under a specific conduit type shall not have that type of conduit installed:
   1. Rigid aluminum:
      a. All interior locations.
      b. Exterior locations and locations exposed to weather.
   2. Liquidtight flexible metal conduit not over 3 feet in length for final connections to equipment.

END OF SECTION

SECTION 26 05 35

BOXES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Pull and junction boxes.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI/NEMA OS 2–Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports.

B. NEMA 250–Enclosures for Electrical Equipment (1000 Volts Maximum).

1.03 QUALITY ASSURANCE

A. Manufacturers of switches, outlets, boxes, lamps, fuses, lugs, etc.: Firms regularly engaged in the manufacture of these products, of the types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer: A firm with at least 5 years of successful installation experience on projects with electrical wiring installation work similar to that in this project.

C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.

D. UL Labels: Provide electrical cable, boxes, raceways, wire, connectors, outlets, switches, etc., which have been listed and labeled by Underwriters Laboratories.

E. NECA Standard: Comply with applicable portions of National Electrical Contractor's Association's "Standard of Installation."

1.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 SMALL JUNCTION BOXES

A. Cast Boxes: Aluminum or cast feraloy, deep-type, gasketed cover, threaded hubs, Crouse-Hinds FD Series, or equal.

2.02 PULL AND JUNCTION BOXES

A. Cast Boxes: NEMA 250; Type 4, flat-flanged, surface-mounted junction box, UL-listed as watertight. Cast aluminum or feraloy box and cover with ground flange, neoprene gasket, and stainless steel cover screws, Crouse-Hinds WCB Series, or equal.

B. Boxes Larger Than 12 inches in Any Dimension: Hinged enclosure with back panel for mounting terminal blocks or electrical components, Hoffman, B-Line, or equal.

C. Boxes specified in this section are not allowed to have knockouts and are not allowed to be used as enclosures for control panels.

PART 3–EXECUTION

3.01 COORDINATION OF BOX LOCATIONS

A. Provide electrical boxes as necessary for splices, taps, wire pulling, cable bending radii, equipment connections, and code compliance.

B. Where dedicated raceways are provided for different voltage systems or wiring, separate boxes shall also be provided unless approved by ENGINEER. Where approved by ENGINEER, combined boxes shall be physically divided to separate the wiring.

C. Locate and install boxes to allow access. Where installation is inaccessible, coordinate locations and sizes of access doors.

D. Locate and install to maintain headroom and to present a neat appearance.

E. All boxes attached to building surfaces that may be damp shall be spaced to avoid rust and/or corrosion. All boxes in damp locations shall be on 1-inch standoffs. Damp locations shall include, but not be limited to, exterior locations, and areas within the tank bell and column.

3.02 PULL AND JUNCTION BOX INSTALLATION

A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.

B. Support pull and junction boxes independent of conduit.

C. Knockout punches or saws shall be used for holes; boxes with prepunched holes are not acceptable.

D. All junction boxes shall be labeled with permanent labels (not adhesive type). Permanent labels shall include painted stencil-type labels or engraved laminated nameplates. Labels shall indicate circuit or load served, as well as power source.

E. All interior exposed junction and pull boxes shall be cast type with cover, unless noted otherwise.

END OF SECTION

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Nameplates.
   2. Labeling tags.
   3. Wire markers.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

B. Provide schedule for nameplates and labeling tags with shop drawings. Reference drawings for type used.

PART 2–PRODUCTS

2.01 NAMEPLATES

A. Type “A”:
   1. Use:
      a. Each separately mounted circuit breaker or disconnect switch.
      b. Cabinets, enclosures, pull, and junction boxes.
   2. Size: 2 inch by 3 inch.
   3. Material: 3-layer laminated Micarta.
   4. Background Color: Black.
   5. Character Color: White.
   6. Character Size: 1/4 inch.
   7. Engraving: As requested by ENGINEER. Label shall include equipment number and description.
   8. Mounting Location: Front exterior.

2.02 LABELING TAGS

A. Use: Field-Mounted Devices (Limit Switches, etc.).
   1. Size: 1-inch by 3-inch.
   2. Material: 1/32-inch-thick stainless steel.
   3. Character Size: 1/4 inch.
   4. Engraving: As requested by ENGINEER.

2.03 WIRE MARKERS

A. Wire markers shall be permanently attached sleeve or heat shrink-type labels. Wire numbering preprinted on the conductor, flag-type labels, and individual wraparound numbers (such as Brady preprinted markers) are not acceptable. All wire markers shall be the same throughout the project.

B. Wire markers shall be specifically printed for this project using permanently attached computerized adhesive tags, such as Brady BMP51 labeling printer with self-laminating vinyl, permasleeve heat-shrink polyolefin, or equal. Handwritten markers are not acceptable.

PART 3–EXECUTION

3.01 INSTALLATION

A. Degrease and clean surfaces to receive nameplates.

B. Install nameplates parallel to equipment lines.

C. Affix nameplates with weatherproof, UV-resistant adhesive in outdoor locations and sticky back adhesive in indoor locations.

D. Affix labeling tags with permanent bonding cement or locking wire ties. Provide 3/8-inch hole to accommodate wire tie.

E. Prepare and install neatly-typed directions in all panels, including existing panels where work is done under this Contract.

3.02 WIRE IDENTIFICATION

A. Provide wire markers on each conductor, including neutral and spare conductors, in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on schematic and interconnection diagrams for control wiring. Spare conductors shall have control wire number or shall indicate termination point of wire.

B. Conductors in pull boxes, supervisory control panels, cabinets, and panelboards shall be grouped as to circuits and arranged in a neat manner. All conductors of a feeder or branch circuit shall be grouped, bound together with nylon ties, and identified. Phase identification shall be consistent throughout the system.

END OF SECTION

SECTION 26 09 00

CONTROLS AND INSTRUMENTATION

PART 1–GENERAL

1.01 SUMMARY

A. Related Sections and Divisions:
   1. Applicable provisions of Division 01 shall govern work in this section.
   2. All other sections of Division 26.

PART 1–GENERAL 1
1.01 SUMMARY 1
1.02 SYSTEM DESCRIPTION 1
1.03 QUALITY ASSURANCE 2
1.04 SUBMITTALS 2
1.05 OPERATION AND MAINTENANCE DATA 2
1.06 DELIVERY, STORAGE, AND HANDLING 3
1.07 SYSTEM ENGINEERING 3
1.08 DESCRIPTION OF THE VILLAGE OF OSWEGO SCADA SYSTEM 3
1.09 CONTRACTOR AND SYSTEM SUPPLIER GENERAL REQUIREMENTS 3
1.10 SYSTEM STARTUP AND SUPPORT SERVICES 4
1.11 COMMON REQUIREMENTS ALL EQUIPMENT 5
1.12 WARRANTY 6
PART 2–PRODUCTS 6
NOT APPLICABLE 6
PART 3-EXECUTION 6
3.01 WELL 6 CONTROL PANEL 6
3.02 MASTER SITE 6

1.02 SYSTEM DESCRIPTION

A. The work includes furnishing, delivering, installing all items furnished, and placing in operation the additions to the Supervisory Control and Data Acquisition (SCADA) System for OWNER.

B. System Supplier shall be defined as the fabricator, assembler, and supplier of all system components. See paragraph 1.09 for other System Supplier requirements.

C. System Supplier shall be responsible for development of the SCADA system computer HMI graphics as specified herein.

D. CONTRACTOR shall inspect all work. The Bid shall include everything necessary to obtain a complete installation operating in accordance with these specifications and the Bidder’s proposal, whether necessary items and equipment are contained in, or are remote from the enclosures furnished under this Contract. All responsibility for this system ultimately lies with CONTRACTOR.

E. CONTRACTOR shall be responsible for the placing of circuits and making of electrical connections in accordance with System Supplier-furnished drawings, instructions, and field

supervision to provide proper connection. CONTRACTOR shall include the services of a System Supplier factory engineer to supervise making of connections to the new control equipment; adjust the equipment; initiate and check operation; instruct OWNER's electrician on operation and maintenance of the equipment; and place the equipment in operation in an acceptable manner. This shall include on-site review of software/hardware controls from the central control point.

F. Any auxiliary interface relays and controls needed for completion of this project, if not specifically called for, shall be by System Supplier.

1.03 QUALITY ASSURANCE

A. System Suppliers: Firms regularly engaged in the design and manufacture of SCADA systems of the size and complexity specified herein, and whose systems have been in satisfactory use in similar service for not less than 10 years.

B. Installer: A firm with at least 10 years of successful installation experience on projects with SCADA System design and installation work similar to that required for the project.

C. Code Compliance: Comply with National Electrical Code (NFPA 70) and any and all local codes as applicable to construction and installation of electrical wiring devices, material, and equipment herein specified.

D. UL Labels: Provide control panels, power supplies, controllers, relays, wire, and connectors that have been listed and labeled by Underwriters Laboratories.

E. NECA Standards: Comply with applicable portions of National Electrical Contractor's Association's Standard of Installation.

1.04 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's data, specifications, and installation recommendations for each item specified herein.

B. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

C. Provide product data on all equipment and devices specified herein as well as wiring schematics for all systems.

1.05 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provision of Section 01 33 00–Submittals.

B. Include spare parts data listing, source and current prices of replacement parts and supplies, and recommended maintenance procedures and intervals.

C. Submit Operation and Maintenance Manuals in accordance with Division 01. Wiring schematic and logic diagrams, parts list, and point-to-point wiring shall apply.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to SCC components, enclosure, and finish.

1.07 SYSTEM ENGINEERING

A. System Supplier shall provide all engineering necessary to accomplish and document the requirements of this specification and in accordance with the system configuration. The engineering to be performed by System Supplier on this project shall include, but not be limited to, the following categories:
   1. I/O configuration and wiring drawings.
   2. PLC programming.

B. Installation: CONTRACTOR shall install all the interconnecting cabling as required. This work shall include all interconnection wiring from new and existing equipment as required for the completion of the system.

C. It shall be the responsibility of System Supplier to ascertain that all field devices are compatible and consistent with the system design. This includes reviewing drawings and data to ascertain the compatibility and consistency of the system with the field devices on such considerations as:
   1. Equipment size and available space.
   2. Power levels.
   3. Power sources.
   4. Logic schemes.

1.08 DESCRIPTION OF THE VILLAGE OF OSWEGO SCADA SYSTEM

A. All process equipment shall be monitored and alarmed as described herein and listed in the I/O tables shown in Section 26 09 90–SCADA System I/O Listing. All equipment shall be monitored, totalized, indicated, recorded, and stored for reports and historical data.

1.09 CONTRACTOR AND SYSTEM SUPPLIER GENERAL REQUIREMENTS

A. CONTRACTOR shall be responsible for complete coordination in providing all equipment, sensors, and meters supplied with input and output signals, and contacts that are compatible with the systems as specified herein. CONTRACTOR shall also be responsible for complete coordination with manufacturers of other systems specified in other divisions of these specifications with which an interface is required. The Contract drawings and I/O Listing are symbolic representatives of the required work. It is not intended that the drawings show all appurtenances. CONTRACTOR shall provide a complete and working system according to the true intent and meaning of the drawings, specifications, and standard industry practices.

B. Design and specification of devices and completed system shall conform to applicable portions of the latest edition of the National Electrical Code (NEC).

C. All components shall be standard make acceptable to OWNER, with one manufacturer to provide all similar components. The Base Bid System Supplier shall be Concentric

Integration, (815) 444-3311. See General Conditions and Supplementary Conditions regarding substitutions to the Base Bid system suppliers.

1.10 SYSTEM STARTUP AND SUPPORT SERVICES

A. On-Site Functional Acceptance Testing:
   1. After all equipment has been installed and is placed in full-time operation, CONTRACTOR and System Supplier shall demonstrate that all equipment and controls operate in compliance with the Contract Documents. For each piece of equipment being tested, all systems associated with the operation of the equipment (e.g., controls, supply/discharge piping, etc.) shall be installed and be in full operating condition so that all equipment functions are able to be completely tested without delay using real-time process I/O.
   2. All control wiring, HMI screens, control programming, etc., shall be checked out and functionally tested by System Supplier prior to ENGINEER's on-site functional acceptance testing. All functional errors shall be corrected prior to ENGINEER's on-site functional acceptance testing.
   3. CONTRACTOR shall submit updated versions of all HMI screens developed by this System Supplier to ENGINEER for review at least 1 month prior to the functional acceptance testing of equipment controlled/monitored through the associated HMI screens.
   4. Coordination Teleconference:
      a. CONTRACTOR shall schedule and conduct a functional acceptance testing coordination teleconference at least one month prior to the anticipated functional acceptance testing. Meeting shall include CONTRACTOR, System Supplier, Division 26 contractor, OWNER, and ENGINEER, and all other parties responsible for the equipment and controls scheduled for functional acceptance testing.
      b. CONTRACTOR shall provide the following information in written form at the teleconference.
         (1) Equipment installation and manufacturer's startup schedule.
         (2) Status of all power and control system wiring for the equipment scheduled for functional acceptance testing.
         (3) Schedule and status of System Supplier's on-site checkout and functional testing.
         (4) Anticipated delays and the cause of each delay.
         (5) Conflicts with OWNER's operation of the facility.
         (6) Proposed dates for acceptance testing of all equipment and controls.
   5. After being notified by CONTRACTOR that the equipment has been installed and is in full operating condition and ready for ENGINEER's functional acceptance testing, ENGINEER will make one half-day trip to check operation. CONTRACTOR and System Supplier shall be on-site during testing to adjust equipment, correct erroneous wiring, and make modifications to control system and HMI programming, as necessary. If the equipment and controls do not operate according to the Contract Documents, or if CONTRACTOR and System Supplier are not present during the scheduled testing, there will be deducted from payments due to CONTRACTOR the amount of $1,500 a day for ENGINEER's time plus travel and expenses, and for all additional field and office time spent by ENGINEER checking equipment. OWNER will deduct the amount of these charges from payments made to CONTRACTOR.
   6. System Supplier shall provide functional acceptance testing support through one or more on-site field service engineers and the project control system programmer. Time for the on-site field service engineers and programmer scheduled for functional acceptance testing shall be dedicated to the functional acceptance testing process and shall not be interrupted for other construction-related activities.

B. CONTRACTOR, through System Supplier, shall provide the following support services:
   1. Field Service Engineer: Field service engineer shall be responsible for programming of system PLCs at the site. Field service engineer shall be present for startup of all systems and available throughout the entire construction process until final completion. Service technicians sent for system startup will not be acceptable. Support shall include on-site time. Services shall include, but not be limited to:
      a. Commissioning, installation, startup, and testing of equipment.
      b. Revising or rewriting manuals to incorporate an installed and accepted system.
      c. On-site training.
      d. Software modifications.
   2. Post-startup support shall include follow-up services during the 1-year period following final acceptance. Service shall include follow-up recalibration and replacement of defective equipment, as well as additional training, software modifications, and control configurations as requested by OWNER. This shall include 8 hours for work on-site other than warranty repair or replacement of defective equipment. This time shall be used for software enhancements and modifications to improve the operation of the system. In addition to the 8 hours, include one trip to the site.

1.11 COMMON REQUIREMENTS ALL EQUIPMENT

A. All indicating and recording devices shall be electric or electronic.

B. All indicating and control devices mounted on enclosure doors (e.g., meters, gauges, electronic indicators, pilot lights, selector switches, VFD HIMs, OIPs, etc.) shall be located at eye level, minimum 48 inches, maximum 60 inches, from floor to bottom of device.

C. All motor control power shall be 120 volts with suitable circuit protection (fuses or breakers). Fuse holders shall be provided with integral LEDs to indicate when the fuse is blown.

D. Provide lightning protection, isolation transformers, and fused disconnects at each end of each power circuit, supervisory circuit, and local supervisory circuit with transformers and relays, if necessary, to obtain supervisory power. 120-volt power shall be available at all control points. Lightning protection shall be completely solid-state and self-healing and shall not require the use of fuses.

E. Where equipment is necessary to perform a function as called for in one part of this specification, it shall be provided, even though the detailed enumeration at various control points may omit listing that equipment.

F. Where a certain accuracy of sensing and transmitting levels or flows and controlling operations are called for, means must be provided to read or determine that the levels or flows are within the limits or accuracy specified of the sensing, transmitting, and controlling devices. Where no accuracy is specified, but a knowledge of levels is necessary to set operating points, an indicating device of accuracy consistent with the operation of the system is required.

G. All control and auxiliary relays shall have indicating LEDs. All timing relays shall have On and timing Out LEDs.

1.12 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3-EXECUTION

3.01 WELL 6 CONTROL PANEL

A. Provide PLC programming and control panel hardware modifications and additions as required to incorporate all control algorithms and alarms described herein. This panel shall be used as the termination point for all transmitting and receiving equipment associated with this project. Refer to the Section 26 09 90–I/O Listing for all required I/O that shall interface with this PLC. Spare digital inputs are available.

B. The I/O shown in the I/O list shall be configured as alarms and communicated to the Master Site.

C. Provide updated drawings of the Well 6 Control Panel showing the additional I/O.

3.02 MASTER SITE

A. The inputs communicated to the Master from the Well 6 Control panel shall be configured as alarms at the Master. These alarms shall be added to the existing hardwired alarm dialer and the WIN911 software alarm dialer.

