



**Nelson Tank Engineering
& Consulting, Inc.**

16240 National Parkway
Lansing, MI 48906

***CITY OF SAULT SAINT MARIE
750,000-GALLON ELEVATED TANK
INTERIOR & EXTERIOR REPAINTING
& MINOR REPAIRS***

DATE: MARCH 25, 2024

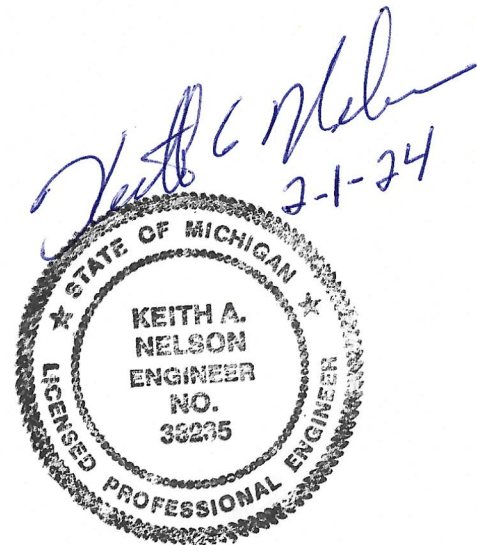


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ADVERTISEMENT FOR BIDS

PROJECT NAME

City of Sault Ste Marie
750,000-Gallon Elevated Tank
Interior & Exterior Repainting
& Minor Repairs

RECEIPT OF BIDS

Sealed Bids will be received by the City of Sault Ste. Marie, c/o Clerks Office, 225 E. Portage Ave, Sault Ste Marie, MI 49783, until 3:00 p.m., local time on March 25, 2024. Delivery hours are 9:00 a.m. to 4:00 p.m. Monday through Friday, excluding holidays. Hand delivered quotes must be date/time stamped by the Clerk at the address above to be considered. **Bids shall be submitted in a sealed envelope marked with the notation "SEALED BID ENCLOSED, 750,000-GALLON TANK PAINTING and REPAIRS."** Bids will be publicly opened and read aloud at that time and place. No bids will be received after the time stated above.

PROJECT SCOPE

The proposed work consists of the following:

- 1) Repair column and riser grout.
- 2) Furnish and install fall prevention to all ladders.
- 3) Remove and replace fill pipe insulation.
- 4) Furnish and install roof hatch gasket.
- 5) Remove cathodic protection anode.
- 6) Remove wet interior access tube platform.
- 7) Abrasive blast clean and repaint wet interior.
- 8) Abrasive blast clean and repaint dry interior.
- 9) Abrasive blast clean and repaint exterior with containment.
- 10) Apply lettering/logo per attached base bid drawing.
- 11) Furnish dechlorinating diffuser and tablets.

ALTERNATE PRICING:

- 12) Apply lettering/logo per attached alternate bid drawing.

Google map coordinates: 46.48777, -84.36272

EXAMINATION OF DOCUMENTS

Contract Documents may be examined at the following locations:

NTEC, Inc.
16240 National Parkway
Lansing MI 48906

City of Sault Ste Marie
c/o Clerks Office
225 E. Portage Ave.
Sault Ste. Marie, MI 49783

Construction Association of Michigan
43636 S. Woodward Ave.
PO Box 3204
Bloomfield Hills, MI 48302-3204

Builders Exchange of Northwest MI
1373 Barlow St., Ste. 4
Traverse City, MI 49686

PREQUALIFICATION

Prior to receiving Bid Documents, all bidders shall be prequalified by the Engineer. A prequalification application may be obtained at the office of NTEC, Inc., 16240 National Parkway, Lansing, MI 48906 (517-321-1692).

OBTAINING BID DOCUMENTS

Bid Documents may be obtained at the office of NTEC, Inc., 16240 National Parkway, Lansing, MI 48906 upon payment for the non-refundable deposit fee of \$50.

BID SECURITY

Each bid shall be accompanied by a certified check, cashier's check, money order or bid security in the amount of not less than five (5%) percent of the amount bid drawn payable to the City of Sault Ste Marie for execution of the Contract.

WITHDRAWAL OF BIDS

Bids may not be withdrawn for a period of 60 days after the actual date of opening thereof.

RIGHT TO REJECT BIDS

The Owner reserves the right to accept or reject any or all bids and to waive any informality in any bids should it consider same to be in its' best interest.

PROJECT DATES

The work is to be performed in accordance with the following schedule:

Total contract time: 75 calendar days
Commence after: May 15, 2024

(includes cure time)
Complete by: September 15, 2024

SITE LOCATION



INFORMATION FOR BIDDERS

SUBMISSION OF BIDS

Bids shall be submitted at the time and place indicated in the Advertisements for Bids and shall be included in a sealed envelope, marked with the project title, name and address the address of the Bidder. The Bid shall be accompanied by the Bid security and any other required document. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof. Any bid received after the scheduled time and place indicated in the Advertisements for Bids shall be returned unopened.

The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work, and that the time stated in the proposal is sufficient to complete the project.

BID FORM

The Contractor shall submit **the Bid proposal pages with Bid Security** when submitting his Bid to the Owner.

The proposal shall be legibly prepared, with ink or typewriter, on the form included in these Contract Documents. All blank spaces within the proposal form must be filled in correctly where indicated for each and every item for which a quantity is given. Proposals will be compared on the basis of lump sum items, if any, and on product of the quantities of items listed at the respective unit prices bids.

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder. All names must be typed or printed below the signature.

The quantities as shown in the proposal are approximate only and will be used as a basis of comparison of bids, and award of Contracts. Payment will be made on basis of actual quantities of work performed in accordance with the Contract Documents. The Bid shall contain an acknowledgment of receipt of all addenda, the numbers of which shall be filled in on the proposal form.

The legal status of the Bidder contained in the proposal forms must be filled in and clearly state the legal position of the Bidder. Any individual bid not signed by the individual must have attached, thereto, a power of attorney evidencing authority to sign. In the case of a corporation, the home address, name and title of all officers must be given. In the case of a partnership, show names and home addresses of all partners. If an individual, so state the fact. Other documents to be attached to the proposal and made condition thereof are identified in the proposal. The same individual signing the proposal shall sign these other documents.

BID SECURITY

Bid security shall be made payable to the OWNER, in amount of five (5) percent of the Bidder's maximum Bid price and in a form as indicated in the Advertisements for Bids. Bid bonds shall meet the bond requirements of the General Conditions.

The bid security of the successful bidder will be retained until such bidder has executed the Agreement and furnished the required contract security. If the successful bidder fails to execute and deliver the Agreement and furnish the required contract security within 10 days of the Notice of Award, the Owner may annul the Notice of Award and the bid security of that bidder will be forfeited. The bid security of any Bidder whom the Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earliest of the seventh day after the effective date of the agreement or the expiration of the hold period on the Bids. Bid securities of other Bidders will be returned within 14 days of the bid opening, unless indicated otherwise in the Advertisement for Bids.

PREQUALIFICATION

All Bidders shall undergo prequalification prior to receiving the Bid Documents. The Engineer shall perform the prequalification based upon criteria described within the application form.

Applicants shall be evaluated based upon the following criteria:

- Experience with similar projects (size, scope and complexity).
- Records indicating successful long-term performance of projects in Michigan or neighboring states.
- Ability to meet project dates and deadlines.
- Ability to complete project in accordance with the specification.
- Experience and training of crew.
- Responsive and timely resolution of problems and disputes.
- Financial strength of company
- Insurance coverage and Bond company rating.

OPENING OF BIDS

The Owner may consider as informal any bid which there is an alteration of, or departures from the proposal form attached hereto.

WITHDRAWAL OF BIDS

Bids may be withdrawn or modified by an appropriate document duly executed and delivered to the place where the Bids are to be submitted at any time prior to the opening of Bids. Within 24 hours after the Bids are opened, any Bidder may file a duly signed written notice with the Owner to withdraw his Bid and return the Bid Security. The Bidder, however, must, demonstrate to the satisfaction of the Owner that a material and substantial mistake occurred in the preparation of his Bid.

COPIES OF BIDDING DOCUMENTS

Complete sets of bidding documents must be used in preparing Bids. Neither the Owner nor Engineer assumes any responsibility for any errors or misrepresentation resulting from the use of incomplete sets of the Bidding documents.

EXAMINATION OF CONTRACT DOCUMENTS AND SITE

It is the responsibility of each Bidder before submitting a Bid to the following:

- a) examine the Contract Documents carefully,
- b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress or performance of the work,
- c) consider federal, state and local laws and regulations that may affect cost, progress, performance, or furnishing of the work and
- d) study and carefully correlate Bidder's observations with the Contract Documents.
- e) promptly notify the Engineer of all conflicts, errors, ambiguities or discrepancies which the Bidder has discovered in or between the Contract Documents and such other related documents.

Before submitting his Bid, each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the work in accordance

with the time, price and other terms and conditions of the Contract Documents. On request, the Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.

The locations of public utilities are as shown on the plans are taken from sources believed to be reliable. Neither the Owner nor Engineer will be responsible for any omissions of or variations from, the indicated location of existing utilities which may be encountered in the work.

INTERPRETATIONS AND ADDENDA

All questions in regard to the bidding documents shall be directed to the Engineer. If the prospective bidder finds discrepancies in or omissions from the plans, specifications or any part of the Contract Documents, the bidder may submit a written request to the Engineer for an interpretation thereof. The request will be submitted at least seven (7) days prior to the scheduled date for opening of bids. Requests received less than seven (7) days prior to the date of the opening bids may not be answered. Any interpretation will be made by bulletin or written addendum duly issued to all prospective bidders. Only questions answered by formal written addenda will be binding. Any change in or addition to the Contract Documents deemed necessary by the Owner shall be made in the form of an addendum issued to all prospective bidders who have received the Contract documents and all such addenda shall be binding. Oral explanations, clarifications and any other information given do not constitute formal notification and will be without legal effect.

Any Addenda issued during the time of bidding or forming a part of the Contract Documents shall be included in the proposal and shall be made a part of the Contract Documents. Receipt of each Addendum shall be acknowledged in the proposal.

AVAILABILITY OF LANDS

The lands upon which the work is to be performed, rights-of-way and easements and other lands designated for use by the Contractor will be identified by the Owner. All additional lands and access thereto required by the Contractor in performing the work are to be obtained and paid for by the Contractor.

SUBCONTRACTORS, SUPPLIERS AND OTHERS

The identity of all subcontractors, suppliers, and other persons or organizations shall be submitted to the Owner, when required in the technical specifications, prior to the date specified for such and in advance of the effective date of the Agreement. The successful bidder shall within seven (7) days after the bid opening submit to the Owner a list of all such subcontractors, suppliers, and other persons and organizations proposed for those portions of the work for which such identification is required. The Contractor shall provide such pertinent information which indicates the qualifications of each subcontractor, supplier, other persons and organization if requested by the Owner. The Owner reserves the right to reject the subcontractor after due investigation. The Owner reserves the right to negotiate with the successful bidder after an acceptable substitute has been submitted and prior to the Notice of Award. If the apparent successful bidder declines to make the substitution, the Owner may award the contract to the next lowest bidder with acceptable subcontractors, suppliers, and other persons and organizations.

The bidder is responsible for all coordination between all subcontractors, suppliers, and other persons and organizations. The bidder shall conduct the project to meet with all deadlines and provisions within the Contract Documents.

SUBSTITUTIONS

The contract, if awarded, will be on the basis of material and equipment described in the drawings or specified in the specifications without consideration of possible substitute or "or equal" items. Whenever materials or equipment are indicated in the drawings or specified in the specifications by using the name of one or more suppliers, the bid shall be based on providing the materials or equipment of one of the

suppliers named. Whenever it is indicated in the drawings or specified in the specifications that a substitute or "or equal" item of material or equipment may be furnished or used by the Contractor if acceptable by the Engineer, the application for such acceptance will not be considered by the Engineer until after the effective date of the agreement. The procedure for submission of such application is set forth in the General Conditions.

PREPARATION OF THE PROPOSAL

A bid on this project shall be made only on the proposal form furnished by the project specifications and included in this document. Bid prices in the bidding schedule are to be written in both words and by figures, and in cases of any conflict, words shall prevail unless it clearly appears that the words rather than the figures are in error. A proposal may be rejected if it does not contain a price for each and every item named in the proposal for the unit price proposals, or for items used for additions or deductions, if requested.

REJECTION OF PROPOSAL

Proposals may be rejected if the bidder fails to fill in any unit prices or if the unit prices are prepared in pencil. The Owner reserves the right to reject a proposal that does not comply with all the requirements of this document or any other documents; however, he may waive any minor defects or informalities at his discretion. Bidders who submit qualification letters with their Bids may be disqualified at the Owner's discretion. The Owner further reserves the right to reject any or all proposals. Collusion between bidders will be sufficient cause for rejection of all Bids affected thereby.

CONTRACT AWARD

The Owner reserves the right to reject any and all bids, to waive any and all irregularities not involving price, time, or changes in the work and to reject all nonconforming, nonresponsive, unbalanced or conditional bids. The Owner reserves the right to negotiate contract terms with the successful bidder. When discrepancies exist between words and figures, words shall be used for resolution. When discrepancies exist between column figures and the correct sum, resolution will be in favor of the correct sum. When discrepancies exist between multiplication of units of work and unit prices, resolution will be in favor of unit prices.