B. The existing SCADA HMI graphics shall be modified to add the inputs shown in the I/O List to the appropriate graphic.

END OF SECTION

STRAND ASSOCIATES, INC.
FOX CHASE TOWER REHABILITATION
CONTRACT NO. 21-6070-005
VILLAGE OF OSWEGO
WELL 6 SCADA SYSTEM I/O LISTING

CONTROL PANEL	EQUIPMENT NAME	NUMBER	DI	DO	AI	AO	WIRE	COMMENTS
	[THIS LINE INTENTIONALLY LEFT BLANK]							
WELL 6	TOWER DOOR OPEN	ZS	1	0	0	0	2~#14	FROM NEW DOOR SWITCH ON TOWER BELL DOOR
WELL 6	CATHODIC PROTECTION SYSTEM FAULT		1	0	0	0	2~#14	FROM CATHODIC PROTECTION RECTIFIER PANEL IN TOWER BELL
	TOTALS		2	0	0	0		

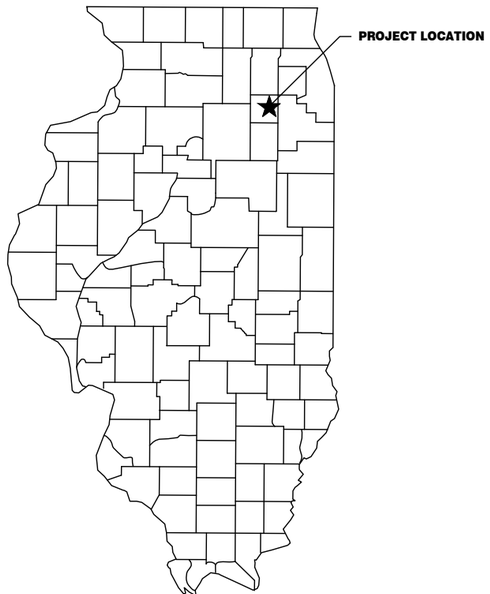
APPENDIX C

PLANS

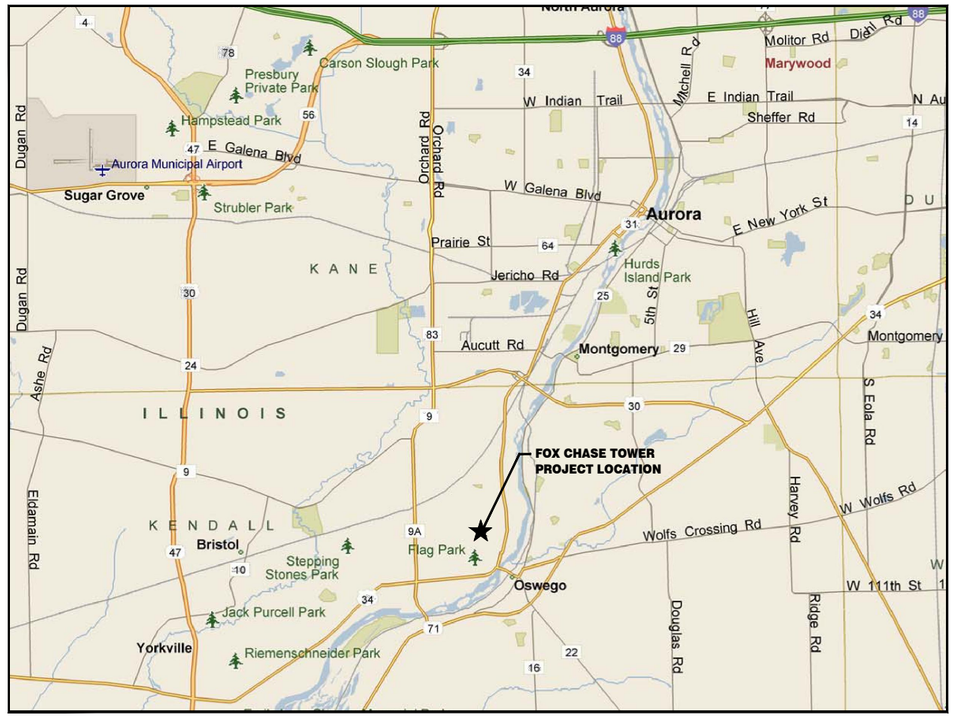
FOX CHASE TOWER REHABILITATION

FOR THE

VILLAGE OF OSWEGO
KENDALL COUNTY, ILLINOIS



AREA MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

INDEX OF DRAWINGS

SHEET TITLE	SHEET NUMBER
TITLE SHEET, PROJECT LOCATION, AND LIST OF DRAWINGS	1
EXISTING SITE PLAN	2
TANK ELEVATION AND LOGO	3

ADDRESS

245 LENNOX DRIVE
OSWEGO, IL 60543

SECTION: 7
TOWNSHIP: 37N
RANGE: 8E

1170 SOUTH HOUBOLT ROAD
JOLIET, IL 60431
815 744-4200
815 744-4215 FAX
WWW.STRAND.COM
IDFPR NO. 184-001273

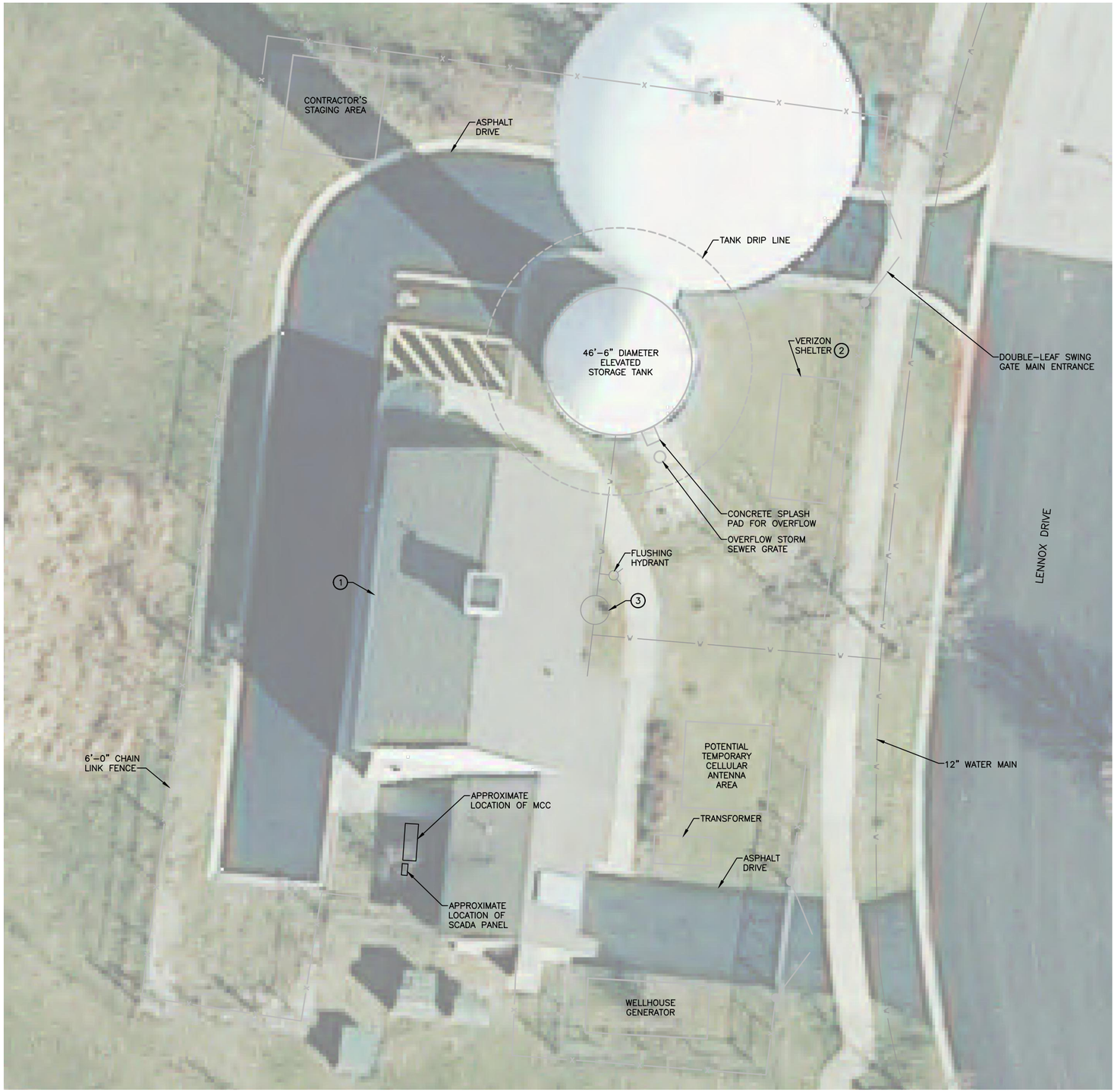
CONTRACT 1-2021

LICENSED PROFESSIONAL ENGINEER
CHRIS J. ULM
062-053675
STATE OF ILLINOIS
11/21/21

STRAND ASSOCIATES®

ISSUED FOR BID 10/21/2021

SHEET
1
00-G0.01



SITE PLAN

0 5' 10' 20'

N

GENERAL NOTES:

1. VERIZON AND AT&T ANTENNAS MOUNTED ON TANK STEM ARE TO BE REMOVED BY CELLULAR COMPANIES PRIOR TO CONSTRUCTION. ANTENNAS TO BE RE-MOUNTED ON TANK BY CELLULAR COMPANIES FOLLOWING CONSTRUCTION.
2. PROTECT ADJACENT STRUCTURES, BUILDINGS, FENCING, AND SURROUNDING PROPERTY. ALL DAMAGE TO BE REPAIRED TO EXISTING CONDITIONS. DAMAGE INCLUDES PAINT DRIPS.
3. CONTRACTOR SHALL MAINTAIN ACCESS TO SITE AND WELLHOUSE FOR OWNER AND CELLULAR COMPANIES.
4. UTILITY LOCATIONS ARE TAKEN FROM PREVIOUS SITE PLANS AND ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY UTILITY LOCATIONS AS NECESSARY PRIOR TO CONSTRUCTION.

KEY NOTES:

(1) TWO-STORY BRICK FILTER BUILDING, TO BE PROTECTED.

(2) VERIZON CELLULAR EQUIPMENT GENERATOR AND SHELTER CONSISTING OF FOUR STEEL PIERS AND A METAL ROOF ON A CONCRETE BASE, TO BE PROTECTED.

(3) VALVE VAULT FOR MANUAL ISOLATION AND OPERATION OF TANK.

LEGEND

- x — EXISTING FENCE AND AREA OF SITE
- E — EXISTING UNDERGROUND ELECTRIC
- W — EXISTING WATER MAIN
- EXISTING FIRE HYDRANT
- EXISTING VAULT

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	10/21/2021

EXISTING SITE PLAN

FOX CHASE TOWER
VILLAGE OF OSWEGO
KENDALL COUNTY, ILLINOIS

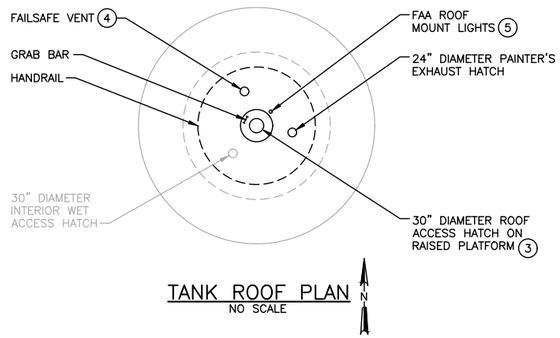
JOB NO.
1667.002

PROJECT MGR.
CORRINA MAUSS

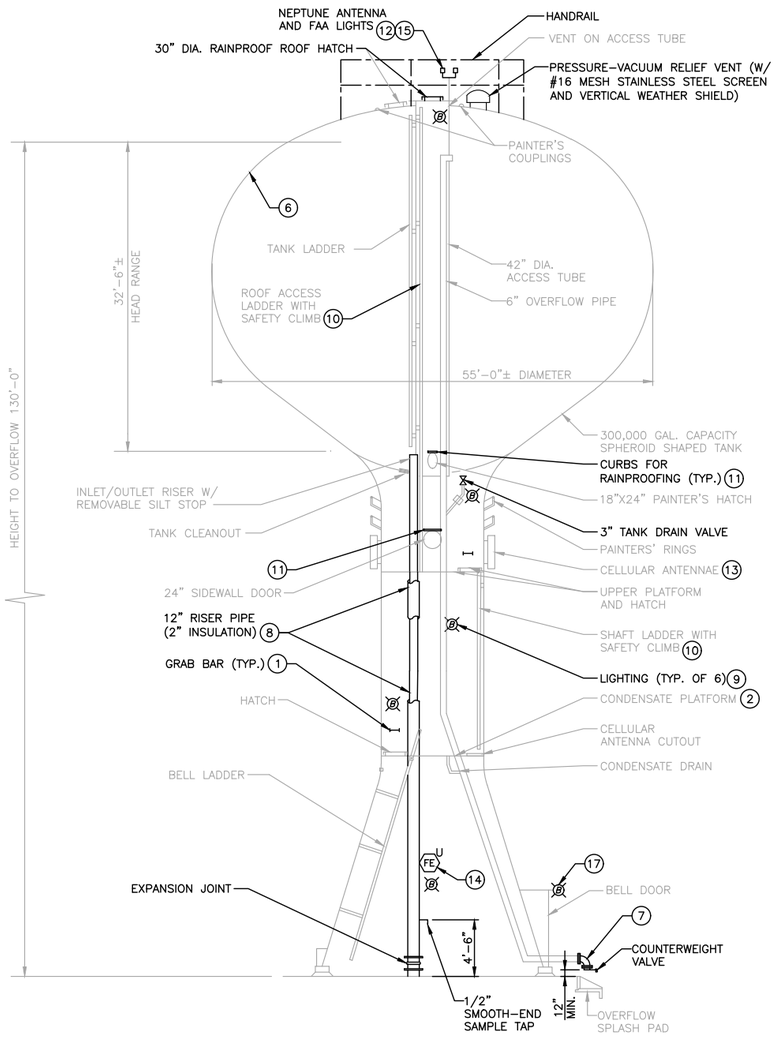
STRAND ASSOCIATES®

SHEET
2
10-C1.01

File: S:\JOL\1600--1699\1667\002\Drawings\CAD\Drawings\05-C1.01.dwg Time: Oct 08, 2021 - 9:08am

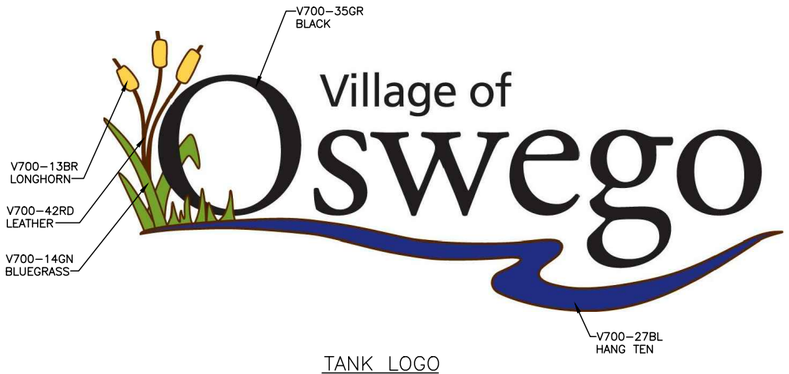


TANK ROOF PLAN
NO SCALE

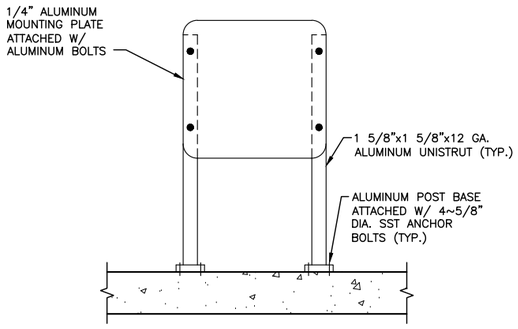


TANK ELEVATION
NO SCALE

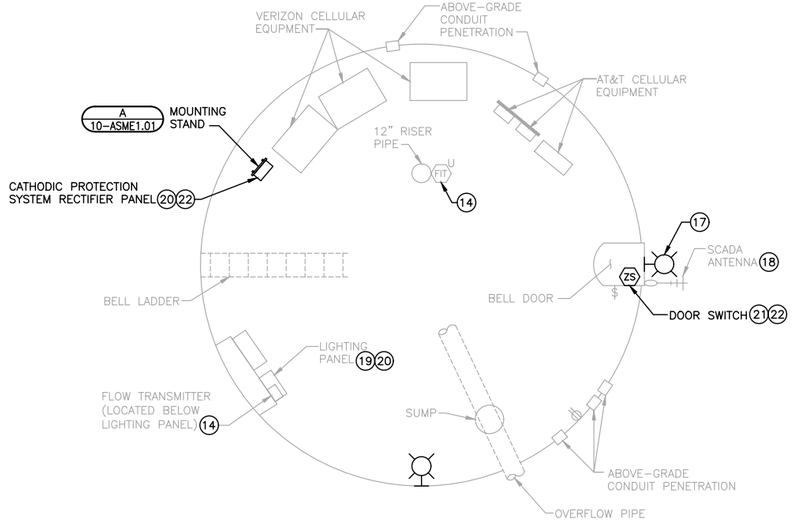
ITEMS ON TANK ROTATED INTO VIEW FOR CLARITY



TANK LOGO
NO SCALE



A / 10-ASME1.01 MOUNTING STAND
NO SCALE



TANK BASE PLAN
NO SCALE

GENERAL NOTES

1. TANK LETTERING WILL BE AVAILABLE TO CONTRACTOR IN .AI FILE FORMAT.
2. LOCATION OF TWO SIDES OF LETTERING SHALL BE SELECTED BY OWNER. PRELIMINARY LOCATION IS ON NORTH AND SOUTH FACES OF TANK.
3. TANK ELEVATION IS DIAGRAMATIC IN NATURE AND IS NOT INTENDED TO BE AT SCALE OR INCLUDE ALL CONNECTIONS AND TANK APPURTENANCES.
4. CONTRACTOR TO NOTIFY ENGINEER OF ANY DAMAGED STEEL REQUIRING MISCELLANEOUS STEEL REPAIR PER THE SPECIFICATIONS.
5. PROTECT ALL EXISTING ELECTRICAL RECEPTACLES AND SWITCHES.

KEY NOTES:

(1) WELD 12" LONG GRAB BARS TO TANK WALL IN LOCATIONS THAT CAN BE EASILY ACCESSED FROM PLATFORM HATCHES WITHOUT BEING IMPEDED BY OPEN PLATFORM HATCH LID.

(2) RE-CAULK CONDENSATE PLATFORM PERIMETER.

(3) REPLACE EXISTING 30" ROOF MANWAY WITH NEW 30" MANWAY. COVER PLATFORM MESH WITH RUBBER STRIP AS SPECIFIED.

(4) REMOVE EXISTING 24" PALLET VENT AND REPLACE WITH WELDED-ON FAILSAFE VENT.

(5) REMOVE FAA LIGHT AND CONDUIT. INSTALL NEW FAA LIGHT SUPPORT STAND AND NEW FAA FIXTURE. FAA FIXTURE SHALL BE RAISED TO HIGHEST POINT OF TANK WITH NO OBSTRUCTIONS. FIXTURE SHALL BE P&R TECHNOLOGIES MODEL 860-1R01-002, OR EQUAL. PROVIDE PHOTOELECTRIC CONTROLLER CONFORMING TO FAA SPECIFICATION L-810 IN FAA CIRCULAR AC70/7460-1K. CONTROLLER SHALL BE CROUSE HINDS TYPE PEC NO. 52010, OR EQUAL.EXTEND CONDUIT AND WIRE TO FAA FIXTURE.

(6) SEAM SEAL ALL INTERIOR WET ROOF PLATES WITH CAULK.

(7) INSTALL NEW DOWNTURNED ELBOW AND COUNTERWEIGHT VALVE TO OVERFLOW OUTLET. ATTACH #24 MESH SCREEN BETWEEN ELBOW AND VALVE FLANGES. SUPPORT AS REQUIRED.

(8) FOLLOWING REMOVAL OF INSULATION AND JACKETING AND ABRASIVE BLASTING OF THE RISER PIPE, ENGINEER AND OWNER SHALL BE CONSULTED TO DETERMINE IF FULL REPLACEMENT OF RISER PIPE IS NECESSARY. IF RISER PIPE IS REPLACED, EXPANSION JOINT SHALL ALSO BE REPLACED. NEW INSULATION AND JACKETING SHALL BE PROVIDED REGARDLESS.

(9) REPLACE ALL FIVE INTERIOR LIGHT FIXTURES WITH 2600 LUMEN MINIMUM LED FIXTURES. FIXTURES SHALL BE VAPOR PROOF, BRACKET TYPE, WITH CAST ALUMINUM GUARD.

(10) RELOCATE ALL CABLE ALONG LADDERS (APPROXIMATELY 4) TO CREATE 4" CLEARANCE ALONG LADDER SIDE RAIL. CABLE SHALL BE SUPPORTED FROM TANK WALL WITH NEW WELDED CABLE SUPPORTS.

(11) WELD STEEL CURBS ABOVE SIDEWALL DOOR AND PAINTER'S HATCH TO PREVENT RAINWATER FROM ENTERING TANK SHAFT.

(12) OWNER'S NEPTUNE METER READING ANTENNA AND ASSOCIATED CABLE AND CABLE ATTACHMENTS SHALL REMAIN ON TANK AND BE PROTECTED DURING PAINTING.

(13) AT&T AND VERIZON ANTENNAE AND ASSOCIATED ANTENNA CABLES SHALL BE REMOVED BY CELLULAR COMPANIES FROM TANK PRIOR TO CONSTRUCTION. ANTENNAE WILL BE REINSTALLED ON TANK FOLLOWING CONSTRUCTION BY CELLULAR COMPANIES.