The Owner will consider the qualifications of the bidders, bid compliance, unit prices and alternates if requested. It is the intent of the Owner to select the alternates, if any, which are beneficial to the Owner's interest. The Contractor shall not use bid weighting practices in the preparation of his bid as the Owner reserves the right to select any and all alternates or delete any such alternates as may be deemed in the Owner's best interest. A qualified or conditional Bid will be subject to approval by the Owner and may be cause for disqualification of the Bid.

Subject to approval of the Owner, the contract will be awarded to the lowest responsive and responsible bidder. The bidders will be evaluated responsible based upon past performance on similar work, amount and type of equipment, labor force and financial status. The contract shall be considered to have been awarded after the approval of the Owner and a formal Notice of Award has been issued to the successful bidder from the Owner. The contract shall not be binding upon the Owner until the Contract Agreement has been executed by authorized officials for the bidder and the Owner.

If the contract is awarded, the Owner shall issue the successful bidder a Notice of Award within sixty (60) days after the Bid Opening.

MATERIAL COMPLIANCE

Each bidder is expected to base his bid on materials and equipment complying fully with the contract drawings and specifications, and in the event he names or includes in his bid, materials, or equipment that

does not conform, he will if awarded a contract, be responsible for furnishing materials and equipment which fully conforms at no change in his contract price.

CONTRACT SECURITY

The Owner's requirements for bonding and insurance are set forth in the general conditions (items 2 and 3). The Agreement will be executed after the Owner has reviewed and approved the required bonds and insurance. Within ten (10) days after receiving Notice of Award, the successful bidder shall issue or submit all required bonds and insurance certificate to the Engineer and shall copy the Owner the information.

SIGNING OF THE AGREEMENT

If the Bidder is a corporation, the legal status of the corporation shall be set forth together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if the Bidder is a co-partnership, the true name of the firm shall be set forth together with the signature of all partners; and if the bidder is an individual, his signature shall be inscribed. If the signature is by an agent other than an officer of a corporation or a member of a partnership, a power of attorney must be on file with the Owner prior to the opening of bids or at the time of submitting bids; otherwise, the bid may be disregarded as irregular and unauthorized.

The Owner will issue to the Engineer the required unsigned counterparts of the Agreement along with the executed Notice of Award. The Engineer will then instruct the Contractor to sign and deliver to the Engineer the counterparts of the Agreement, including required bonds and insurance certificates, within 10 days of receipt of the Notice of Award. Within 10 days thereafter, the Owner will deliver three fully signed counterparts to the Engineer for distribution.

CONTRACT TIMES

The dates by which the work is to be completed or the number of days allocated for ensuring final payment are set forth in the Proposal and are included in the Agreement.

LIQUIDATED DAMAGES

Time is of the essence in this Contract. The Contractor shall perform the work in an expeditious manner from inception through completion. Liquidated damages, if any, are set forth in the Agreement. The liquidated damages are set forth as an estimated cost incurred by the Owner and are not an assessment of penalties.

HEALTH AND SAFETY

The Contractor shall comply with the health and safety regulations promulgated by OSHA and U.S. Department of Labor and or applicable State and local regulations.

PERMITS AND REGULATIONS

Unless specified otherwise, the Contractor shall procure and pay for all permits, licenses, inspections and approvals necessary for the execution of this Contract. The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to the performance of the work required to complete this Contract.

BID

Bid of _____ hereinafter called BIDDER, Organized and existing under the laws of or a resident in the State of _____, doing business as a _____.*

* Insert as applicable: a corporation, a partnership or an individual.

The undersigned hereby declares that he has legal status below:

- () LICENSED TO DO BUSINESS IN MICHIGAN
() NOT NOW LICENSED TO DO BUSINESS IN MICHIGAN

List the name, title and home address of all persons who are officers or partners in the organization.

NAME AND TITLE

HOME ADDRESS

_____	_____
_____	_____
_____	_____

To the City of Sault Ste Marie, hereinafter called the OWNER.

1. The undersigned BIDDER proposes and agrees, if the bid is accepted, to enter into an Agreement with the OWNER in the form included in the Contract Documents to perform and furnish all work as specified or indicated in the Contract Documents for the Contract price and within the Contract time indicated within this Bid and in accordance with the other terms and conditions in the Contract Documents.
2. The BIDDER accepts all of the terms and conditions in the Advertisement for Bids and Information to Bidders including, without limitation, those dealing with the disposition of the Bid security. This Bid will remain subject to acceptance for 60 days after the day of Bid Opening. The BIDDER will sign and submit to the Engineer the Agreement, Bonds and other pertinent documents required by the Bidding Documents within 10 days after the date of the Owner's Notice of Award.
3. In submitting this Bid, the BIDDER represents, as more fully set forth in the Agreement, that:
 - a. The BIDDER has examined and carefully studied the Bidding Documents and of the following Addenda receipts of all which is hereby acknowledged:

Date

Number

-
- b. The BIDDER has visited the site and become familiar with and is satisfied to the general, local and Site conditions that may affect cost, progress, performance and furnishing of the work.
 - c. The BIDDER is familiar with and satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the work.
 - d. The BIDDER has given the Engineer written notice of all conflicts, errors ambiguities or discrepancies that the BIDDER has discovered in the Contract Documents and the written resolution thereof by the Engineer is acceptable to the BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the work for which this Bid is submitted.
 - e. This Bid is genuine and not made in the interest of or on the behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; the BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; the BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and the BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over the OWNER.
4. The BIDDER agrees the work will be complete on or before September 15, 2024, and in accordance with the Contract Documents. The BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the work on time.
 5. The following documents are attached to and made a condition of this Bid:
 - a. Required Bid security.
 6. In submitting this bid, it is understood that the right is reserved by the OWNER to reject any and all Bids. It is agreed that this Bid may not be withdrawn for a period of 60 days from the opening thereof. It is understood that the right is reserved by the OWNER to declare any conditional or qualified Bid as irregular and reject such bid.
 7. The BIDDER will complete the work for the prices given in the attached Bidding Schedule.
 8. Communication to the BIDDER concerning this Bid shall be addressed as indicated below.