(14) EXISTING ULTRASONIC FLOW METER FLOW ELEMENT SHALL BE REMOVED AND REINSTALLED FOLLOWING RISER PIPE REPLACEMENT, IF NECESSARY. CABLES SHALL BE PULLED BACK TO TRANSMITTER, COILED, AND PROTECTED DURING PAINTING. REINSTALLATION SHALL BE IN CONDUIT WITH APPROPRIATE SUPPORT AND CABLE GLAND CONDUIT FITTING AT RISER PIPE. SUPPORT CONDUIT FROM THREADED ROD ATTACHED TO UNDERSIDE OF CONDENSATE PLATFORM.

(15) CONTRACTOR SHALL REMOVE AND TURN OVER TO THE OWNER ALL ELECTRICAL CABLES AND BOXES THAT ARE UNUSED.

(16) LOGO SHALL BE EQUAL TO EXISTING ON BOTH SIDES OF THE TANK BALL. COLORS NOTED ARE TNEMEC.

(17) REPLACE EXTERIOR FIXTURE WITH 2600 LUMEN MINIMUM LED FIXTURE. FIXTURE SHALL BE DARK SKY COMPLIANT. PROVIDE INTEGRATED PHOTOCELL WITH FIXTURE.

(18) PROTECT SCADA ANTENNA AND CABLE.

(19) PROVIDE 20A/1 POLE BREAKER IN EXISTING LIGHTING PANEL. EXISTING PANEL IS A SQUARE D, QO PANELBOARD. NEW BREAKER SHALL MATCH EXISTING. PROVIDE SQUARE D QO1816M125FTRB COVER FOR LIGHTING PANEL INTERIOR AND MOUNT INSIDE PANEL TO COVER INTERIOR.

(20) PROVIDE 2~#12 AND #12 GROUND IN 3/4" CONDUIT FROM NEW 20A/1 POLE BREAKER IN LP TO CATHODIC PROTECTION PANEL. PROVIDE FLOOR-MOUNTED CONDUIT SUPPORTS SIMILAR TO THE UNISTRUT L-B RACHETS USED FOR THE CELLULAR CONDUITS.

(21) PROVIDE SQUARE D, CLASS 9007, TYPE C, OR EQUAL LIMIT SWITCH. HEAD AND BODY STYLE SHALL BE SELECTED TO FIT THE APPLICATION.

(22) PROVIDE 2~#14 IN 3/4" CONDUIT FROM DEVICE/CONTROL PANEL TO SCADA PANEL IN FILTER BUILDING. CONDUCTORS SHALL BE INSTALLED IN EXISTING UNDERGROUND CONDUIT FROM THE TANK BELL TO THE FILTER BUILDING MCC.

LEGEND:

- (ZS) DOOR SWITCH
- (FE) U ULTRASONIC FLOW ELEMENT
- SURFACE MOUNTED LIGHT FIXTURE
- ANTENNA

NO.	REVISIONS	DATE:
-	ISSUED FOR BID	10/21/2021

TANK ELEVATION AND LOGO

FOX CHASE TOWER
VILLAGE OF OSWEGO
KENDALL COUNTY, ILLINOIS

JOB NO. 1667.002
PROJECT MGR. CORRINA MAUSS

STRAND ASSOCIATES®

SHEET 3
10-ASME1.01

APPENDIX D

ORIGINAL CONSTRUCTION DRAWINGS

HORTON WATERSPHEROID®

T20716	1992
CONTRACT NO.	YEAR
300,000	97.5000
CAPACITY, GAL	HEIGHT TO BOTTOM, FT

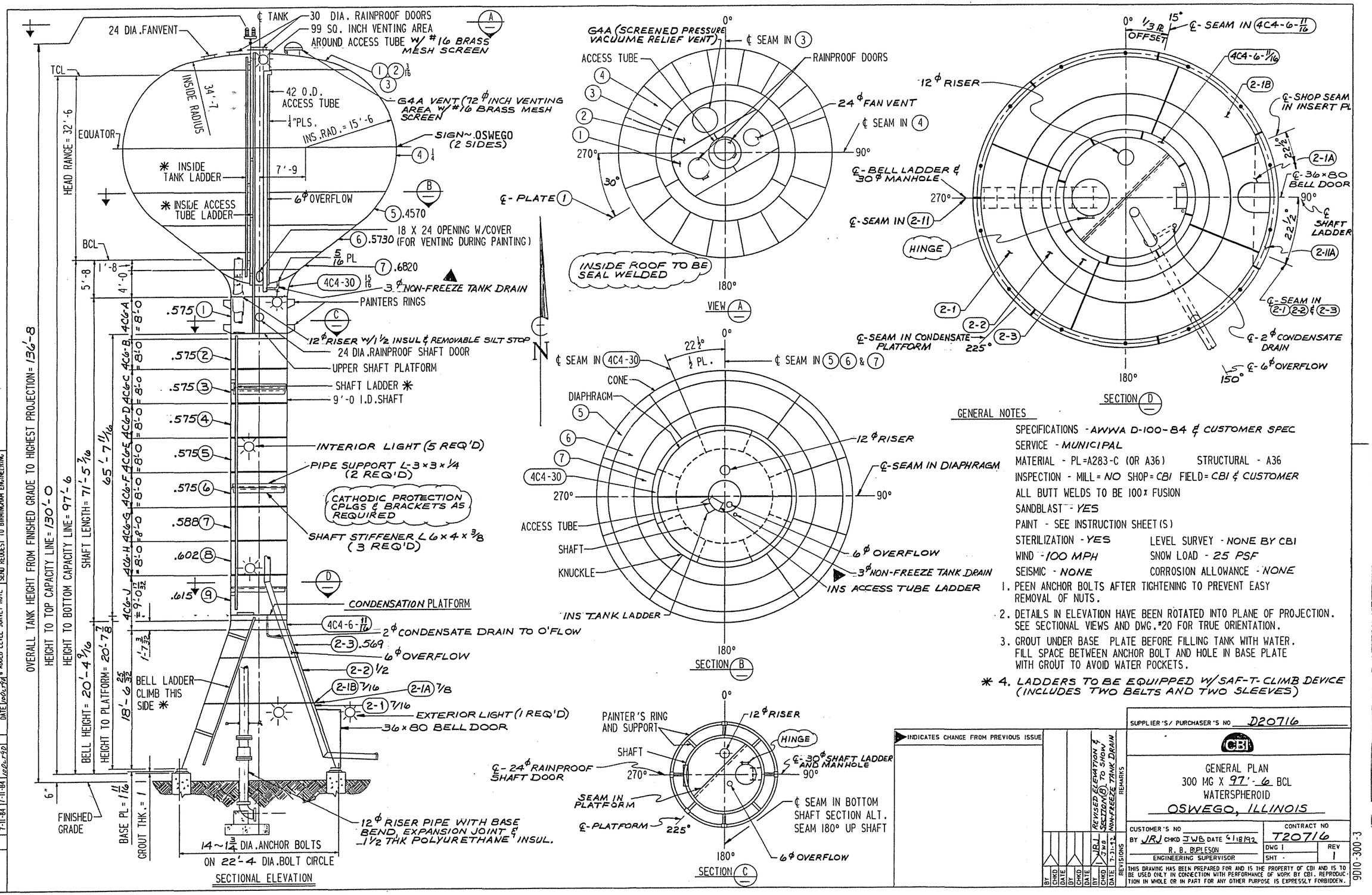
CBI Na-Con, Inc.
Oak Brook, Illinois
5145

Aug 85

CBI INSTRUCTIONS

DE 9 REV 4-73

ENG ASSIGNED	MADE BY	CHKD BY	REVISION							CONTRACT NO.
B' HAM (RBB)	KWD	JWB	BY							T20716
FABRICATED AT	DATE	DATE	CHKD							SHEET
CCM / D20716	6-18-92	6/19/92	DATE							NP
			LINE							
			PURCH ACTION							
			DATE							



GENERAL NOTES

SPECIFICATIONS - AWWA D-100-84 & CUSTOMER SPEC
SERVICE - MUNICIPAL
MATERIAL - PL=A283-C (OR A36) STRUCTURAL - A36
INSPECTION - MILL= NO SHOP= CBI FIELD= CBI & CUSTOMER
ALL BUTT WELDS TO BE 100% FUSION
SANDBLAST - YES
PAINT - SEE INSTRUCTION SHEET(S)
STERILIZATION - YES LEVEL SURVEY - NONE BY CBI
WIND - 100 MPH SNOW LOAD - 25 PSF
SEISMIC - NONE CORROSION ALLOWANCE - NONE

1. PEEN ANCHOR BOLTS AFTER TIGHTENING TO PREVENT EASY REMOVAL OF NUTS.
2. DETAILS IN ELEVATION HAVE BEEN ROTATED INTO PLANE OF PROJECTION. SEE SECTIONAL VIEWS AND DWG.#20 FOR TRUE ORIENTATION.
3. GROUT UNDER BASE PLATE BEFORE FILLING TANK WITH WATER. FILL SPACE BETWEEN ANCHOR BOLT AND HOLE IN BASE PLATE WITH GROUT TO AVOID WATER POCKETS.

* 4. LADDERS TO BE EQUIPPED W/SAF-T-CLIMB DEVICE (INCLUDES TWO BELTS AND TWO SLEEVES)

INDICATES CHANGE FROM PREVIOUS ISSUE

BY	CHKD	DATE	REMARKS
JRJ	JWB	7-31-92	REVISED ELEVATION & SECTION(B) TO SHOW NON-FREEZE TANK DRAIN

SUPPLIER'S/ PURCHASER'S NO D20716

CBI

GENERAL PLAN
300 MG X 97'-6 BCL
WATERSPHEROID
OSWEGO, ILLINOIS

CUSTOMER'S NO
CONTRACT NO T20716
BY JRJ CHKD JWB DATE 6/18/92
R. B. BUPLESON
ENGINEERING SUPERVISOR
DWG 1 REV 1
SHT -

THIS DRAWING HAS BEEN PREPARED FOR AND IS THE PROPERTY OF CBI AND IS TO BE USED ONLY IN CONNECTION WITH PERFORMANCE OF WORK BY CBI. REPRODUCTION IN WHOLE OR IN PART FOR ANY OTHER PURPOSE IS EXPRESSLY FORBIDDEN.

STD FORM NO.	REV	MADE BY	CHKD BY	APPVD BY
9D10-300	3	DATE 7-11-84	DATE 7-11-84	DATE 12-20-90

REV	BY	CHKD	DATE
3	JRJ	JWB	7-31-92

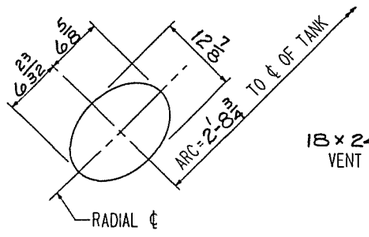
DY	KWD
CHKD	CAH
DATE	12-20-90

REMARKS - REV. SECTION B ACCESS TUBE & SHAFT DOOR ADDED LEVEL SURVEY NOTE

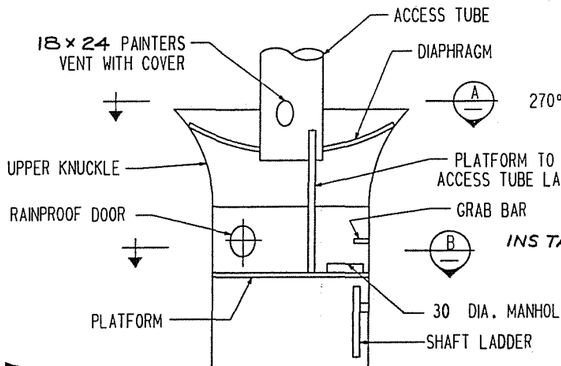
THIS STANDARD CONTROLLED BY BIRMINGHAM ENGINEERING. FOR RECOMMENDING CHANGES SEND REQUEST TO BIRMINGHAM ENGINEERING

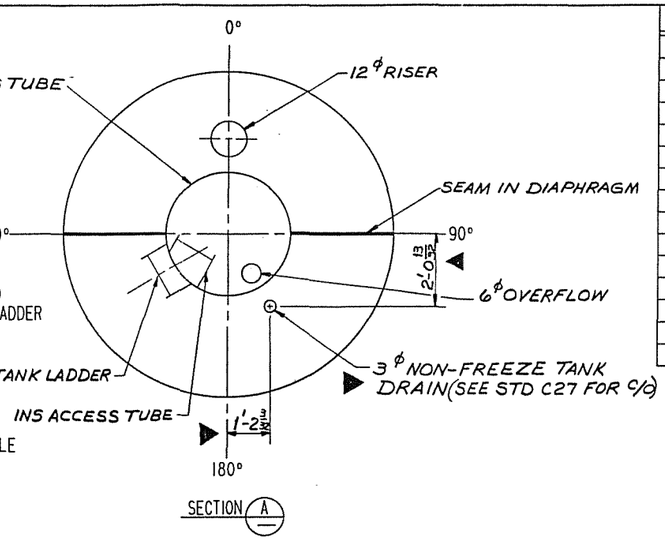
9D10-300-3

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
2	1H119		PL-11 DIA X 3/16			A283C		5-3	397	11	
2	20-1		L 3×3×1/4 W/HOLES	8	7	A36		5-3	373	84	
2	1A7-6		U-BOLT 5/8 DIA	1	9 1/2	A36		0-0	300	4	
			(TBE 2 1/2)								
		4	NUTS FIN HEX 5/8 DIA			A563A		0-0	300		
3	1A13-12		PL-2 X 10 GA	3	10 7/16	HRS		5-3	300	10	
			W/HOLES BENT								
6			BOLTS FIN HEX 1/2 DIA	0	3	A307B		0-0	300		
		6	NUTS FIN HEX 1/2 DIA			A563A		0-0	300		
		6	WASHERS 1/2 DIA			CS		0-0	300		
3	1A13-35		WOOD SPACER 2 X 4	1	10			0-0	300	8	
1	20-2		L 3×3×1/4 W/HOLES	2	3	A36		5-3	373	11	

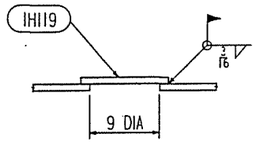


DIAPHRAGM CUTOUT FOR PIPE

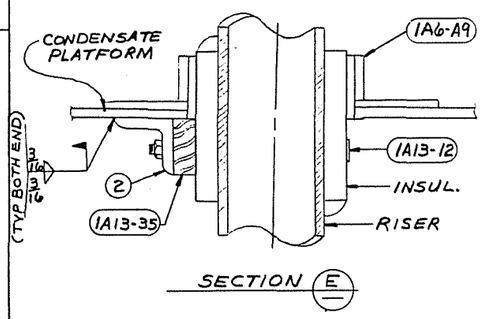




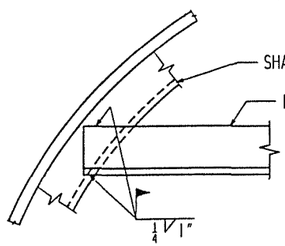
SECTION (A)



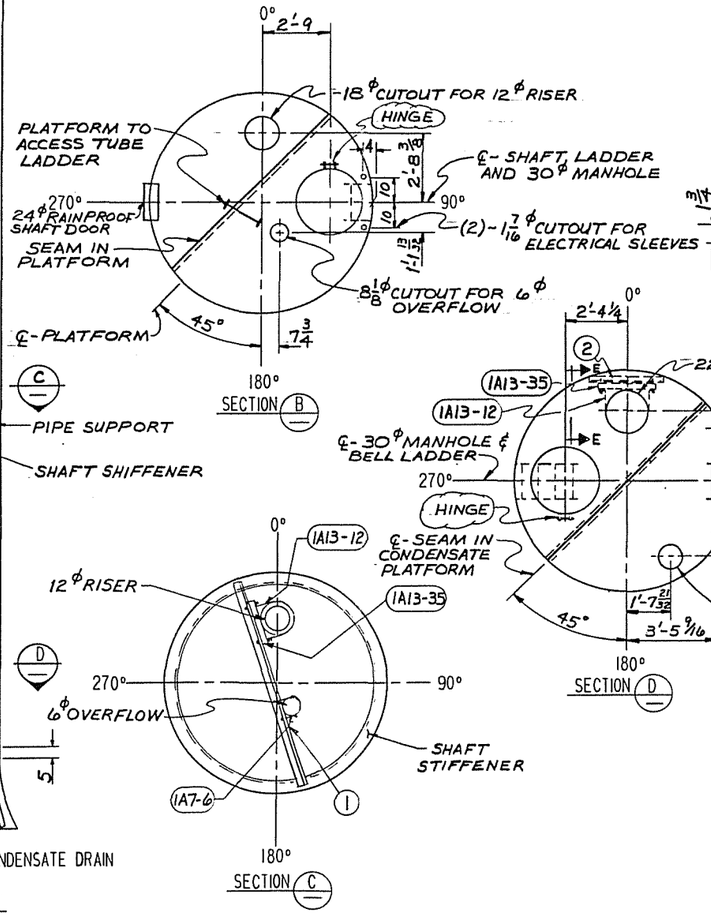
FIELD LOCATE AND BURN CUTOUT FOR DERRICK CABLES WHERE NEEDED IN PLATFORMS



SECTION (E)



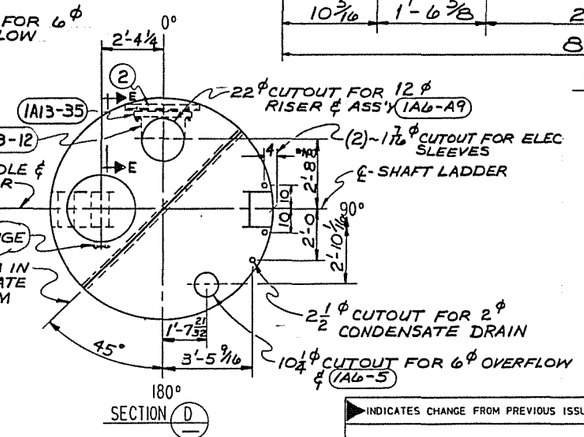
TYPICAL WELDING OF PIPE SUPPORT TO STIFFENER



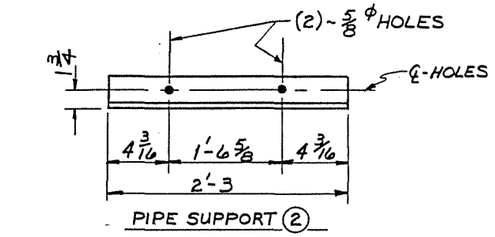
SECTION (B)

SECTION THRU SHAFT

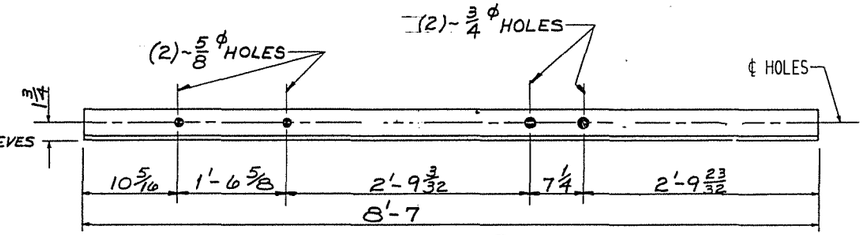
SECTION (C)



SECTION (D)



PIPE SUPPORT (2)



PIPE SUPPORT (1)

GENERAL NOTES

1. ALL CUTOUTS IN SHAFT PLATFORMS AND DIAPHRAGM ARE TO BE MADE IN THE SHOP UNLESS NOTED OTHERWISE.
2. SEE GENERAL PLAN FOR LOCATION OF PIPE SUPPORT BRACKETS IN SHAFT.
3. MAXIMUM SPACING OF PIPE SUPPORT BRACKETS IN SHAFT TO BE 32'-0.
4. SEE GENERAL PLAN FOR NUMBER OF STIFFENERS AND SHAFT STD. FOR LOCATION.

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

BY	CHKD	DATE	REVISIONS	REMARKS
			JRJ / JWB / 7-31-92	REVISED SECTION (A) TO SHOW 3 ϕ NON-FREEZE TANK DRAIN

SUPPLIER'S/ PURCHASER'S NO D20716

CBI

ORIENTATION OF ACCESSORIES IN SHAFT

CUSTOMER'S NO

BY JRJ CHKD JWB DATE 6/18/92

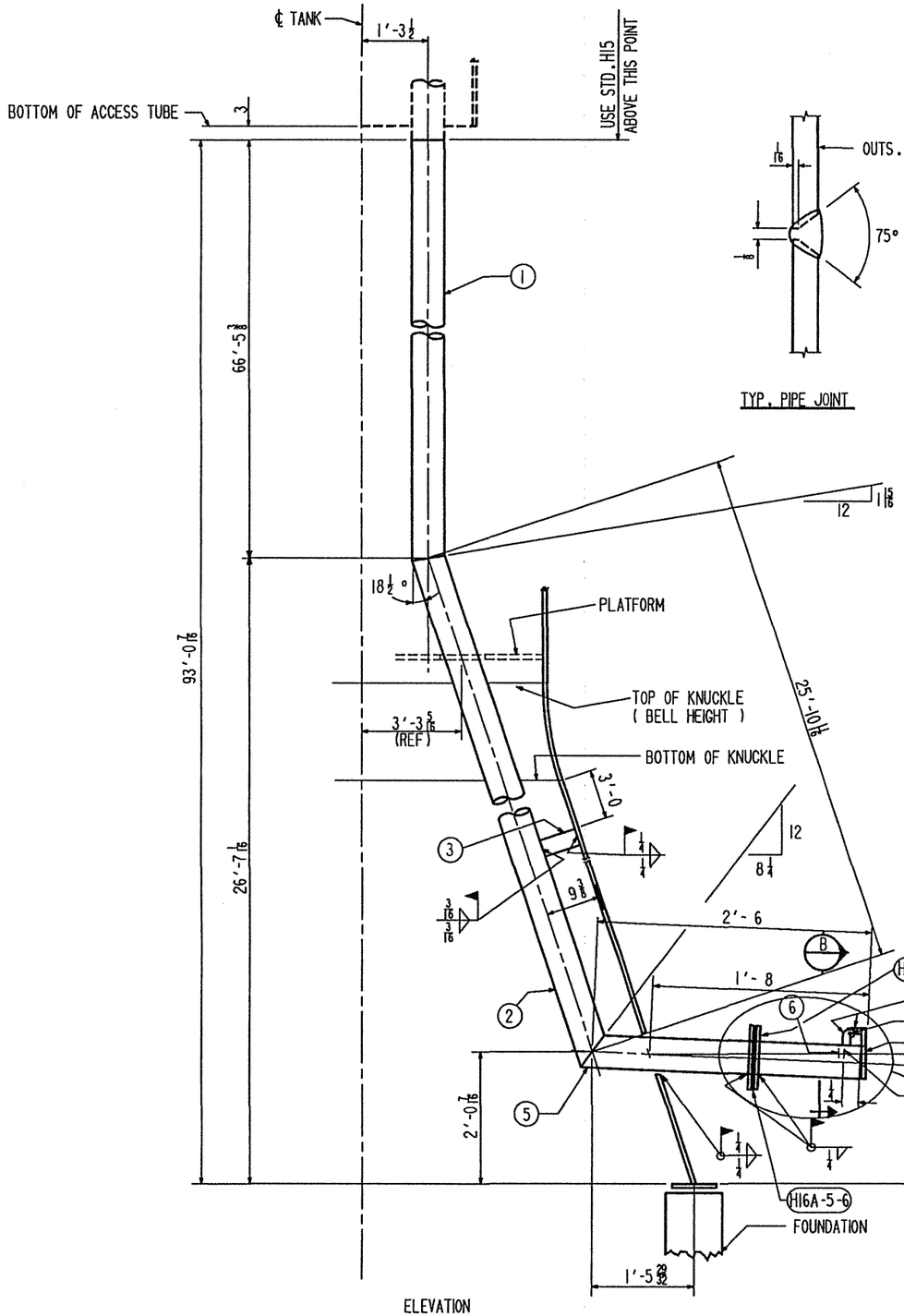
R.B.BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO T20716

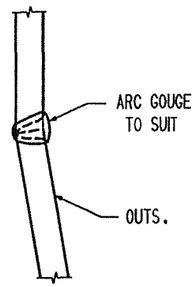
DWG 20 REV 1

SHT

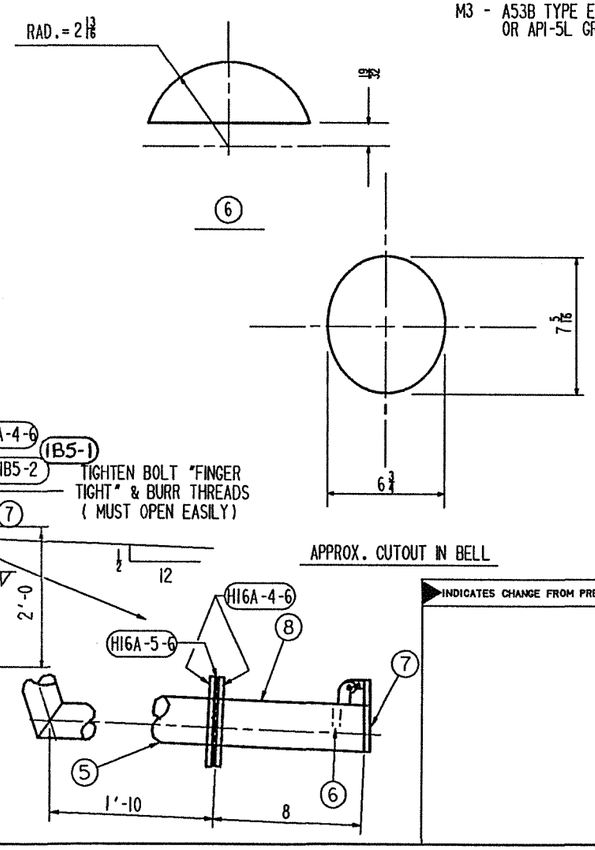
CAD FILE: 904A-2

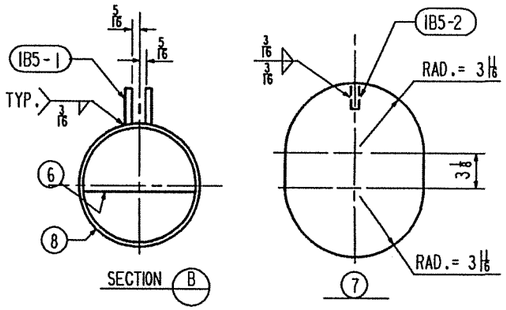


TYP. PIPE JOINT



TYP. MITERED PIPE JOINT





SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
1	21-1		PIPE 6 X SCH 40 (SK)	66	6 15/32	M3	IB	3-1	374	1261	
1	21-2		PIPE 6 X SCH 40 (SK)	26	2 5/32	M3	IB	3-1	374	492	
1	21-3		BAR 3 X 1/4	0	6 1/16	M2		5-3	374	1	
1	21-A		FLAP ASSY								
	21-5	1	PIPE 6 X SCH 80 (SK)	2	0 7/16	M3	IB	3-1	374	72	
	21-6	1	PL SK X 1/4			M1		5-3	374	1	
			(C/F PL 2 19/32 X 1/4 X 6)								
	21-7	1	PL SK X 3/16			M1		5-3	374	5	
			(C/F PL 8 X 1-0)								
	IB5-1	2	PL SK X 3/8 (C/F 2 3/4 X 0'-3 15/16)			M1		5-3	374	1	
	IB5-2	1	PL SK X 3/8			M1		5-3	374	2	
			(C/F PL 2 3/4 X 0-2 7/8)								
		1	BOLT 5/8 DIA HVY HEX	0	2 1/2	M4		0-0	374		
		1	NUT HVY HEX 5/8 DIA			M5		0-0	374		
	HI6A-4-6	2	PL 11 DIA X 1/4 X 6 3/4			M1		5-3	374	8	
			W/4 9/16 HOLES ON 9½								
	HI6A-5-6	1	#4 MESH SCREEN 9 DIA			M6		0-0	374		
			DIA .047								
		4	BOLT 1/2 DIA HEX	0	1 1/2	M4		0-0	374		
		4	NUT 1/2 DIA HEX			M5		0-0	374		
	21-8	1	PIPE 6 X SCH 40 (SK)	0	8	M3		5-3	374	13	

MATERIAL SPECS.

M3 - A53B TYPE E (ELECTRIC-RESISTANCE WELDED) OR TYPE S (SEAMLESS), OR API-5L GRADE B (ELECTRIC WELDED OR SEAMLESS).

GENERAL NOTES

1. SEE PIPING & PLATFORM DWG. #20 FOR ORIENTATION & PIPE SUPPORT DETAILS.
2. WORK THIS DWG. WITH STD. HI5

INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS — BY / CHKD / DATE / REMARKS

SUPPLIER'S/ PURCHASER'S NO D20716

CBI

6" DIA. OVERFLOW TO GROUND
FOR 300 M.G. WATERSPHEROID
97'-6 TO BCL
WITH ORIFICE AND FLAP VALVE

CUSTOMER'S NO

BY JRJ CHKD JWB DATE 6/18/92

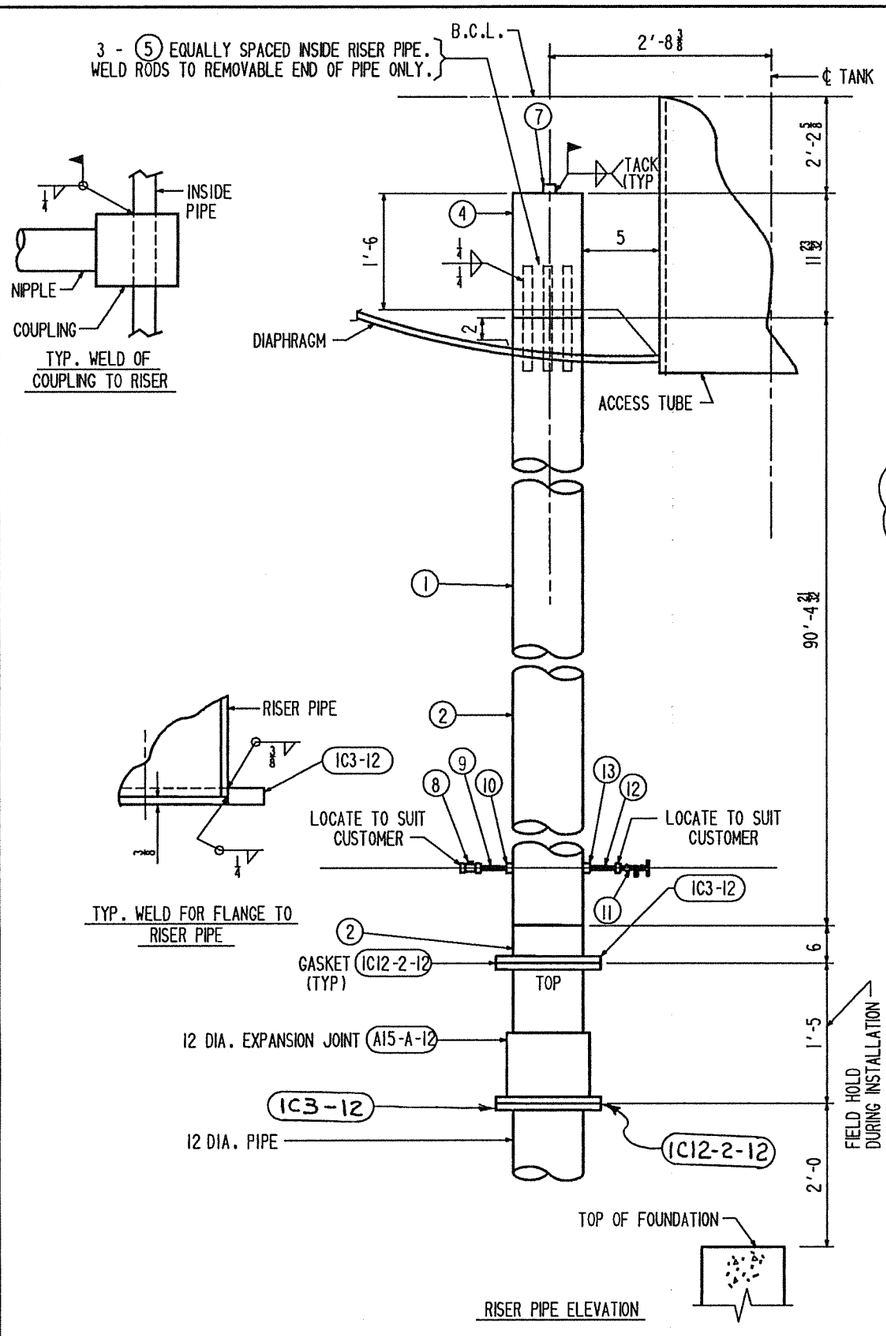
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO T20716

DWG 21 REV 0

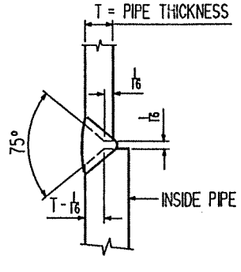
SHT -

CAD PROGRAM: COTION - OVERFLOW TO GROUND
DATE OF VERSION: 5/19/86
CAD FILE: T2071621

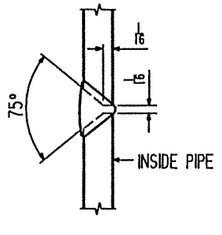


FIELD NOTE:
SET CONDENSATE RING ASS'Y (1A6-A9) OVER CUTOUT IN CONDENSATE PLATFORM BEFORE INSTALLING RISER PIPE

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
			DWG. 22								
1	22-1		PIPE 12 X .250	90	4 21/32	M3	IB	3-1	374	3017	
			POE BOE BEVEL INTR JTS	FOR	WELDING						
1	22-A		PIPE SECTION								
	22-2	1	PIPE 12 X .250	0	5 5/8	M3	IB	3-1	374	16	
			P.O.E. B.O.E.								
	IC3-12	1	FLG FLAT FACE 12 DIA			M8	IB	5-3	374	51	
			150# (C/F PL 19 1/2 X 1 3/8								
			X 1'-7 1/2)								
1	22-B		SILT STOP ASSY								
	22-4	1	PIPE 12 X .250	0	11 23/32	M3	IB	3-1	374	33	
			P.B.E.								
	22-5	3	BAR SQUARE 1/2	0	8	A36		5-4	374	5	
1	A15-A		EXPANSION JT. 12 DIA				IB	5-3	374	199	
2	IC12-2-		GASKET FULL FACE			M9		0-0	300	2	
	12		(19 O.D. X 1/8 X 12 3/4 I.D.)								
			WITH 12 - 1 DIA HOLES								
			ON 17 B.C.								
24	22-6		BOLT FIN HEX 7/8 DIA	0	4	A307B	IB	0-0	300	28	
		24	NUT HEX 7/8 DIA			A563A	IB	0-0	300		
1	22-7		BAR FLAT 1 X 1/2	1	0 3/4	A36		3-1	374	2	
1	22-8		CORPORATION VALVE			BRONZ		0-0	374	1	
			3/4 DIA (CRANE NO. 252	OR	EQUAL)						
1	22-9		NIPPLE 3/4 DIA. PIPE	0	3	M.I.	IB	0-0	374		
1	22-10		CPLG SCREWED 3000#			F.S.	IB	0-0	374		
			3/4 DIA.								
1	22-11		HOSE BIBB			BRONZ		0-0	374	1	
			3/4 DIA [CRANE NO. 117	OR	EQUAL]						
1	22-12		NIPPLE 3/4 DIA. PIPE	0	3	M.I.	IB	0-0	374		
1	22-13		CPLG SCREWED 3000#			F.S.	IB	0-0	374		
			3/4 DIA.								



TYP. WELD JOINT FOR PIPE OF DIFFERENT THICKNESS



TYP. WELD JOINT FOR PIPE OF SAME THICKNESS

MATERIAL SPECS: M3= A53B TYPE E (ELECTRIC-RESISTANCE WELDED) OR TYPE S (SEAMLESS) OR API-5L GRADE B (ELECTRIC WELDED OR SEAMLESS).
M8= A516 FOR MANUFACTURED FLANGE; A105 FOR PURCHASED FLANGE.
M9= RED RUBBER HH-P-0015ID, CLASS 1 AND CLASS 3.

NOTES: 1. SEE PIPING AND PLATFORM DWG. 20 FOR ORIENTATION OF RISER AND DETAIL OF PIPE SUPPORT BRACKET.

INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS | BY | CHKD | DATE | REMARKS

SUPPLIER'S/ PURCHASER'S NO D20716

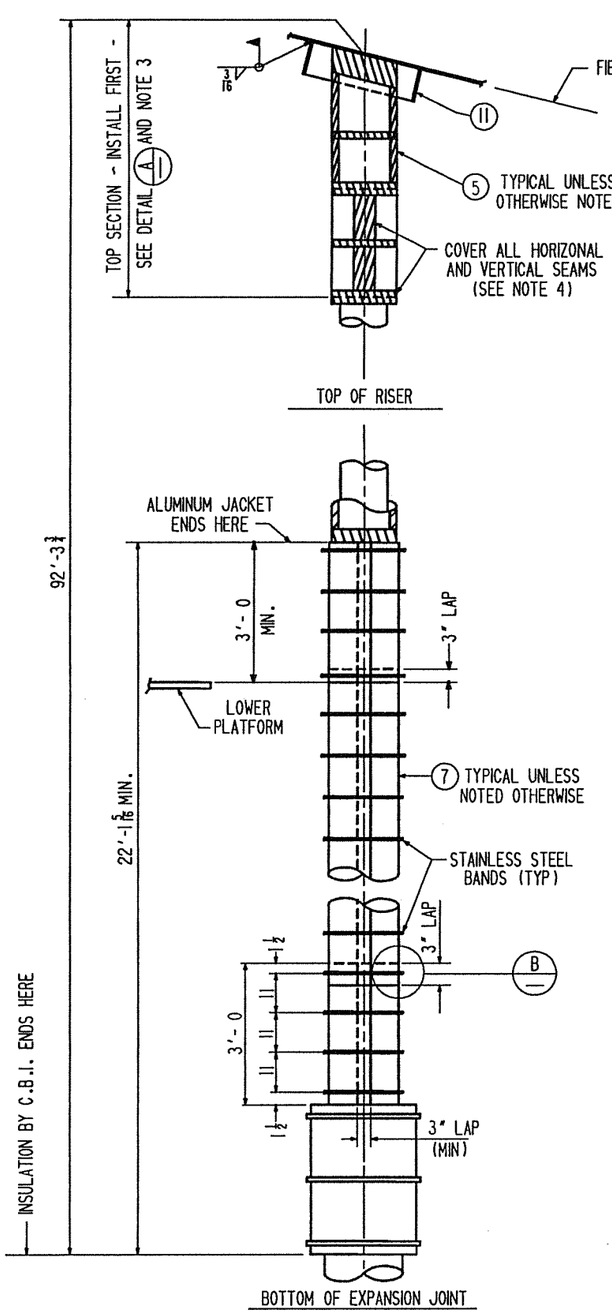
CBI

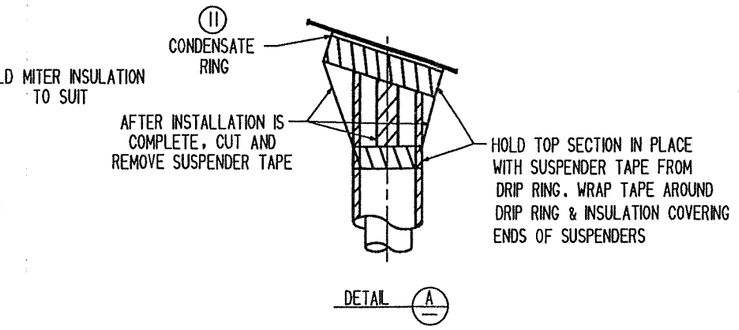
12" DIAMETER RISER PIPE
FOR 300 M.G. WATERSPHEROID
OSWEGO, ILLINOIS

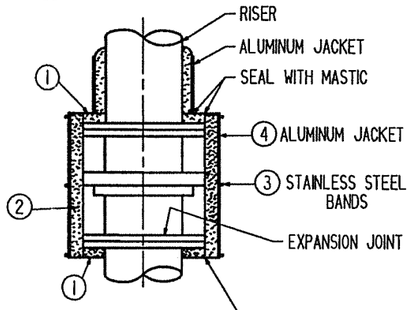
CUSTOMER'S NO
BY JRJ CHKD JWB DATE 6-18-92
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO T20716
DWG 22 REV 0
SHT -

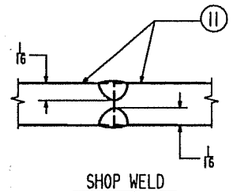
CAD PROGRAM: C0109A - RISER
DATE OF VERSION: 9/25/86
CAD FILE: T2071622

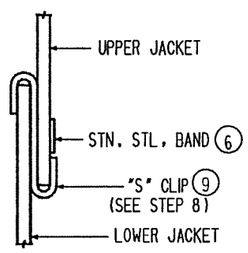


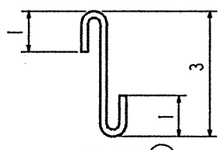




EXPANSION JOINT INSULATION DETAIL







- IMPORTANT -

TAPE SHOULD NOT BE APPLIED AT TEMPERATURE BELOW 15° F. KEEP TAPE WARM DURING APPLICATION.