SUBMITTED BY:

CONTRACTOR:

(Name)

(Street)

(City, State, Zip)

(Signature)

(Title)

(Date)

BIDDING SCHEDULE

1. Column and riser grout

_____ Dollars _____ \$ _____

2. Fall prevention

_____ Dollars _____ \$ _____

3. Remove fill pipe insulation

_____ Dollars _____ \$ _____

4. Roof hatch gasket

_____ Dollars _____ \$ _____

5. Remove cathodic protection anode

_____ Dollars _____ \$ _____

6. Remove access tube platform

_____ Dollars _____ \$ _____

7. Repaint wet interior

_____ Dollars _____ \$ _____

8. Repaint dry interior

_____ Dollars _____ \$ _____

9. Repaint exterior with containment

_____ Dollars _____ \$ _____

10. Lettering/logo

_____ Dollars _____ \$ _____

11. Dechlorinating diffuser and tablets

_____ Dollars _____ \$ _____

BASE BID TOTAL (For selected Items 1-11)

_____ Dollars _____ \$ _____

ALTERNATE PRICING: Lettering/logo (For selected Item 12)

_____ Dollars _____ \$ _____

The total amount is subject to correction based on the final selection of alternatives, line items and on estimated quantities given for unit prices. The Owner reserves the right to delete individual line items. The Bidder, therefore, shall not "weight" his Bid with respect to any individual line item within the Bidding Schedule.

NOTICE OF AWARD

DATE:

TO:	
PROJECT:	City of Sault Ste Marie 750,000-Gallon Elevated Tank Interior & Exterior Repainting & Minor Repairs

Pursuant to the provisions of the Instructions to Bidders, you are notified that your bid dated March 25, 2024, for the above-referenced Contract has been considered. You are the apparent Successful Bidder and have been awarded a Contract for **750,000-GALLON ELEVATED TANK, INTERIOR & EXTERIOR REPAINTING & MINOR REPAIRS**.

The Contract Price of your contract is \$.

The project shall consist of the following:

1. Repair column and riser grout.
2. Furnish and install fall prevention to all ladders.
3. Remove and replace fill pipe insulation.
4. Furnish and install roof hatch gasket.
5. Remove cathodic protection anode.
6. Remove wet interior access tube platform.
7. Abrasive blast clean and repaint wet interior.
8. Abrasive blast clean and repaint dry interior.
9. Abrasive blast clean and repaint exterior with containment.
10. Apply lettering/logo per attached base bid drawing.
11. Furnish dechlorinating diffuser and tablets.

ALTERNATE PRICING:

12. Apply lettering/logo per attached alternate bid drawing.

You must deliver the following to the Engineer within 10 days after the date of this Notice of Award:

- Three fully executed counterparts of the Notice of Award.
- Deliver to the Contract Securities (Bonds) as specified in the Instructions to Bidders and General Conditions.
- Deliver certificates of insurance specified in the General Conditions.

The Engineer will then instruct the Owner to review the bonds and insurance, execute the Contract Agreement, and return all of the documents to the Engineer. Upon receipt of the fully executed documents, the Engineer will compile the contract documents for distribution to each party.

Failure to comply with these conditions within the time specified will entitle the Owner to consider your Bid in default, to annul this Notice of Award and to declare your Bid Security forfeited.

CONTRACTOR:

OWNER:

(Name) City of Sault Ste Marie
(Name)

(Street) 225 E. Portage Ave.
(Street)

(City, State, Zip) Sault Ste Marie, MI 49783
(City, State, Zip)

(Signature) (Date)

(Signature) (Date)

(Cosignature) (Date)

Return all copies to Engineer

AGREEMENT

THIS AGREEMENT made as of the _____ day of _____ in the year 2024 by and between City of Sault Ste Marie, 225 E. Portage Ave., Sault Ste Marie, MI 49783 (hereinafter called Owner) and <<>> (hereinafter called Contractor).

OWNER AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth agree as follows:

ARTICLE 1 - WORK

The CONTRACTOR shall complete all work as specified or indicated in the Contract documents. The work is generally described as follows:

City of Sault Ste Marie
750,000-Gallon Elevated Tank
Interior & Exterior Repainting
& Minor Repairs

ARTICLE 2 - CONTRACT TIME

The work will commence after May 15, 2024, and be completed within 75 consecutive calendar days after receipt of notice to proceed and also by the completion date of September 15, 2024. Further the CONTRACTOR agrees to pay liquidated damages in the event that either deadline is not met.

The OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the work is not within the times specified above. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration preceding the actual loss suffered by the OWNER if the work is not completed on time. Accordingly, instead of requiring such proof, the OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER One Thousand Dollars (\$1,000) for each day that expires after the time specified above until the work is complete. The liquidated damages charged shall be deducted from the final payment.

ARTICLE 3 - ENGINEER

The project has been designed by Nelson Tank Engineering and Consulting, Inc. of Lansing, Michigan, who is hereinafter called ENGINEER and who will act as the OWNER's representative and have the rights and authorities assigned to the ENGINEER in the Contract Documents in connection with the completion of the work.

ARTICLE 4 - CONTRACT DOCUMENTS

The Contract Documents which comprise this entire agreement between the OWNER and CONTRACTOR concerning the work consist of the following:

1. General Conditions
2. Advertisement for Bids
3. Information for Bidders
4. Specifications, including Addenda Numbers
5. Drawings
6. Bid
7. This Agreement

8. Notice of Award
9. Notice to Proceed
10. Written Amendments or Change Orders that modify or supplement the Contract Document

ARTICLE 5 - MISCELLANEOUS

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent, and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

The OWNER and CONTRACTOR each bind itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

Any provision or part of the Contract Documents held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

Any assignment by Contractor of Contractor's duties hereunder without the prior written consent of Owner, which consent may be withheld for any reason Owner deems sufficient, shall terminate this contract. In the event of such termination, provisions of Section 34 of the General Conditions concerning payment for completed and acceptable work and for its expenses sustained in performing services and furnishing labor, equipment or materials as required by the Contract Documents.

ARTICLE 6 - CONTRACT PRICE

The OWNER shall pay to the CONTRACTOR for the performance of the work in the Contract Documents, in current funds, the sum of <<>> Dollars (\$<<>>) or as shown in the bid schedule.

IN WITNESS WHEREOF, the OWNER and CONTRACTOR have signed this agreement in triplicate and returned it to NTEC for compilation and distribution.

CONTRACTOR:

(Name)

(Street)

(City, State, Zip)

(Signature)

(Date)

(Phone)

OWNER:

City of Sault Ste Marie

(Name)

225 E. Portage Ave.

(Street)

Sault Ste Marie, MI 49783

(City, State, Zip)

(Signature)

(Date)

(Cosignature)

(Date)

NOTICE TO PROCEED

DATE:

TO:	
PROJECT:	City of Sault Ste Marie 750,000-Gallon Elevated Tank Interior & Exterior Repainting & Minor Repairs

You are notified that the Contract Times under the above contract will commence to run on ____, 2024. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement the date of Completion for final payment is ____, 2024.