INSTALLATION INSTRUCTIONS

1. TEST ALL JOINTS FOR LEAKS BEFORE APPLYING INSULATION.
2. OFFSET CONDENSATE RING TO CLEAR INSULATION AND ACCESS TUBE.
3. INSTALL TOP SECTION OR SECTIONS FIRST. MITER CAREFULLY WITH HACKSAW TO FIT TANK BOTTOM OR PIPE BEND. SEAL VERTICAL JOINTS WITH TAPE. SEAL GIRTH JOINTS AND TOP END WITH ONE AND A HALF TURNS OF TAPE AS SHOWN. SMOOTH TAPE DOWN FIRMLY. PUSH TOP SECTION FIRMLY AGAINST TANK BOTTOM AND SUSPEND FROM DRIP RING WITH TAPE AS SHOWN ON DETAIL "A"
4. AT BOTTOM OF THE RISER, PLACE 3 OR 4 SECTIONS OF INSULATION AROUND RISER PIPE ON TOP OF EXPANSION JOINT. STAGGER VERTICAL SEAMS 90°. SEAL VERTICAL JOINTS WITH TAPE. SEAL GIRTH JOINTS WITH ONE AND A HALF TURNS OF TAPE AS SHOWN. LOCATE ONE AND A HALF TURNS OF TAPE MIDWAY BETWEEN GIRTH JOINTS ON ALL STANDARD SECTIONS.
5. SLIDE FIRST SECTIONS UP AND PLACE ADDITIONAL SECTIONS UNDER THEM REPEATING STEP 4. (IF WEIGHT OF INSULATION IS TOO GREAT TO INSTALL IN THIS MANNER, INSUL. CAN BE STACKED TO FACILITATE INSTALLATION)
6. CONTINUE THE PROCESS TO COMPLETION. LAST SECTION IS MADE-UP AND MUST BE CUT TO LENGTH.
7. TAPE GIRTH JOINT AT TOP SECTION. AND CUT TAPES HOLDING TOP SECTION IN PLACE FROM DRIP RING.
8. INSTALL ALUMINUM JACKET WITH BANDS AND SEALS, USE 3 "S" CLIPS PER SEAM. "S" CLIPS ARE TO BE MADE FROM BANDING.
9. INSTALL PIPE SUPPORTS AS REQUIRED. (SEE DRAWING 20)

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
2	23-1		INSULATION					0-0	300	1	
			PAIRS OF 180 DEGREE SECTIONS								
			1'-8 1/4 O.D. X 1'-1 I.D.								
			X 1 1/2 THICK								
			(EXPANDED POLYURETHANE)								
1	23-2		INSULATION	1	10 1/2			0-0	300	3	
			PAIRS OF 180 DEGREE SECTIONS								
			X 1 1/2 THICK								
			FOR PIPE 20 DIA								
			(EXPANDED POLYURETHANE)								
3	23-3		BANDING #10 STAINL STL	7	2	SS		0-0	300	1	
			1/2" WIDE X 20 GAUGE								
			WITH SEALS AS MANUFACTURED								
			BY CHILDERS OR EQUAL								
1	23-4		ALUMINUM CORRUGATED	1	10 1/2	ALUM		0-0	300	3	
			77" HORIZONTAL X .020 THICK								
32	23-5		INSULATION	3	0			0-0	300	91	
			PAIRS OF 180 DEGREE SECTIONS								
			X 1 1/2 THICK								
			FOR PIPE 12 DIA								
			(EXPANDED POLYURETHANE)								
31	23-6		BANDING #10 STAINL STL	5	3	SS		0-0	300	10	
			1/2" WIDE X 20 GAUGE								
			WITH SEALS AS MANUFACTURED								
			BY CHILDERS OR EQUAL								
9	23-7		ALUMINUM CORRUGATED	3	0	ALUM		0-0	300	33	
			54" HORIZONTAL X .020 THICK								
4	23-8		TAPE - 180 FOOT ROLLS					0-0	300	12	
			MANUFACTURED BY TECHNICAL TAPE CO.								
			90T-3 (COMMONLY CALLED TUCK TAPE)								
			3" WIDE ROLL								
27	23-9		BANDING #10 STAINL STL	0	5	SS		0-0	300	1	
			1/2" WIDE X 20 GAUGE								
			FOR "S" CLIPS								
1	23-10		MASTIC (PINT)					0-0	300		
1	23-11		BAR 3 X 1/4	6	4 31/32	A36		5-3	300	12	
			ROLL RAD = 1'-0								
			ALL INSULATION SECTIONS SHALL BE								
			FURNISHED WITH FACTORY APPLIED FIRE								
			RETARDANT, LAMINATED KRAFT PAPER/								
			ALUMINUM FOIL VAPOR BARRIER								

INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS	BY	CHKD	DATE	REMARKS

SUPPLIER'S/ PURCHASER'S NO D20716

CBI

I 1/2" THK POLYURETHANE INSULATION
FOR 12" RISER PIPE
OSWEGO, ILLINOIS

CUSTOMER'S NO

BY JRJ CHKD JWB DATE 6-18-92

R.B. BURLESON
ENGINEERING SUPERVISOR

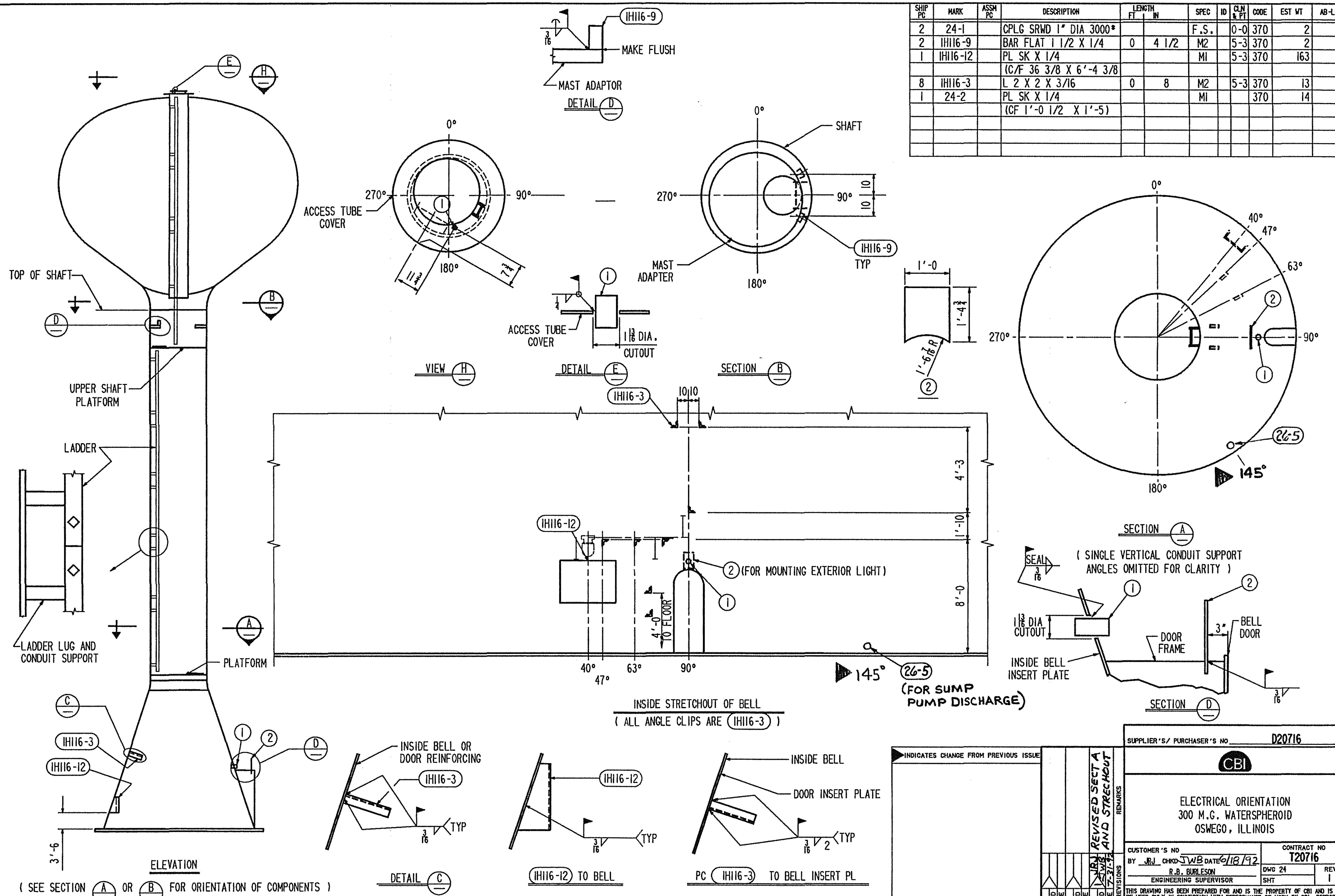
CONTRACT NO T20716

DWG 23 REV 0

SHT -

CAD PROGRAM: C0112A - INSULATION
DATE OF VERSION: 5/22/86
CAD FILE: T2071623

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
2	24-1		CPLG SRWD 1" DIA 3000*			F.S.		0-0	370	2	
2	1H116-9		BAR FLAT 1 1/2 X 1/4	0	4 1/2	M2		5-3	370	2	
1	1H116-12		PL SK X 1/4			M1		5-3	370	163	
			(C/F 36 3/8 X 6'-4 3/8								
8	1H116-3		L 2 X 2 X 3/16	0	8	M2		5-3	370	13	
1	24-2		PL SK X 1/4			M1			370	14	
			(CF 1'-0 1/2 X 1'-5)								



1H116-9
MAKE FLUSH
MAST ADAPTOR
DETAIL D
0°
270°
90°
180°
ACCESS TUBE COVER
VIEW H
ACCESS TUBE COVER
1 13/16 DIA. CUTOUT
DETAIL E
SHAFT
MAST ADAPTER
1H116-9 TYP
SECTION B
1'-0
1'-4 3/4
1'-6 7/16 R
TOP OF SHAFT
UPPER SHAFT PLATFORM
LADDER
LADDER LUG AND CONDUIT SUPPORT
PLATFORM
1H116-3
1H116-12
3'-6
ELEVATION
(SEE SECTION A OR B FOR ORIENTATION OF COMPONENTS)
10 10
4'-3
1'-10
8'-0
(FOR MOUNTING EXTERIOR LIGHT)
4'-0 TO FLOOR
40°
47°
63°
90°
145°
26-5
(FOR SUMP PUMP DISCHARGE)
INSIDE STRETCHOUT OF BELL
(ALL ANGLE CLIPS ARE 1H116-3)
SECTION A
(SINGLE VERTICAL CONDUIT SUPPORT ANGLES OMITTED FOR CLARITY)
SEAL
1 13/16 DIA CUTOUT
INSIDE BELL INSERT PLATE
DOOR FRAME
BELL DOOR
3"
SECTION D
INSIDE BELL OR DOOR REINFORCING
TYP
DETAIL C
1H116-12 TO BELL
INSIDE BELL
DOOR INSERT PLATE
PC 1H116-3 TO BELL INSERT PL

INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS: REVISED SECT A AND STRECHOUT — BY JRJ, CHKD JWB, DATE 7-31-92

SUPPLIER'S/ PURCHASER'S NO D20716

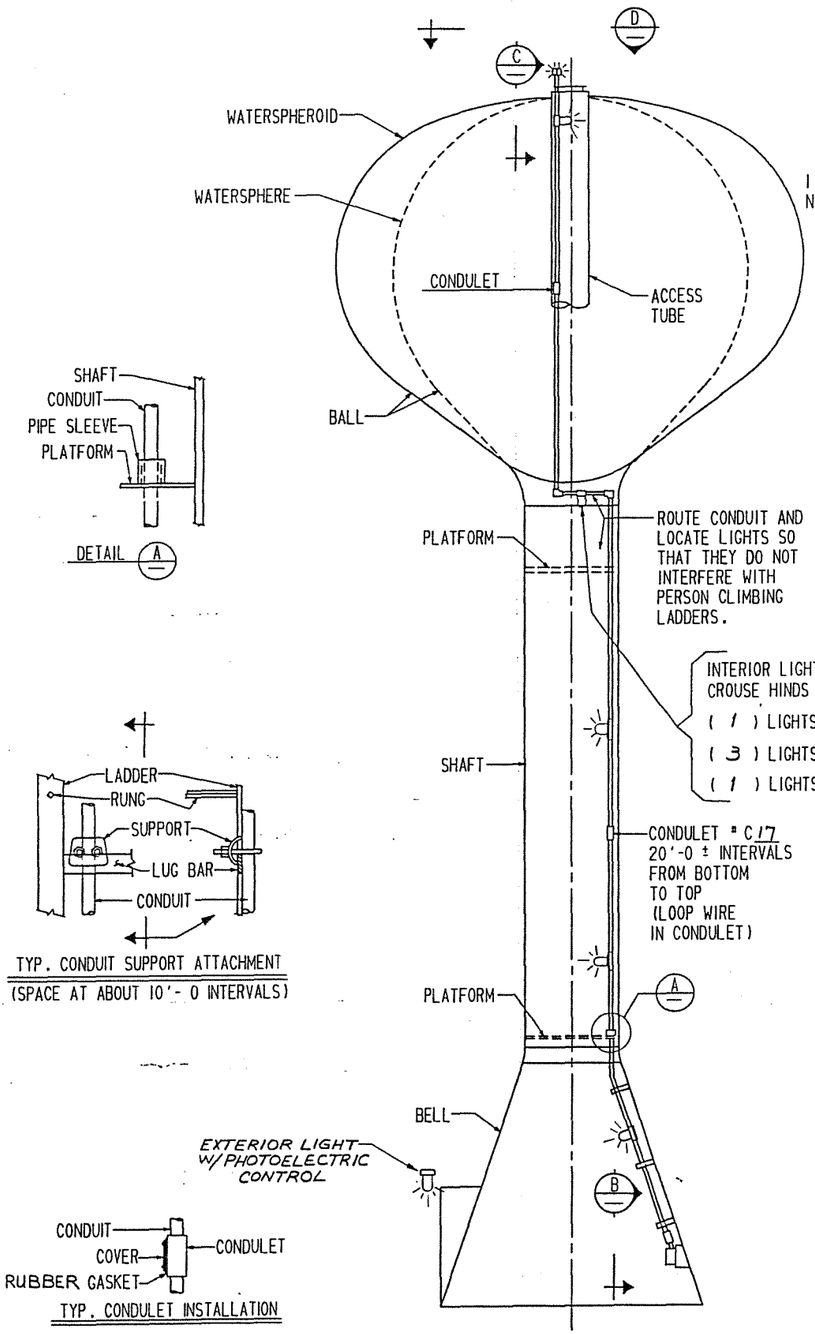
CBI

ELECTRICAL ORIENTATION
300 M.G. WATERSPHEROID
OSWEGO, ILLINOIS

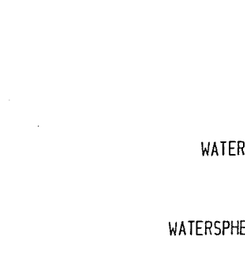
CUSTOMER'S NO
BY JRJ CHKD JWB DATE 6/18/92
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO T20716
DWG 24
SHT
REV 1

CAD Program: C010IN
Date of Version: 9-17-86
CAD FILE: T2071624



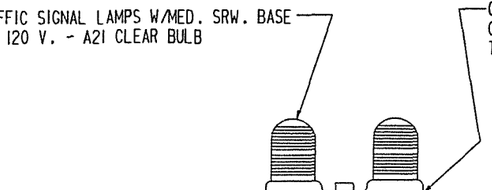
ELEVATION



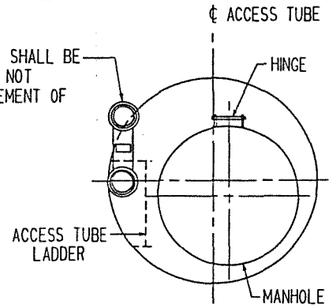
DETAIL (A)

TYP. CONDUIT SUPPORT ATTACHMENT
(SPACE AT ABOUT 10'-0 INTERVALS)

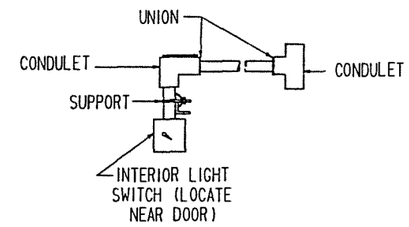
TYP. CONDULET INSTALLATION

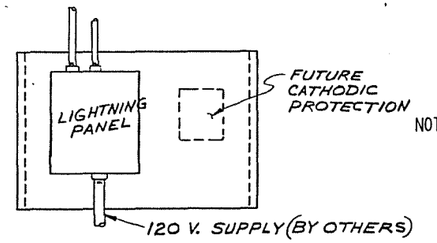


SECTION (C)

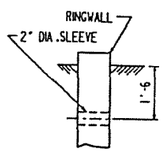


SECTION (D)
(MAY BE OPP. HAND, SEE GEN. PLAN)





VIEW (B) ELECTRIC MOUNTING PANEL



ELECTRICAL ENTRANCE THRU RINGWALL
(3 REQ'D)
AZIMUTH - 40°

SERVICE ENTRANCE

NOTES:

1. ALL WIRING, CONDUIT, DEVICES AND ETC. ARE TO BE PER
   CUSTOMER SPEC: SP-5, SP-6
   CUSTOMER DWG: (IN SPEC)
   AND THE NATIONAL ELECTRIC CODE.
2. MATERIALS OF EQUAL QUALITY AND FUNCTION MEETING F.A.A. SPECS MAY BE SUBSTITUTED FOR ITEMS SHOWN.
3. SEE ORIENTATION DWG. AND DETAIL DWGS. FOR SIZES AND LOCATIONS OF SUPPORTS, SLEEVES AND CPLGS.

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS: BY | CHKD | DATE | REMARKS

SUPPLIER'S/ PURCHASER'S NO D20716

CBI

DOUBLE OBSTRUCTION AND INTERIOR LIGHTS FOR WATERSPHEROID

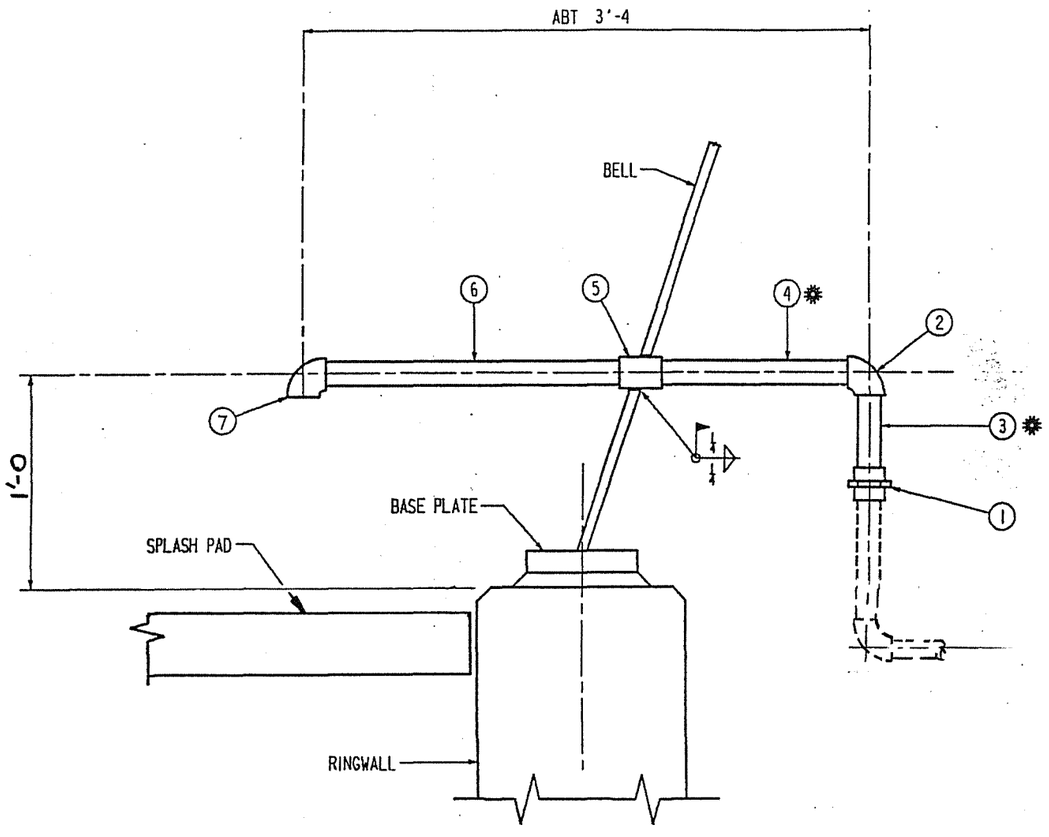
CUSTOMER'S NO
BY JRJ CHKD JWB DATE 6/18/92
R.B.BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO T20716
DWG 25 REV 0
SHT

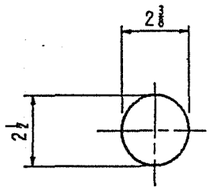
STD FORM NO. 9057A | REV. 2 | MADE BY LW DATE 7/27/87 | CHKD BY TSG DATE 7/27/87 | APPVD BY RBB DATE 7/27/87 | REV. 2 | BY CHKD GAH DATE 7/28/91 | REMARKS: REV. OBST. LIGHT TYPE

THIS STANDARD CONTROLLED BY BIRMINGHAM ENGINEERING, FOR RECOMMENDING CHANGES SEND REQUEST TO BIRMINGHAM ENGINEERING

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC
			DRAWING # 26			
1	26-1		UNION 1 1/4" DIA SCREWED			M.I.
			STOCKHAM NO. 694 OR EQUAL			
1	26-2		WELDELL 1¼ DIA 90 DEG			A234
			LADISH. NO. 946 OR EQUAL			
1	26-3		PIPE 1 1/4" DIA STD WT BOE TOE	1	4	A120
1	26-4		PIPE 1 1/4" DIA STD WT BOE TOE	1	4	A120
1	26-5		COUPLING 1 1/4" DIA 3000# SCREWED			STL
			LADISH NO. 386 OR EQUAL			
1	26-6		PIPE 1 1/4" DIA STD WT TBE	2	6	A120
1	26-7		ELBOW 1¼ DIA 90 DEG SCW'D			M1
			STOCKHAM NO. 601 OR EQ.			



1½" ϕ SUMP PUMP DISCHARGE LINE



CUTOUT FOR COUPLING

NOTES:

1. SEE DRAWING #24 FOR ORIENTATION OF PC (5) AND DISCHARGE LINE
2. EXTRA LENGTH HAS BEEN PROVIDED. CUT LENGTHS TO SUIT.

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

By	Chkd	Date	By	Chkd	Date	By	Chkd	Date	Revisions	Remarks

CBI

Supplier's/Purchaser's No. D20716

1¼" ϕ SUMP PUMP DISCHARGE LINE

300 MG WATERSPHEROID

OSWEGO, ILLINOIS

Customer's No.

By JRJ Chkd JWB Date 7-31-92

R. B. BURLESON
Engineering Supervisor

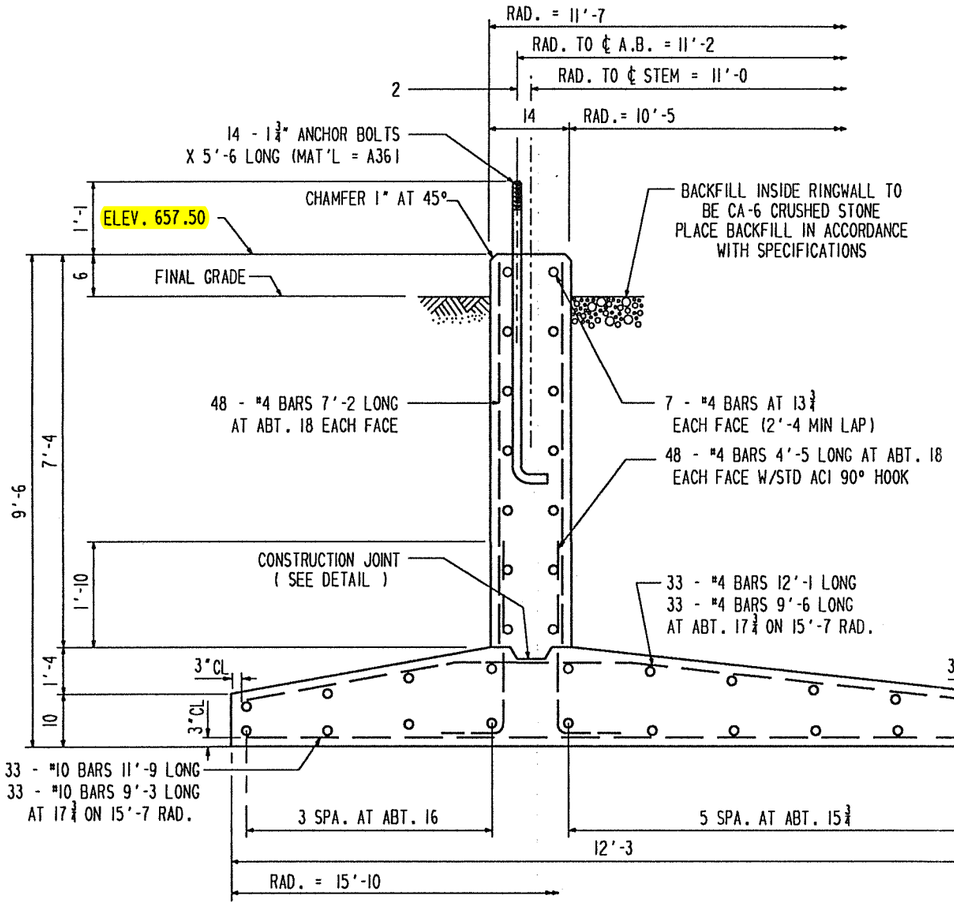
Contract No. T20716

Dwg. 26

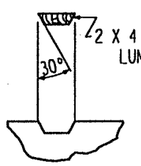
Sheet

Rev. 0

NOT TO SCALE

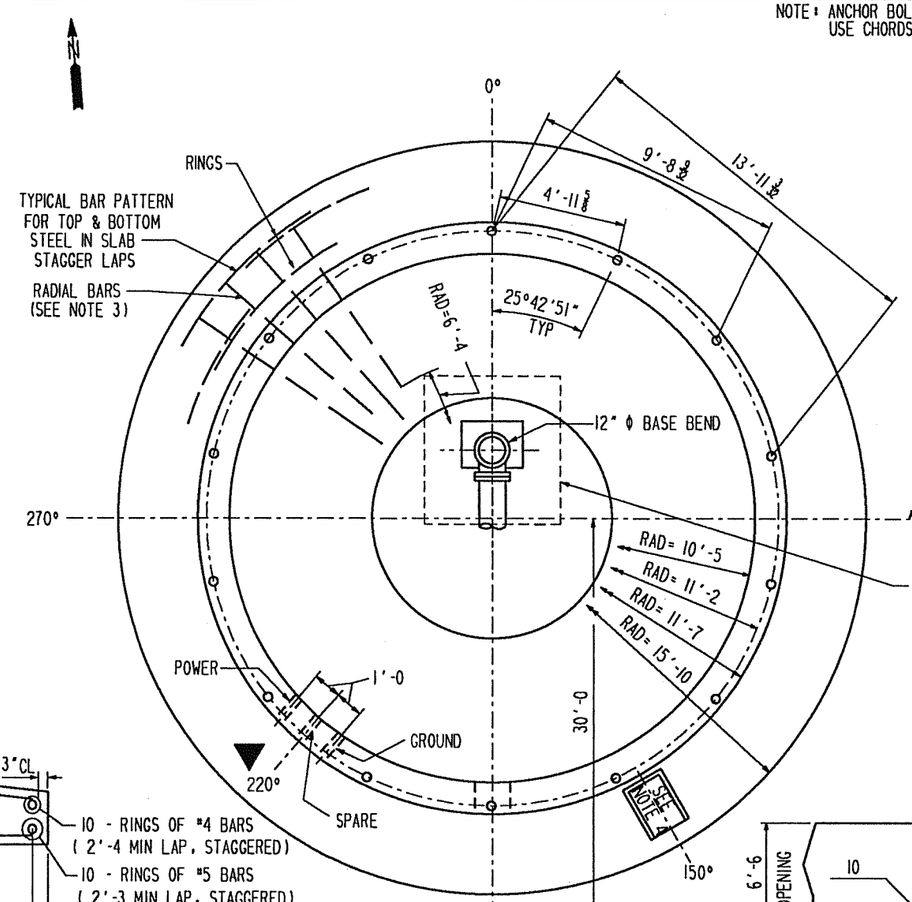


SECTION THRU FOUNDATION

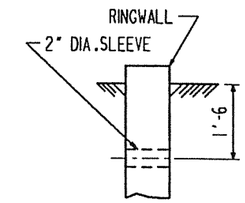


TYP. CONSTRUCTION JOINT

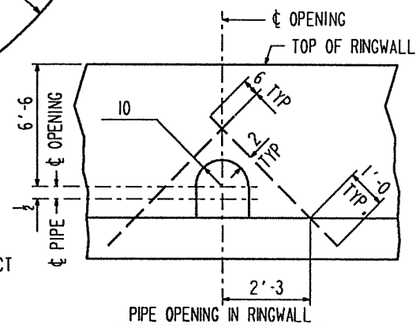
NOTE: ANCHOR BOLTS ARE EQUALLY SPACED AS SHOWN. USE CHORDS FOR CHECKING PURPOSES ONLY.



PLAN



ELECTRICAL
ENTRANCE THRU
RINGWALL
(3 REQ'D)
AZIMUTH - 220°



PIPE OPENING IN RINGWALL

NOTES:
1. ALL REINFORCING COVER TO BE 2" MINIMUM EXCEPT AS NOTED.
2. WORK THIS DRAWING WITH PROJECT SPECIFICATIONS AND DRAWING F2 AND F3
3. RADIAL CUTOFF BARS MAY BE EXTENDED FOR INSTALLATION ONLY IF A 2 INCH MINIMUM CLEAR DISTANCE BETWEEN BARS ON INSIDE CAN BE MAINTAINED AT SPACING SHOWN.
4. SPLASH PAD AT AZIMUTH 150°, 3'-0 X 6'-0 X 4"

A) DO NOT CAULK AROUND PIPE.
B) 12 DIA. PIPE MUST BE INSTALLED BEFORE INSIDE BACKFILL IS PLACED.
C) 2 - #4 BARS 4'-8 LONG IN EACH FACE.

ESTIMATED FOUNDATION QUANTITIES		
ITEM	CONCRETE (CU. YDS.)	REIN'F. STEEL (LB.)
FND. STEM	21.9	1150
FND. BASE SLAB	44.2	4950
THRUST BLOCK	1.1	0
TOTAL	67.2	6100

FOUNDATION CONTRACTOR SHALL MAKE OWN ESTIMATE OF QUANTITIES FOR BIDDING AND/OR CONTRACTING.

TABLE OF LOADINGS		BEARING PRESSURE (PSF) NET
ITEM	LOAD (KIPS)	
WATER	2532.1	
METAL	168.8	
CONCRETE (44 PCF)	82.6	
TOTAL W/O WIND	2783.5	3725 PSF
	W/WIND (FT-KIP)	W/WIND (PSF)
OVERTURNING MOMENT	3755	1208
MAXIMUM TOE PRESSURE (PSF)		4933

TOLERANCES:
TOP OF RINGWALL TO BE TROWELLED LEVEL AND TO BE WITHIN ± ¼" OF THEORETICAL ELEVATION. ANCHOR BOLTS TO BE WITHIN ¼" OF THEORETICAL POSITION, TO BE PLUMB WITHIN ⅛"/12, AND WITH PROJECTION ABOVE THE TOP OF RINGWALL WITHIN ½" OF THE SPECIFIED HEIGHT.

SPECIFICATIONS:
SEE SPECIFICATIONS BY CUSTOMER AND C.B.I.. ALL CONCRETE TO HAVE 3800 P.S.I. COMP. STRENGTH IN 28 DAYS. REINFORCING STEEL TO HAVE MINIMUM YIELD STRENGTH OF 60000 P.S.I. AND CONFORM TO ASTM A615 (SI) GR. 60 . ALL MATERIAL UNLESS OTHERWISE NOTED TO BE FURNISHED AND INSTALLED BY FOUNDATION CONTRACTOR. ANCHOR BOLTS ARE FURN. BY C.B.I..

PIPE COVER = 5'-6 .

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

Revisions	By	Chkd	Date
3 CORRECTED AZIMUTH OF ELECTRICAL ENTRANCE	MBB	JS	7-20-92
2 CORRECTED AZIMUTH OF ELECTRICAL ENTRANCE	MBB	JS	6-29-92
1 REVISED PER CUSTOMER COMMENTS	MBB	JS	6-8-92

CBI

Supplier's/Purchaser's No. D20716

FOUNDATION PLAN

FOR 300 M.G. WATERSPHEROID
OSWEGO, ILLINOIS

Customer's No.

Contract No. T20716

By MBB Chkd JS Date 5-26-92
R.B. BURLESON
Engineering Supervisor

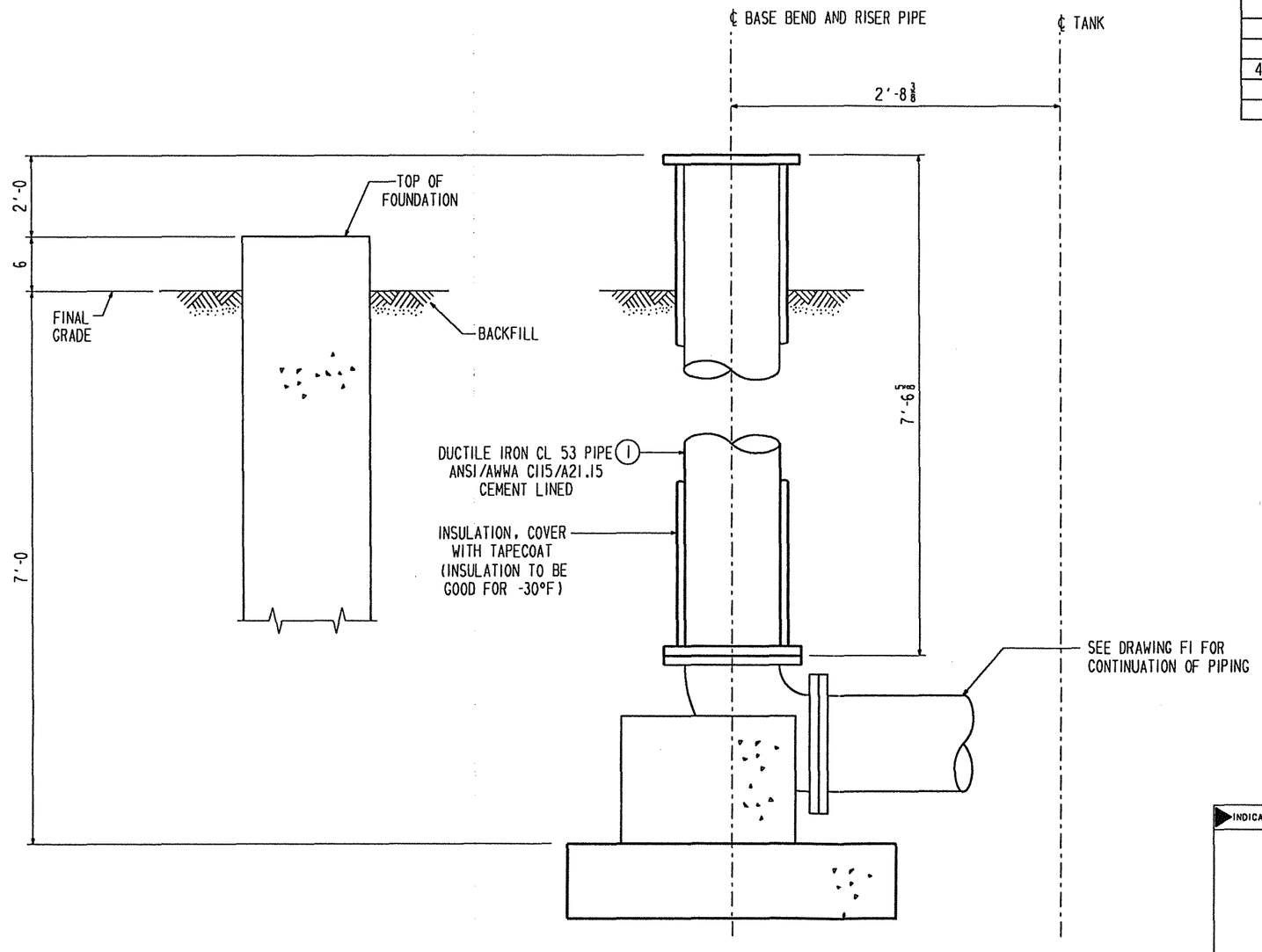
Dwg.FI Rev. 3
Sheet

FORM DO 30 A REV MAR 86

CAD PROGRAM: CO12IA - FOUNDATION PLAN
DATE OF VERSION: 1/08/88
T20716F1

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
1	F2-1		PIPE 12 DIA D.I. FTOF	7	6 5/8	D.I.	IB	0-0	300	488	
			CLASS 53 W/FLANGES FBE								
			CEMENT LINED								
12			BOLT 7/8 DIA FIN HEX	0	4	A307B	IB	0-0	300	13	
		12	NUT 7/8 DIA HEX			A563A	IB	0-0	300		
1	F2-2		GASKET FULL FACE			M9		0-0	300	1	
			19 O.D. X 1/8 X 12 I.D.								
			W/12-1 DIA HOLES								
			ON 17 DIA B.C.								
1			INSULATION - PAIR OF	7	3 3/4			0-0	300	7	
			180 DEGREE SECTIONS								
			X 1 1/2 THICK								
			FOR PIPE 12 DIA D.I.								
			(EXPANDED POLYURETHANE	WITH	FACTORY						
			APPLIED FIRE RETARDANT,	LAMINATED							
			KRAFT PAPER/ALUMINUM FOIL VAPOR								
			BARRIER)								
4			TAPECOAT CT	50	0			0-0	300		
			(4 INCH WIDE ROLL)								
			AS MFG BY TAPECOAT CO.	INC.							