CONTRACTOR:

(Name)

(Street)

(City, State, Zip)

(Signature)

(Date)

OWNER:

City of Sault Ste Marie
(Name)

225 E. Portage Ave.
(Street)

Sault Ste Marie, MI 49783
(City, State, Zip)

(Signature)

(Date)

(Cosignature)

(Date)

Return all copies to Engineer

GENERAL CONDITIONS

1. **PROJECT COMMENCEMENT** Time is of the essence in the performance of this work. The Contract Time will commence to run on the day indicated on the Notice to Proceed or 10 calendar days after execution of the Agreement if no Notice to Proceed has been issued.
2. **BONDS** The Contractor shall be required to furnish a Bid Bond, Performance and Payment Bond, each in respect to the Contract Price. The individual Bonds shall be equal or greater to the stipulated percentages given below:

Bid Bond.....5%
Performance and Payment Bond.....100%

These bonds shall remain in effect at least until one (1) year after the date of final payment, except as otherwise provided by laws and regulations or as specified in the Bond. All Bonds shall be executed by Sureties licensed to conduct business in the state where the project is located and are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

If the surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements given above, the Contractor shall within ten (10) days thereafter substitute another Bond and surety, both of which must be acceptable to the Owner.

All Bonds and insurance required by the Contract Documents to be purchased and maintained by the Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the project is located to issue Bonds or insurance policies for the limits and coverages so required. The surety and insurance companies shall also meet additional requirements and qualifications as may be provided in the Supplementary Conditions.

3. **INSURANCE** The Contractor shall purchase and maintain insurance appropriate for work performed, furnished and described in the Contract Documents. The insurance shall provide protection from claims resulting from the Contractor's furnishing and execution of the work or any other obligation defined in the Contract Documents. The insurance shall provide coverage whether the work is performed by the Contractor, any subcontractor or supplier, anyone who is acting as an agent either directly or indirectly.

The insurance shall provide protection from claims given below:

- A. Workers' compensation, disability benefits and other similar employee benefit acts.
- B. Damages resulting from bodily injury, sickness, occupational sickness or disease or death of an employee or any other person.
- C. Damages insured by customary personal injury liability coverage that are sustained by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor or by any other person for any other reason.

- D. Damages other than the work itself because of injury to or destruction of tangible property wherever located, including loss of use.
- E. Damages resulting from bodily injury or death of any person or property damage arising out of ownership, maintenance or use of any motor vehicle.

The Owner and Engineer shall be listed as additional insureds on the Contractors' insurance. The insurance shall provide coverage for the respective employees or officers of all listed additional insured.

The Contractor shall issue proof of insurance (certificate) to the Owner and Engineer, which provides, in explicit detail, the coverages and limits of such insurance. If the insurance contains major exclusions that may create unknown liability to the Owner, they shall be stated or listed along with the certificate. A sample insurance certificate is included at the end of this section that provides the Minimum coverages and limits of insurance specified by the Owner.

The insurance shall be maintained and remain in effect for the duration of the work, including any additional time necessary to remedy defective work that may be determined within the warranty period.

All insurance policies and certificates required by this contract must include an endorsement providing ten (10) days prior written notice of termination, expiration or material change in terms to be provided to the Owner. The Contractor shall cease operations on the occurrence of any such event and shall not resume operations until new insurance is in force.

- 4. **SUPERINTENDENCE** The Contractor shall supervise, direct and inspect the work to ensure all aspects are performed in accordance with the Contract Documents. The Contractor shall provide a competent resident superintendent responsible for the daily operations. The superintendent shall be the Contractor's representative at the site and shall have the authority to act on behalf of the Contractor. All communications to the superintendent shall be as binding as if given to the Contractor. The superintendent shall remain on the work at all times during its progress and shall not be replaced without written notice to the Owner and Engineer except under extraordinary circumstances.
- 5. **LABOR** The Contractor shall provide well trained and skilled personnel to execute all work and related matters pertaining to the Contract Documents. The Contractor shall maintain at all times discipline and order at the site. Any employee of the Contractor who regularly acts to prevent the proper execution of the work or acts in such a manner that creates safety hazards to themselves, other personnel, or any other individuals shall be removed from the project for its entirety upon written request from the Owner or Engineer.

The Contractor shall provide such labor forces to expeditiously and qualitatively perform the work as specified in the Contract Documents. The full labor force shall remain active on the project site for the duration of the work until completion. All work shall be completed during regular working hours. The Contractor shall not work on Sundays, holidays before or after normal working hours without the Owners consent.

- 6. **MATERIALS AND EQUIPMENT** Unless otherwise specified, the Contractor shall furnish and provide all materials, equipment, labor, transportation, construction machinery, tools, appliances, power, light, heat, fuel, telephone, water, sanitary facilities, temporary facilities, and all other incidentals necessary for the furnishing, performance, testing, start-up and completion of the work.

All materials and equipment shall be new and of good quality. All warranties and guarantees specifically called for in the specification shall run expressly to the benefit of the Owner. All materials and equipment shall be furnished and installed in accordance with the manufacture's recommendations, except as otherwise provided in the Contract Documents.

7. **SUBSTITUTIONS** It shall be at the Engineer's sole discretion to qualify materials or equipment proposed by the Contractor as an "or-equal." The Contractor shall provide the Engineer with sufficient information for any proposed substitution. The Contractor shall make a written application to the Engineer requesting the acceptance of the proposed substitution, certifying that the proposed substitute will perform adequately and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. All data to be provided by the Contractor in support of any proposed substitute will be at the Contractor's expense. The Engineer will be allowed a reasonable time within which to evaluate each submitted substitute. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute. The Contractor shall reimburse the Owner all charges arising from the Engineer or Engineer's Consultants evaluation of proposed substitutions.
8. **SUBCONTRACTORS** The Contractor shall not employ any Subcontractor, Supplier, other person or other organization whether initially or as a substitute, against whom the Owner or Engineer may have reasonable objection. The Contractor shall be fully responsible to the Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, other persons and organizations performing or furnishing any of the work under direct or indirect contract with the Contractor. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, other person or organization any contractual relationship between the Owner or Engineer and any such Subcontractor, Supplier, other person or organization, nor shall it create any obligation on the part of the Owner or Engineer to pay or see the payment of any moneys due any such Subcontractor, Supplier, other person or organization except as may otherwise be required by laws and regulations.
- The Contractor shall be solely responsible for the scheduling and coordinating the work of Subcontractors, Suppliers, other persons or organizations performing or furnishing any of the work under a direct or indirect contract with the Contractor. All communication with the Engineer shall be through the Contractor.
9. **PATENT FEES AND ROYALTIES** The Contractor shall pay all license fees and royalties and assume all costs incidental to use in the performance of the work of any invention, design, process, product or device that is the subject of patent rights or copyrights held by others. To the fullest extent permitted by laws and regulation, the Contractor shall indemnify and hold harmless the Owner, Engineer, Engineer's Consultants and other agents of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product or device not specified in the Contract Documents.
10. **PERMITS** The Contractor shall obtain and pay all costs in association with construction permits and licenses. The Owner shall provide assistance to the Contractor, when necessary, in obtaining such permits and licenses. The Contractor shall pay all fees associated in obtaining the permits or licenses.
11. **TAXES** The Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by the Contractor in accordance with the laws and regulations of the location of the project which are applicable during the performance of the work.
12. **USE OF PREMISES** The Contractor shall confine all operations, the storage of materials and equipment to the site as designated by the Owner or Engineer or as permitted by the Contract Documents. The Contractor shall not unreasonably encumber the premises with construction equipment, materials or waste materials. The Contractor shall assume full responsibility for any damage to the site resulting from the performance of the work including adjacent lands or property whether publicly or privately owned. The Contractor shall promptly settle all claims resulting from the performance of the work.

The Contractor shall keep the premises free from accumulation of waste materials, rubbish and debris from and about the premises. The site shall be maintained on a daily basis to prevent creating an encumbered or unsafe working environment. The Contractor shall leave the site clean and ready for occupancy by the Owner at substantial completion of the work. The Contractor shall restore to original condition all property not designated for alteration by the Contract Documents.

The Contractor shall not load nor permit any part of any structure to be loaded in a manner that will endanger the structure, nor shall the Contractor subject any part of the work or adjacent property to stresses or pressures that will endanger it.

13. **DOCUMENTS AND RECORDS** The Contractor shall have on site and maintain one copy of complete Contract Documents including all drawings, specifications, addenda, change orders, field orders, test results and written directives or agreements. All shall be in good order and annotated to show all changes made during construction. These records shall be available to the Engineer or Owner for reference. Upon completion of the work, these records shall be delivered to the Engineer for the Owner.
14. **SAFETY** The Contractor shall be responsible for promoting, maintaining and supervising safety in connection with all aspects of the work. The Contractor shall take all necessary precautions to prevent damage, injury or loss to:
 - A. All persons involved on the work site or who may be affected by the work,
 - B. All the work and materials and equipment to be incorporated therein,
 - C. Other property at the site or adjacent to it.

The Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property. The Contractor shall erect and maintain all necessary safeguards for safety and protection. The Contractor shall notify owners of adjacent property and of underground facilities and utility owners when prosecution of the work may affect them and shall cooperate with them in the protection, removal, relocation and replacement of their property.

The Contractor shall be responsible for distribution of all material safety data sheets or other hazard notifications that are required to be made available or exchanged between or among employers at the site in accordance with laws or regulations.

The Contractor shall assume full responsibility for safety for the duration of the work. The Contractor shall designate a qualified and experienced safety representative at the site whose responsibility shall be the supervising of safety precautions and programs and ensuring they are carried out.

Neither the professional activities of the Engineer, nor the presence of the Engineer or its employees and subconsultants at the construction site, shall relieve the Contractor of its obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending and coordinating the Work in accordance the contract documents and any health or safety precautions required by any regulatory agencies. The Engineer and its personnel have no authority to exercise any control over the Contractor or its employees in connection with their work or any health and safety programs or procedures.

15. **SUBMITTALS** The Contractor shall submit shop drawings, samples, data sheets, schedules and all other pertinent information required in the Contract Documents or requested by the Engineer. The Engineer shall review the submittals and approve such, if determined in accordance with the Contract Specifications. Each submittal shall provide written indication that the Contract Specifications have been satisfied and the Contractor's obligations have been met. The

Contractor shall provide a separate written notice of any variance that the submittal may have from the requirements of the Contract Documents.

The written notice of variance shall be reviewed by the Engineer. The Engineer shall either approve or reject the variance based upon the Owners best interest and the specific intent of the Contract Documents.

All submittals or shop drawings shall be approved and certified by the Contractor as conforming with the requirements in the Contract Documents before being forwarded to the Engineer. The Contractor shall allow sufficient time for the Engineer's review and response. The Engineer's review shall not release the Contractor from responsibility for deviations from the requirements of the Contract Documents. No subsequent work shall be performed until such time as the review has been fully completed and acceptance granted. The Engineer may allow conditional acceptance based upon the Owner's best interest.

The Engineer's review and approval will only determine if the submittal will conform to the information given in the Contract Documents and be compatible with the design in part and whole for the entire project. The Engineer's review and approval will not extend to means, methods, techniques, sequences or procedures of construction or to the safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. The Contractor shall make corrections required by the Engineer and shall return the required number of corrected copies of shop drawings and submit as required new samples for review and approval. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Engineer on previous submittals. The Engineer's review and approval of shop drawings shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has in writing called the Engineer's attention to each variation at the time of the submission and the Engineer has given written approval of each variation.

16. **WARRANTY** The Contractor warrants and guarantees to the Owner and Engineer that all work will be in accordance with the Contract Documents and will not be defective. The Contractor shall guarantee all workmanship and materials for the period of one year, starting immediately after final payment is made. The Owner reserves the right to inspect the work anytime within the warranty period. Any defects discovered due to faulty workmanship or materials shall be corrected by the Contractor at the Contractor's expense. All defect corrections shall be completed in accordance with the full requirements of the Contract Documents. The Contractor shall provide the Owner with an insurance certificate with coverages as specified in the Contract Documents during the length of the defect corrections. The Contractor shall pay for all additional costs incurred by the Owner caused by the repair of defective work. Additional costs may include, but are not limited to, startup costs, material testing, sampling, engineering costs, consulting fees, inspection costs, utility expenses, materials and labor provided by the Owner.
17. **INDEMNIFICATION** The Contractor shall indemnify and hold harmless the Owner, Engineer, Engineer's Consultants and the officers, directors, employees, agents and other Consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the work, provided that any such claim, cost, loss or damage: is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting there from, and (ii) is caused in whole or part by any negligent act or omission of the Contractor, any Subcontractor, any supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by laws or regulations regardless of the negligence of any such person or entity.

The indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any such subcontractor, supplier or other person or organization under worker's compensation acts, disability benefit acts or other employee benefit acts.

18. **CONTINUANCE OF OBLIGATIONS** All warranties, guarantees and indemnifications required by or given in accordance with the Contract Documents and all continuing obligations will survive final payment, completion of the work and termination or completion of the Agreement.
19. **RELATED WORK** The Owner reserves the right to perform other work at the project site either using the Owner's forces or using separate contracting forces. The Contractor shall provide coordination with the other contracting entity. The Contractor shall provide a reasonable opportunity for the other contracting entity to successfully complete their work. The Contractor shall provide proper and safe access to the site and a reasonable opportunity to deliver and store materials and equipment. The Contractor shall not endanger the work of others during the performance of the Work.