MATERIAL SPEC: M9- RED RUBBER HH-P-00151D, CLASS 1 AND CLASS 3



ELEVATION OF RISER PIPE IN FOUNDATION

NOTES: 1. SEE FOUNDATION PLAN FOR ORIENTATION OF BASE BEND AND RISER PIPE.
2. SEE THRUST BLOCK DRAWING FOR SPECIFIC DETAILS OF THRUST BLOCK.

▶INDICATES CHANGE FROM PREVIOUS ISSUE

BY	CHKD	DATE	REMARKS
			REDRAWN
MBB	JS	6-8-92	

REVISIONS

SUPPLIER'S/ PURCHASER'S NO D20716

CBI

12" DIA. FOUNDATION PIPING FOR BURIED THRUST BLOCK

300 MG WATERSPHEROID
OSWEGO, ILLINOIS

CUSTOMER'S NO

BY MBB CHKD JS DATE 5-27-92

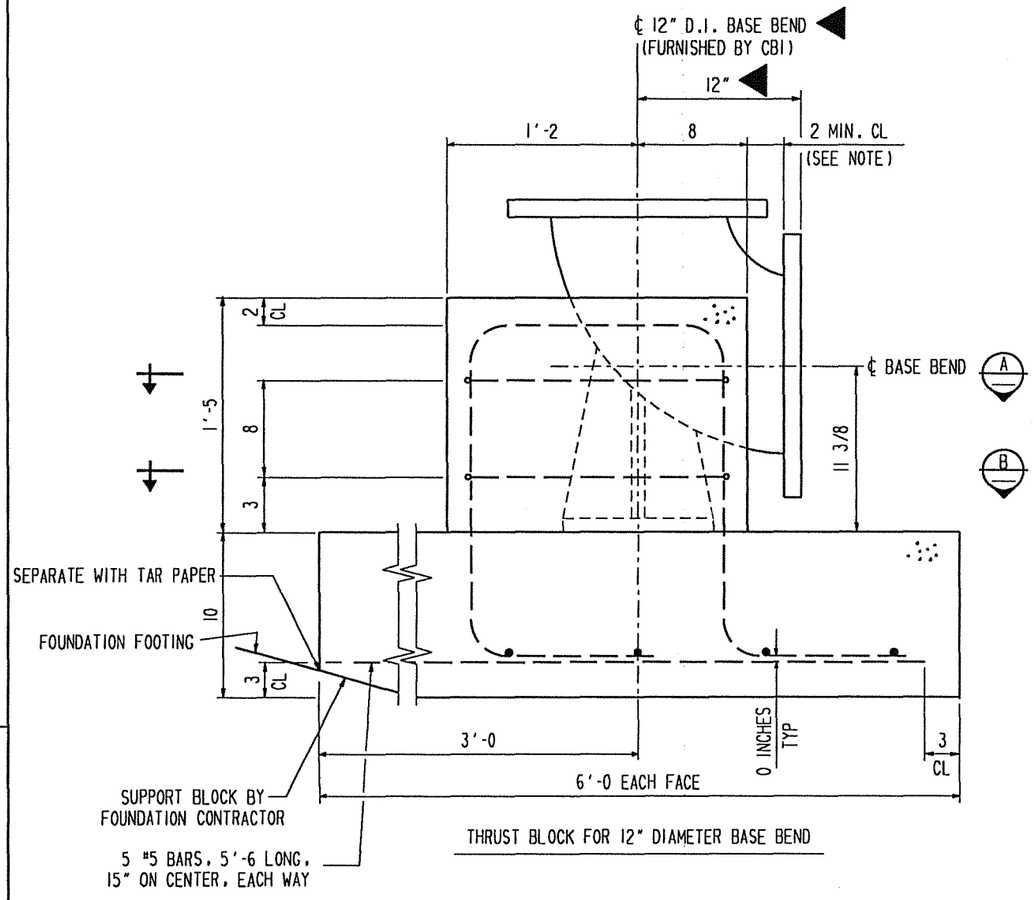
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO T20716

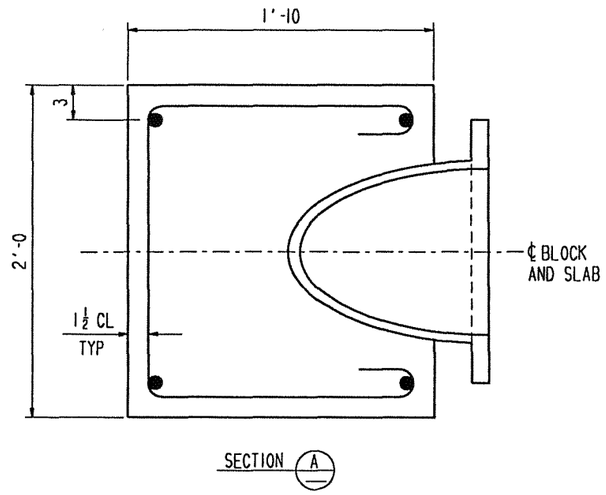
DWG F2 REV 1

SHT

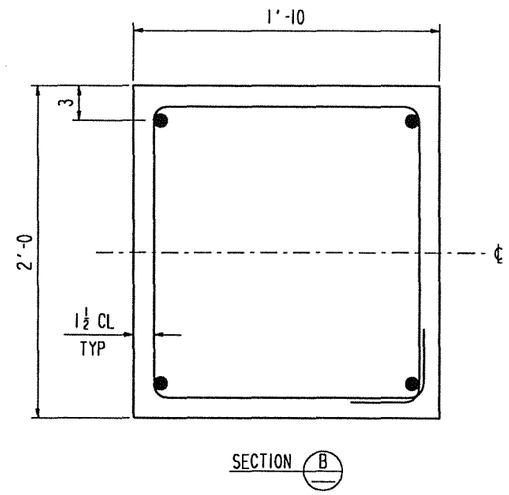
CAD PROGRAM: C0105N - BRDTHRBLK
DATE OF VERSION: 7-11-86
CAD FILE: T20716F2



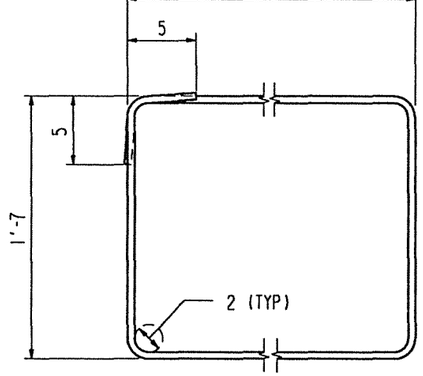
THRUST BLOCK FOR 12" DIAMETER BASE BEND



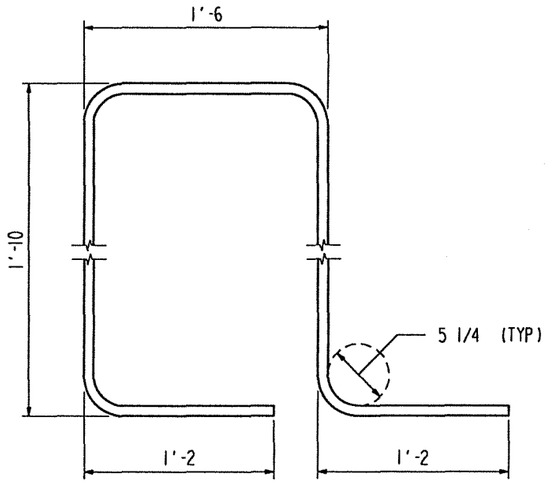
SECTION A



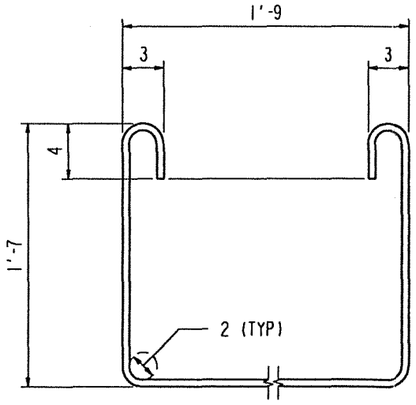
SECTION B



BEND DETAIL - #4 TYPE T2 TIE BAR, 7'-6 LONG
(1 REQUIRED)



BEND DETAIL - #7 TYPE S5 BAR, 7'-6 LONG
(2 REQUIRED)



BEND DETAIL - #4 TYPE S9 TIE BAR, 6'-1 LONG
(1 REQUIRED)

NOTE:

THE 2 INCH CLEAR DISTANCE BETWEEN BACK OF VERTICAL FLANGE AND FACE OF CONCRETE BLOCK DOES NOT NECESSARILY PROVIDE CLEARANCE TO INSTALL BOLTS FROM BASE BEND SIDE. VALVES AND FITTINGS THAT ATTACH TO THE BASE BEND SHOULD BE CHECKED TO ASSURE THAT BOLTS CAN BE INSTALLED.

Program: C0106N - Thrust Block Assembly
Date of Version: 5-23-86
T20716F3

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

Revisions	By	Chkd	Date	Remarks
A	MBB	JS	6-01-92	REVISED PER CUSTOMER COMMENTS

CBI

Supplier's/Purchaser's No. D20716

12" DIAMETER BASE BEND THRUST BLOCK ASSEMBLY

300 MG WATERSPHEROID
OSWEGO, ILLINOIS

Customer's No.

By MBB Chkd JS Date 5-27-92

R.B. BURLESON
Engineering Supervisor

Contract No. T20716

Dwg. F3 Rev. 1

Sheet

APPENDIX E

FOX CHASE TOWER
ELEVATED TANK
OBSERVATION REPORT

Professional

Engineering

Services

Fox Chase Tower Elevated Tank Observation

Report

Village of

Oswego, IL

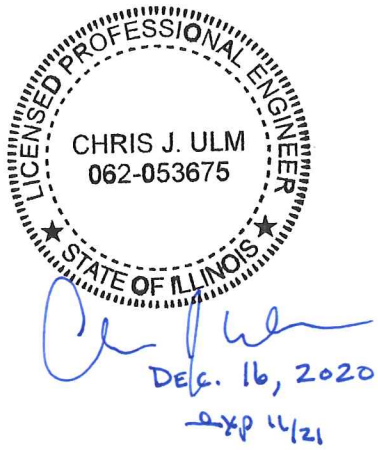
December 2020

STRAND ASSOCIATES®

Report for

Village of Oswego, Illinois

Fox Chase Tower Elevated Tank Observation Report



Prepared by:

STRAND ASSOCIATES, INC.®
IDFPR No. 184-001273
1170 South Houbolt Road
Joliet, IL 60008
www.strand.com

December 2020

STRAND ASSOCIATES®

TABLE OF CONTENTS

Page No.
or Following

ELEVATED TANK OBSERVATION REPORT

Background Information 1
Site Information 2
Foundation 3
Valve Vault 3
Piping 3
Accessories 4
Ladders 5
Hatches, Platforms, and Doors 5
Paint Condition 9
Recommendations 11
Opinion of Probable Costs 13

FIGURES

Oswego Fox Chase Tower 1
Aerial View of Site 1
Main Site Access Gate 2
Verizon Shelter and Cellular Generator 2
Valving and SCADA Building 2
Typical Anchor Bolt 3
Tank Bell Interior 3
Overflow Pipe and Flap Gate 4
FAA Obstruction Lights 4
Cellular Cable Mounts 5
Cellular Cable Penetrations 5
Top Platform Sidewall Door 6
Access Tube Painter's Vent 6
Roof Access Hatch and Wet Access Hatch 6
Roof Access Hatch 6
Roof Pallet Vent 7
Roof Pallet Vent Screen 7
Corrosion of Condensate Platform 7
Top Platform Floor and Riser Penetration 8
Roof Access Tube 8
Bell Door–Interior View 8
Bell Door–Exterior View 8
Exterior Paint Resistance Testing 9
Exterior Paint–Tank Roof 9
Exterior Paint–Tank Ball 9
Exterior Paint–Tank Bell 9
Interior Bell Paint 10
Interior Wet Paint 10
Interior Wet Access Tube Paint 10

APPENDIX

LABORATORY PAINT TESTING RESULTS

BACKGROUND INFORMATION

Inspector:	Nate Ewanowski Andrew Walker
Observation Date:	November 13, 2020
Location:	245 Lennox Drive Oswego, Illinois
Nameplate Data:	Constructed by: (CB&I) Na-Con, Inc. Oak Brook, Illinois Contract No. T20716
Capacity:	300,000 gallons

Oswego Fox Chase Tower

Height from bottom of slab to usable water is approximately 97 feet 6 inches.

Height from bottom of slab to top capacity is approximately 130 feet.

Height from finished grade to top of tank is 136 feet and 8 inches (including cellular equipment).

This is a Horton Water spheroid tank. “Oswego” is written on both sides of the tank.

Water is supplied to the tank via a 12-inch-diameter riser pipe. Based on visual inspection, the tank was approximately one-half full at the time of observation.

Photographs of the structure and surrounding area were taken.

Aerial View of Site

SITE INFORMATION

Main Site Access Gate

A. Site Size and Access to Site

The tank site is approximately 100 feet by 150 feet and has a 6-foot-tall chain link fence around its perimeter. The main entrance is a double-door gate accessed by an asphalt driveway off the west side of Lennox Drive located in the northeast corner of the property. This gate appears to have been hit by a vehicle and is buckled inward. The Village of Oswego (Village) plans to have this gate replaced internally in the coming weeks.

A second double-leaf swing gate entrance is located on the southeast corner of the property, which leads to the Well No. 6 wellhouse.

B. Surrounding Structures

A large, brick, two-story wellhouse housing the Village's Well No. 6, water treatment equipment, and supervisory control and data acquisition (SCADA) equipment is located on the site approximately 25 feet south of the tower. SCADA directs Well No. 6 to run based on the tank water level. The Village is working with its integrator to adjust SCADA for the ability to run Well Nos. 6 and 11 based on both the Fox Chase Tower water level and the water level within the storage tank at the Well No. 11 site.

There is a Verizon cellular equipment shelter approximately 30 feet southeast of the tower base. It is located almost directly underneath the drip line of the water tower. This structure consists of a concrete base with four steel piers and a metal roof. A Generac Industrial Power diesel generator is located adjacent to the cellular equipment. A Verizon generator interface is mounted on the north side of the tower base.

There is a second large generator on the southeast corner of the site to power the wellhouse. The wellhouse and cellular shelter appear to be in very good condition, with no signs of roof damage or foundation cracking.

The area surrounding the tank site comprises of the Village's Fox Chase Elementary School and associated recreational fields. The school building is approximately 200 feet southwest of the tank. Residences are also located directly across Lennox Drive approximately 150 feet east of the tank site.

Verizon Shelter and Cellular Generator

Valving and SCADA Building

FOUNDATION

The tower rests on a concrete foundation. The top of the foundation is approximately 5 inches above grade at all locations around the tank. Most anchor bolts exhibit some corrosion but overall are in good condition. There are no indications of differential foundation settlement, no soil is eroded, and there is no visible undermining of the foundation. There is some superficial cracking and some very minor spalling, but in general, the tank foundation appears to be in good condition.

Typical Anchor Bolt

VALVE VAULT

There is an isolation valve vault located approximately 20 feet south of the tower. This vault was not opened during the inspection. There is a fire hydrant between the isolation valve vault and the tank for tank draining.

PIPING

A. Riser Pipe

The tank is filled and drained via a pipe that extends from a 12-inch tee heading toward the wellhouse and the distribution piping on Lennox Drive.

Immediately upon entering the bell of the tower, the supply pipe is connected to the tower's 12-inch ductile iron riser pipe with an expansion joint. The expansion joint and riser pipe are protected by fiberglass insulation and aluminum jacketing. It would be difficult to officially determine the pipe's condition without removing the jacketing, however, there are several areas where missing insulation exposes the piping and some coating failure is observed.

Tank Bell Interior

A short, 3-inch-diameter stub with a ball valve is installed on the riser pipe for sampling. An ultrasonic flow meter is also installed on the riser pipe. The wiring for the flow meter is loosely hanging between the ultrasonic readers and the tank wall and is not contained in conduit.

B. Overflow Pipe

A 6-inch-diameter overflow pipe directs water in excess of the tower's top capacity level (130 feet above grade) down through the access tube and out the southeast side of the tank bell. The overflow pipe is screened with a No. 4 mesh and a flap gate is attached to the discharge. The discharge is oriented horizontally, and the bottom of the overflow is 28 inches above a concrete splash pad that drains to a Village storm sewer. The overflow pipe, splash pad, and storm sewer manhole are overall in good condition; however, the pipe flange bolts and screen are rusted. Additionally, Section 7.0.7 of the *2018 Recommended Standards for Water Work*s, which are the governing standards, indicate that the overflow shall (among other requirements):

Overflow Pipe and Flap Gate

1. Be between 12 and 24 inches above the splash pad.
2. Open downward.

ACCESSORIES

A. Electrical Service

A transformer is on-site to supply underground power. The SCADA structure is also fed via underground electrical power. The breaker box is on the south side on the tank bell interior. One power line runs up the tower access tube to power the Federal Aviation Administration (FAA) obstruction lights on the tank roof. There is also one light in the tank bell, three in the shaft (one is at the top platform), and one light in the access tube. Other than the FAA obstruction lights, which are always powered, the tank lights are controlled by a switch adjacent to the interior side of the bell door and all appear to be operational. There is no heating installed.

FAA Obstruction Lights

B. Cathodic Protection

Cathodic protection is not currently used on this tower.

C. Cellular Additions

There are AT&T and Verizon Wireless antenna mounted to the tank riser stem. As noted earlier, there is a cellular shelter for Verizon equipment approximately 30 feet southeast of the tower base. AT&T equipment is located inside the tank bell.