If the proper execution or results of any part of the Contractor's work depends upon work performed by others, the Contractor shall inspect such other work and promptly report to the Engineer in writing any delays, defects and deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of the Contractor's work. The Contractor's failure to report will constitute an acceptance of such other work as fit and proper for integration of the Contractor's Work.

20. **OWNER'S REPRESENTATIVE** The Engineer shall be the Owner's representative during the construction period. The duties, responsibilities and limitations in authority as the Owner's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of the Owner and Engineer.
21. **PROJECT REPRESENTATIVE** The Owner reserves the right to contract the services of the Engineer's project representative to assist the Engineer in observation of the work. If the Owner designates another representative or agent to represent the Owner at the site who is not the Engineer's consultant, agent or employee, the responsibilities and authorities of such other person will be as provided in the supplementary conditions.
22. **SITE VISITS** The Engineer will make visits to the site at appropriate intervals for the construction phases as deemed necessary by the Engineer. The Engineer shall make observations as to the Contractor's progress and quality of the work executed. The Engineer will endeavor, for the benefit of the Owner, to determine, in general, if the work is proceeding in accordance with the Contract Documents. The Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work. The Engineer's efforts will be directed toward providing the Owner with a greater degree of confidence that the completed work meets the requirements of the Contract Documents. The Engineer will keep the Owner informed of the progress of the work and will endeavor to guard the Owner against defective work. The Engineer's visits and on-site observations are subject to all the limitations on the Engineer's authority and responsibility. The Engineer will not supervise, direct, control or have the authority over or be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, for any failure of the Contractor to comply with the laws and regulations applicable to the furnishing or performance of the work.
23. **DISPUTES** All disputes shall be directed to the Engineer for interpretation of the Contract Documents and review for the acceptability of the work. All claims and disputes shall be directed to the Engineer in writing with a request for resolution of such claim or dispute. Claimants shall submit pertinent and complete data substantiating such claim or dispute. The opposing party shall also be allowed to submit data substantiating their response or counter claim. Each parties claim or resulting response shall provide submittals within 30 days of each such claim or response. The

Engineer's written decision will be considered binding for both the Owner and Contractor. If the dispute cannot be resolved, a local court with jurisdiction may be used for resolution. The Engineer shall be notified in writing of the request for formal appeal within 30 days of the Engineer's written decision.

The Contractor shall continue the Work and adhere to the progress schedule during all disputes with the Owner. Delays in the Work due to disputes or pending resolutions shall not extend the Contract Times unless agreed to in writing by the Owner and Contractor.

24. **INTERPRETATIONS** The Engineer shall issue written clarifications of the Contract Documents when called upon and after receiving a written request. Such clarifications shall be considered binding for all respective parties. The Engineer may authorize minor variations in the work described in the Contract Documents. In doing so, the minor variations shall not involve changes in the Contract price or Contract times. The adjustments shall be accomplished by providing a Field Order that shall become binding, as a part of the Contract Documents.
25. **UNIT PRICES** The Engineer will provide analysis and make determinations for the quantities of unit price work performed by the Contractor. The Engineer's decision will become binding for all respective parties.
26. **ENGINEER'S AUTHORITY** The Engineer's responsibility and authority under the provisions of the Contract Documents shall not create, impose or give rise to any duty owed by the Engineer to the Contractor, any Subcontractor, any supplier, any person or organization, or to any surety for or employee or agent of any of them. The Engineer will not supervise, direct, control or have authority over or be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with the laws and regulations applicable to the furnishing or performance of the work. The Engineer will not be responsible for the Contractor's failure to furnish or perform the work in accordance with the Contract Documents. The Engineer will not be responsible for the acts or omissions of the Contractor, Subcontractor, supplier, or of any other person or organization performing or furnishing any of the work.
27. **CHANGES IN THE WORK** The Owner may, at any time, order additions, deletions or revisions in the work without invalidating the agreement and without notice to any surety. Any such addition, deletion or revision will be authorized by a written amendment, change order or field order. The Contractor shall promptly proceed with the work upon receipt of such notification. The Contractor and Owner shall execute change orders recommended by the Engineer for:
 - A. changes in the contract price or contract times which are agreed to by both parties,
 - B. changes in the work that cause an adjustment in the contract price or contract times and which are agreed to by both parties.

The Owner may order work directives that do not change the contract price or contract times. Such notifications will be authorized by a written field order.

If notice of any change affecting the general scope of the work or the provisions of the Contract Documents is required by the provisions of any bond to be given to the surety, the Contractor shall be responsible for giving such notice and the amount of each applicable bond shall be adjusted accordingly.

The contract price may only be changed by a change order or by a written amendment. All claims for adjustments in the contract price shall be determined by the Engineer in the event the Owner and Contractor cannot otherwise agree on the amount involved. The Contractor shall be solely responsible to notify the surety if changes affect the scope of work and adjustments in bonds are required.

28. **CHANGES IN CONTRACT TIMES** Any change in the contract times may only be performed by a change order or a written amendment. All time limits are the essence of the Contract Documents. Where the Contractor is prevented from completing any part of the work within the stated contract times due to delay beyond the control of the Contractor, the contract times will be extended in an amount equal to the time lost due to such delay if a claim is made within 30 days of the occurrence of the delay. The claim shall be written notice from the Contractor made to the Engineer giving the extent of the claim and all supporting data. Delays beyond the control of the Contractor shall include, but not be limited to, acts or neglect by the Owner, acts or neglect of utility owners, fires floods, epidemics, abnormal weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or supplier shall be deemed to be within the control of the Contractor. In no event shall the Owner be liable for damages arising out of or resulting from delays within the control of the Contractor or delays beyond the control of the Owner, Contractor or other agents.
29. **UNIT PRICE WORK** Where the Contract Documents provide for unit price work, initially the contract price will be deemed to include for all unit price work an amount equal to a sum of the established unit price for each separately identified item of the unit price work times the estimated quantity of each item as indicated in the agreement. The estimated quantities of the items of unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial contract price. Determinations of the actual quantities and classification of unit price work will be made by the Engineer.
30. **INSPECTIONS AND TESTS** All materials and equipment used in the performance of the work shall be subject to adequate inspection and testing in accordance with generally accepted standards or as described in the Contract Documents. The Owner, Engineer, Engineer's consultant, other agents of the Owner will have access to the work at reasonable times for observation, inspection and testing. The Contractor shall provide such safe access to the work. The Contractor shall allow use of rigging, equipment and personnel to assist in operation of such equipment and rigging for access to the work.

The Contractor shall give the Engineer timely notice of the readiness of the work for all required inspections, tests and approvals. The Contractor shall cooperate and assist the inspection and testing personnel to facilitate the inspections and tests.

If laws or regulations of any public body having jurisdiction require any work specifically to be inspected, tested or approved, the Contractor shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish the Engineer the required certificates of inspection or approval. The Contractor shall be responsible for arranging, obtaining and shall pay all costs associated with such inspections, tests or approvals as required by the Owner, Engineer or governmental agency with jurisdiction.