Three cellular cables run from the shelter to an aluminum doghouse attached to the southeast side of the tower that has been painted white to match the tank. This doghouse covers the three cable penetrations through the bell. Steel reinforcement bars have been welded to the tank wall surrounding the penetrations. After entering the tank bell, the cellular cables ascend through curbed penetrations in the condensate and top platforms. They are bundled together, bracketed, and welded to the walls of the tower. The coating repairs around the AT&T cable supports appear to be failing as the paint is flaking and rust is forming.

Cellular Cable Mounts

Cellular Cable Penetrations

LADDERS

There are four ladders in total: the bell ladder, the condensate platform ladder, the top platform ladder, and the interior wet ladder. A Saf-T-Notch Rail Climbing System is used. A sufficient amount of clearance is provided between each rung and surrounding the handrails. The bell, condensate shaft, and interior wet ladders appear to be in good condition with minor rusting. While the top platform ladder appears to be functional, there is significant coating failure and heavy rusting.

HATCHES, PLATFORMS, AND DOORS

A. Shaft Hatches

There is a 24-inch-diameter hinged sidewall door at the top platform. It is not considered rainproof as there is no steel curb above the door to prevent water from dripping down and entering the top platform.

Within the access tube is an 18- by 24-inch painter's vent with cover. It is braced with two bolted crossbars.

The condensate and top platforms are accessed by 30-inch hatches. The hatches have 4-inch curbs and steel hatch lids with a 2-inch overlap. The lids are hinged and are able to be padlocked, however, no hatches were locked at the time of observation. The hatch lids appear to be in good condition; however, the 4-inch curbs are experiencing significant rusting.

Top Platform Sidewall Door

Access Tube Painter's Vent

B. Roof Hatches

The 30-inch-diameter roof hatch is located at the end of the shaft ladder on a 16-inch-tall venting platform. The roof hatch has a 4-inch curb and the steel hatch lid has a 2-inch overlap. It is hinged and has a hasp but is not currently padlocked. The roof hatch lid is experiencing significant coating failure and rusting.

There is also a 30-inch-diameter interior wet access hatch with rainproof doors. It is hinged and has a hasp, but it is not currently padlocked.

Roof Access Hatch and Wet Access Hatch

C. Roof Vent

There is a 24-inch-diameter vacuum pallet vent welded to the south side of the roof. The vent type is not fail-safe and appears to be in poor condition as the mesh screen is broken open entirely. There are also screened openings on the side of the vent that are not covered by the hood. The *2018 Recommended Standards for Water Work*s states that all vent openings shall open downward to prevent the entrance of rainwater.

There is also a 24-inch-diameter painter's ventilation hatch located on the southwest side of the tank roof. It features a bolted flange covered with a blind flange covering.

The roof access platform vent mesh screen is also in poor condition with several large openings.

Roof Access Hatch

Roof Pallet Vent

Roof Pallet Vent Screen

D. Condensate Platform

The floor on this level is dry. The paint appears to be in poor condition and there is evidence of substrate corrosion. Large paint chips have flaked off because of the corrosion underneath.

Corrosion of Condensate Platform

Black cellular cables penetrate the condensate platform near the ladder. Cellular cable penetrations are protected by a 4-inch-tall curb on the floor of the platform. The curb is welded to the floor on all sides, and the damage to the coating has not been repaired.

The opening around the insulated riser pipe at the condensate platform penetration is not sealed. The paint appears to have failed down to the substrate with substrate corrosion at the angle iron and U-bolt that stabilize the riser pipe.

The 6-inch overflow pipe also penetrates this platform.

E. Top Platform

There is evidence of moisture in the roof access tube that has caused extensive paint failure and substrate damage to the tube walls and top platform.

A black electric cable and white conduit penetrate the condensate platform via couplings near the top platform hatch. The cable and conduit are bracketed to the ladder with angle irons.

The 6-inch overflow pipe also penetrates this platform

Top Platform Floor and Riser Penetration

Roof Access Tube

F. Doors

The door is a solid steel plate entrance door with a flush key lock. It is 36 inches wide by 80 inches tall. It exhibits coating failure and corrosion along its base.

Bell Door–Interior View

Bell Door–Exterior View

PAINT CONDITION

A. Exterior

Using method ASTM D-7091, coating thickness measurements were taken along the bottom 8 feet of the interior and exterior of the bell, at each interior dry platform, access tube, and areas on the tank shell accessible via the roof ladder. The thickness of the paint on the bell ranged from 10 to 18 mils. The average thickness on the tank roof ranged from 8 to 15 mils.

Exterior Paint Resistance Testing

ASTM D3359, commonly known as the cross-cut test, was performed on the exterior bell and tank roof. There was jagged removal of exterior and intermediate coatings along the incisions up to 1/16 inch, which indicates a reading of 3A.

ASTM 4752, commonly known as the methyl ethyl ketone rub test, was performed at the exterior bell and roof. The top coatings were rubbed off during the test down to the primer coating, indicating a poor resistance rating of near 0. The existing coating does not have any protective properties remaining. This indicates that the coating has moderate adhesion remaining and probably requires a full blast and recoat.

Paint condition on the upper side of the tank shell and roof appears poor, with approximately 80 percent of the topcoat intact and 98 percent of the primer intact. There are numerous areas of coating failure to the prime coat and substrate. Exterior weld seams appeared to be in good condition. Mold, dirt, and mildew are apparent on the ball of the tank below the tank's equator.

Exterior Paint–Tank Roof

Exterior Paint–Tank Ball

Exterior Paint–Tank Bell

B. Interior Dry

The interior dry paint on the sidewalls of the bell and stem of the tank appears to be in much better condition, with approximately 100 percent of its topcoat and primer intact. The thickness of the paint ranged from 10 to 16 mils. There were small spot failures at the wall's intersection with the concrete base, tank stiffeners, and platform edges.

The overall condition on the platforms is poor. There are multiple coating failures in the substrate. This is also true in the access tube, stiffeners, and tank ball. The coating repairs to the welds from the cellular mounting brackets have failed, so the steel is clearly visible.

Interior Bell Paint

C. Interior Wet

While paint adhesion tests were not performed on the interior wet portion of the tank, the interior wet roof hatch was opened and inspected visually. Rusting is visible at the air and water interface and there are multiple substrate and coating failures on the access tube exterior.

Interior Wet Paint

Interior Wet Access Tube Paint

D. Laboratory Paint Analysis

Samples of the existing paint on the exterior bell and interior dry were collected. No samples were collected from the interior wet. These samples were sent to a laboratory to be tested for lead, chromium, and cadmium content. The following table displays results of the analyses. Results are reported in percentage by dry weight. Results under the reporting limit are shown as <RL.

Exterior Bell		
Element	**Result (by dry weight)**	**Reporting Limit (by dry weight)**
Lead	<RL	0.0025%
Chromium	<RL	0.0013%
Cadmium	<RL	0.00075%
Interior Dry		
Lead	<RL	0.0025%
Chromium	0.025%	0.0013%
Cadmium	<RL	0.00075%

Laboratory paint results are included at the end of this report. The metal concentrations do not appear to pose a health or environmental hazard.

RECOMMENDATIONS

This section presents the recommended improvements to upgrade and maintain the water storage tank. Not the recommendations need to be implemented; however, they are listed for your information.

1. Full blast and recoat tank exterior:

    a. Prepare tank exterior including shrouding to prevent damage to nearby structures such as residences and the Fox Chase Elementary school. Tank shrouding is not necessarily required; however, shrouding is recommended as the surrounding area could be affected by abrasive blasting and wet paint.
    b. Recoat exterior of tank with a four-coat system.

2. Full blast and recoat interior wet:

    a. Prepare tank interior wet including cleaning.
    b. Full blast and recoat interior wet with a three-coat system.

3. Spot prepare, prime, and full recoat tower bell, including all ladders:

    a. Prepare tank interior dry portions of tank.
    b. Recoat full interior dry of tank with a three-coat system.

4. Full blast and recoat interior dry shaft and access tube, including all ladders:

    a. Prepare tank interior dry including cleaning.
    b. Full blast and recoat interior dry with a three-coat system.

5. Furnish and install a cathodic protection system.

6. Replace 12-inch riser pipe and expansion joint, recoat with three-coat system, and insulate.

7. Install smooth-nosed sampling tap on riser pipe.

8. Seam seal all interior wet roof plates with caulk.

9. Replace existing pallet vent with a new fail-safe vent.

10. Provide and install downturned 90-degree elbow and new, duckbill valve, or spring-loaded flap gate on overflow pipe to prevent air movement and freezing within the tank.

11. Remove existing 30-inch-diameter access tube roof hatch lid and install new lid with door switch.

12. Weld steel curbs above painters' hatches and sidewall doors for rainproofing.

13. Replace 3-inch-diameter freeze-proof tank drain valve.

14. Seal and caulk the annular space at all platform penetrations.

15. Recaulk the perimeter of the condensate platform.

16. Relocate all cable along ladder to create a 4-inch clearance around ladder side rail.

17. Replace tank lighting with LEDs and install new supports.

18. Route ultrasonic flow meter wiring in conduit along tank wall.

19. Weld grab bars to the tank walls at the condensate and top platforms and to the tank roof.

20. Install handrail and kickplate on tank roof.

21. Remove cellular antennas, cables, mounting apparatus, and appurtenances from tank for painting and repair.

22. Reinstall all cellular equipment after painting according to specifications. Cell provider must repair all damage to coatings caused by reinstallation. Cellular company should pay for all work and costs associated with its equipment, including, but not limited to, working around, covering, and removing cellular equipment.

OPINION OF PROBABLE COSTS

This section presents an opinion of probable costs for the recommended improvements. The costs were developed based on recent projects of similar scope and contact with coating suppliers.

Item	Description	OPCC
1	a. Prepare tank exterior, including shrouding	$235,000
	b. Recoat exterior of tank	$45,000
2	a. Prepare interior wet including clean	$45,000
	b. Recoat of interior wet	$25,000
3	a. Spot prepare interior dry (tank bell and new riser pipe)	$9,000
	b. Recoat interior dry (tank bell and new riser pipe)	$27,000
4.	a. Prepare interior dry (shaft and platforms)	$25,000
	b. Recoat interior dry (shaft and platforms)	$10,000
5.	Install new cathodic protection	$20,000
6.	a. Remove and dispose of 12-inch riser pipe	$25,000
	b. Install new 12-inch riser pipe, insulation, jacketing, and expansion joint	$68,000
7.	Install smooth-nosed sampling tap on riser pipe	$1,000
8.	Seam seal interior wet roof plates	$3,000
9.	Replace existing pallet vent with a new fail-safe vent	$8,000
10.	Provide and install downturned 90-degree elbow and duckbill on overflow pipe	$1,000
11.	Remove existing 30-inch-diameter access tube roof hatch lid and install new lid with door switch	$10,000
12.	Weld steel curbs above painters' hatches and sidewall doors	$5,000
13.	Replace freeze-proof tank drain valve	$4,500
14.	Seal and caulk the annular space at all platform penetrations	$3,000
15.	Recaulk perimeter of condensate platform	$500
16.	Relocate all cable along ladders for proper clearance	$1,000
17.	Replace tank lighting with LEDs and install new supports, including FAA light	$7,000
18.	Route ultrasonic flow meter wiring in conduit along tank wall	$500
19.	Weld grab bars to the tank walls at the condensate and top platforms and to the tank roof	$5,000
20.	Install handrail and kickplate on tank roof.	$10,000
21.	Remove cellular equipment	Cell Company to Pay
22.	Reinstall cellular equipment	Cell Company to Pay
Subtotal		**$593,500**
Contingency (15 Percent)		**$89,025**
Total		**$682,525**

APPENDIX
LABORATORY PAINT TESTING RESULTS

ANALYTICAL LABORATORY REPORT

Tuesday, December 1, 2020

CUSTOMER: Strand Associates, Inc.
1170 South Houbolt Rd
Joliet, IL 60431

DATE RECEIVED: Thursday, November 19, 2020
PO/PROJECT #: 1667.002
SUBMITTAL #: 2020-11-19-002

LAB NUMBER: AD05269

Sampled By: Andrew Walker
Job Location: Oswego, IL Water Tower
Sample Identification: 1 External Dry

Date Sampled: 11/13/2020
Sample Description: Paint Chips

Preparation Method: EPA 3050B-P-M (Acid Digestion for Paints)
Analysis Method: EPA 6010C-M (ICP-AES Method for Determination of Metals)
Date Analyzed: Monday, November 23, 2020

ELEMENT	RESULT (by dry weight)	REPORTING LIMIT (RL)
Cadmium	**< RL**	0.00075 %
Chromium	**< RL**	0.0013 %
Lead	**< RL**	0.0025 %

LAB NUMBER: AD05270

Sampled By: Andrew Walker
Job Location: Oswego, IL Water Tower
Sample Identification: 2 Internal Dry

Date Sampled: 11/13/2020
Sample Description: Paint Chips

Preparation Method: EPA 3050B-P-M (Acid Digestion for Paints)
Analysis Method: EPA 6010C-M (ICP-AES Method for Determination of Metals)
Date Analyzed: Monday, November 23, 2020

ELEMENT	RESULT (by dry weight)	REPORTING LIMIT (RL)
Cadmium	**< RL**	0.00075 %
Chromium	**0.025 %**	0.0013 %
Lead	**< RL**	0.0025 %

ANALYTICAL LABORATORY REPORT

CUSTOMER: Strand Associates, Inc.
1170 South Houbolt Rd
Joliet, IL 60431

DATE RECEIVED: Thursday, November 19, 2020
PO/PROJECT #: 1667.002
SUBMITTAL #: 2020-11-19-002

Unless otherwise noted, the condition of each sample was acceptable upon receipt, all laboratory quality control requirements were met, and sample results have not been adjusted based on field blank or other analytical blank results. Individual sample results relate only to the sample as received by the laboratory.

Tests Reviewed By: David Johnson, Analyst II

Reporting Limit (RL): The lowest concentration of analyte in a sample that can be reported with a defined, reproducible level of certainty. This value is based on the lowest standard used for instrument calibration and must be at least twice the MDL.

GPI Laboratories, Inc. has obtained accreditation under the following programs:

- **National Lead Laboratory Accreditation Program (NLLAP)**
  A2LA: American Association for Laboratory Accreditation (Certificate 5033.01) (www.a2la.org)
- **OH:** Ohio Department of Health Lead Poisoning Prevention Program, Approval #E10013 (www.odh.ohio.gov)
- **National Environmental Laboratory Accreditation Program (NELAP)**
  NY: State of New York Department of Health, Laboratory ID#11609 (Serial # 61448-61452) (518-485-5570)
  LA: State of Louisiana Department of Environmental Quality, Laboratory ID#180321 (Certificate 05036) (www.deq.louisiana.gov)
  OK: Oklahoma Department of Environmental Quality, Laboratory ID#9993 (Certificate 2020-074) (www.deq.state.ok.us)

Testing which is performed by GPI Laboratories, Inc. according to test methods, or for elements which are not included in the table below fall outside of the current scope of laboratory accreditation. Customers are encouraged to verify the current accreditation status with the individual accreditation programs by calling or visiting the appropriate website for the applicable program.

SCOPE OF ACCREDITATION

Air and Emissions

Element/Test	Method	Accreditation(s)
Suspended Particulates: PM10 / TSP	40 CFR 50 Appendix J / 40 CFR 50 Appendix B	NY, LA
Lead in Airborne Dust	40 CFR 50 Appendix G	A2LA, LA
Lead in Airborne Dust	NIOSH 7300	A2LA, OH, NY, LA
Metals in Airborne Dust	NIOSH 7300	A2LA

Solid Chemical Materials

Element/Test	Method	Accreditation(s)
TCLP	EPA 1311(Sample Preparation Method)	NY, LA, OK
Lead in Soil	EPA 3050B/ EPA 6010C	A2LA, OH, NY, LA, OK
Lead in Paint	EPA 3050B/ EPA 6010C	A2LA, OH, NY, LA
Lead in Paint	ASTM D 3335-85A/ EPA 6010C	NY
Lead in Dust Wipes	EPA 3050B/ EPA 6010C	A2LA, OH, NY, LA
Ignitability	EPA 1010A	NY
pH	EPA 9045D	NY

Non-Potable Water / Analysis by ICP			Solid Chemical Materials		
Element/Test	Method	Accreditation(s)		Method	Accreditation(s)
Arsenic	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Barium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Cadmium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Chromium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Copper	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Lead	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Mercury	EPA 245.1 Rev.3/ EPA 7470A	NY, LA, OK	EPA 7471B	NY, LA, OK	
Nickel	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Selenium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Silver	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Zinc	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK	EPA 6010C	NY, LA, OK	
Cobalt	----	----	EPA 6010C	NY, LA, OK	
Manganese	----	----	EPA 6010C	NY, LA, OK	
Acid Digestion	EPA 3010A	NY, LA	EPA 3050B	NY, LA	

CHAIN OF CUSTODY FORM

GPI

Send To:
GPI Laboratories, Inc.
4403 Donker Court, Grand Rapids MI 49512-4054
(616) 940-3112 | GRLabsInfo@gpinet.com | www.gpinet.com

FOR LAB USE ONLY			
Properly Contained	(YES)	NO	N/A
ASTM E1792 wipes	YES	NO	(N/A)
Adequate Ph Adjust	YES	NO	(N/A)
Lab acidified: By/Date: N/A			

Company: Strand Associates, Inc.	Address: 1170 S Houbolt Road Joliet, IL 60431	Company Contact: Corrina Mauss Telephone: 815-744-4200 E-Mail: corrina.mauss@strand.com	P.O./Proj #: 1667.002 Location: Oswego, IL Water Tower

Matrix	TCLP (Waste)	Metals Content	Other Tests	Turnaround Time
☑ Paint Chips ☐ Wipe	☐ Lead	☐ Lead	☐ pH (Corrosivity)	☐ Same Day*
☐ Soil ☐ Filter	☐ RCRA (8) Metals	☑ Lead, Cad., Chrome.	☐ Ignitability	☐ Rush*
☐ Abrasive ☐ _____	☐ _____	☐ RCRA (8) Metals	☐ VOC (Method 24, etc)	☑ Standard
☐ Wastewater		☐ _____	☐ _____	☐ _____

Comments:

GPI Labs accepts Visa, MasterCard, and American Express. *Accelerated Turnaround is not available for every test. Please call for information.

Laboratory ID	Sample Number	Date/Time Sampled	Sample Identification / Location:	Special Instructions:	Wipes: Area wiped (sq.ft.)	Air Sampling Filters: Minutes	Flow Rate	UNITS
AD05269	1	10 am, 11/13/20	External Dry					
AD05270	2	10 am, 11/13/20	Internal Dry					

Air Sampling Filters: ☐ TSP ☐ PM10 ☐ 37 mm Cassette

Sampled By (Please print) : Andrew Walker Date Submitted: 11/17/20 Signature: Corrina Mauss

Received by: _____ Date/Time: _____ Relinquished Date/Time: _____

Received by: _____ Date/Time: _____ Relinquished Date/Time: _____

Page 1 of 1

Method of Shipment: _____

Received for Laboratory by: _____ Date/Time: 11-19-20 11:15 Submittal #: 2020-11-19-002 1/18/17 Form #: 53-12

√ CI 11/19/20

For more location information please visit www.strand.com

Office Locations

Brenham, Texas | 979.836.7937

Cincinnati, Ohio | 513.861.5600

Columbus, Indiana | 812.372.9911

Columbus, Ohio | 614.835.0460

Joliet, Illinois | 815.744.4200

Lexington, Kentucky | 859.225.8500

Louisville, Kentucky | 502.583.7020

Madison, Wisconsin* | 608.251.4843

Milwaukee, Wisconsin | 414.271.0771

Phoenix, Arizona | 602.437.3733

*Corporate Headquarters

STRAND ASSOCIATES®