Any work that is to be tested, inspected or approved which is covered by the Contractor, without written concurrence of the Engineer, shall be uncovered by the Contractor for observation, if requested by the Engineer. All associated costs related to the covering and uncovering shall be at the Contractor's expense.

31. **DEFECTIVE WORK** The Engineer will have the authority to reject work deemed defective or not in accordance with the Contract Documents. The Engineer reserves the right to perform special testing or inspection to ensure the design criteria has been met and the Contract Documents intent has not been compromised. The Contractor shall correct all defective work, if requested by the Engineer. The Contractor shall pay for all costs arising out of or resulting from the correction of defective work, including but not limited to the repair or replacement costs for the work of others.

If defective work is uncovered, the Contractor shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and

testing and of satisfactory replacement or reconstruction. The Owner shall be entitled to an appropriate decrease in the contract price.

If the work is found to be defective within one year of substantial completion, the Contractor shall promptly correct such defective work or replace rejected work with non-defective work, either without cost to the Owner. The Contractor shall correct or replace defective work in accordance with the Owner's written instructions.

The Owner reserves the right to correct defective work if the Contractor fails to correct the work within a reasonable time, after written notification by the Engineer, or if the Contractor fails to perform the work in accordance with the Contract Documents or fails to comply with its provisions. The Owner may, after seven days written notice to the Contractor, correct and remedy such deficiencies. All claims, costs, losses and damages incurred or sustained by the Owner in exercising such actions will be charged against the Contractor. The Contractor shall not be allowed an extension of the contract times due to any delay in the performance of the work attributable to the exercise by the Owner.

The Owner may order the Contractor to stop the work or any portion thereof if the Contractor fails to supply sufficient skilled workers, suitable materials or equipment. The Owner may order to stop the work if the Contractor fails to perform the work in accordance with the Contract Documents or if the work is deemed defective. The right of the Owner to stop the work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor, any surety or other party.

32. **PAYMENT** The schedule of values as set forth in the Contract Documents will serve as the basis for progress payments and will be incorporated into a form of application for payment acceptable to the Engineer. Progress payments for unit price work will be based on the number of units fully completed.

All requests for progress payments shall be submitted, by the Contractor to the Engineer, twenty days prior to the date established for each progress payment. The Contractor shall submit to the Engineer, not more than once a month, an application for payment, filled out and signed by the Contractor, covering the work completed as of the date of application and accompanied by such supporting data as required by the Contract Documents. The amount of retainage will be as stipulated in the Contract Documents.

The Engineer will, within ten days after receipt of each application of payment, either indicate in writing a recommendation of payment and present the application to the Owner or return the application to the Contractor indicating the Engineer's reasons for refusing to recommend payment. In the latter case the Contractor may make necessary recommendations and resubmit the application.

The Engineer's recommendation on payment request applications will constitute a representation by the Engineer to the Owner, based on the Engineer's on-site observations of the executed work as an experienced and qualified design professional and on the accompanying data and schedules, that to the best of the Engineer's knowledge, information and belief:

- A. the work has progressed to the point indicated,
- B. the quality of work is generally in accordance with the Contract Documents and
- C. the conditions precedent to the Contractor's being entitled to such payment appear to have been fulfilled in so far as it is the Engineer's responsibility to observe the work.

The Engineer, by recommending such payment, will not be deemed to have represented that: exhaustive or continuous on-site inspections have been made to check quality or the quantity of

the work beyond the responsibilities assigned to the Engineer by the Contract Documents or, other matters or issues between the parties that might entitle the Contractor to be paid additionally by the Owner or entitle the Owner to withhold payment to the Contractor.

The Engineer's recommendation of any payment shall not mean the Engineer is responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety programs incident thereto, or for any failure of the Contractor to comply with the laws and regulations applicable to furnishing the work, or for any failure of the Contractor to perform or furnish the work in accordance with the Contract Documents.

The Engineer may refuse to recommend the whole or any part of any payment if, in the Engineer's opinion, it would be incorrect to make such representations to the Owner. The Engineer may refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such previously recommended, to such an extent as may be necessary in the Engineer's opinion to protect the Owner from loss because:

- A. the work is defective, or completed work has been damaged requiring correction or replacement,
- B. the Contract price has been reduced by written amendment or change order,
- C. the Owner has been required to correct defective work or complete work.
- D. the Engineer has actual knowledge of the occurrence of any events where work was completed not in accordance with the Contract Documents.

The Owner may refuse to make payment of the full amount recommended by the Engineer because:

- A. claims have been made against the Owner on account of the Contractor's performance or furnishing of the work,
- B. liens have been filed in connection with the work, except where the Contractor has delivered a specific bond satisfactory to the Owner to secure the satisfaction and discharge such liens,
- C. there are other items entitling the Owner to a set-off against the amount recommended, or
- D. the Owner has actual knowledge of the occurrence of any events where work was completed not in accordance with the Contract Documents.

The Owner will give the Contractor written notice stating the reasons for such action. The Owner will promptly pay the Contractor all withheld amounts, agreed to by both parties, when the Contractor corrects to the Owner's satisfaction the reasons for such action.

33. **WORK SUSPENSION** At any time and without cause the Owner may suspend the work or any portion thereof for a period of not more than ninety days by written notice to the Contractor and Engineer that will fix the date on which work will resume. The Contractor shall be allowed an adjustment in the Contract price or an extension of the Contract time or both, directly attributable to such action by the Owner.

34. **TERMINATION** The Owner may terminate upon the occurrence of any one of the following:

- A. if the Contractor persistently fails to perform the work in accordance with the Contract Documents,
- B. if the Contractor disregards laws or regulations of any public body having jurisdiction,
- C. if the Contractor disregards the authority of the Engineer; or
- D. if the Contractor otherwise violates in any substantial way any provisions of the Contract Documents.

The Owner may, after giving seven days written notice to the Contractor and Surety, if any, terminate the services of the Contractor, exclude the Contractor from the site and take possession of the work. The Owner may use such additional equipment, materials and labor as deemed necessary for the complete and successful execution of the work. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price exceeds all claims, costs, losses and damages sustained by the Owner arising out of or resulting from completing the work such excess will be paid to the Contractor. If such claims, costs, losses and damages exceed such unpaid balances, the Contractor shall pay the difference to the Owner. In such instances, the Engineer will review as to the reasonableness and when so approved incorporate in a change order. The Owner, when exercising such rights or remedies, shall not be required to obtain the lowest price for the work performed.

Where the Contractor's services have been so terminated by the Owner, the termination will not affect any rights or remedies of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the Contractor by the Owner will not release the Contractor from liability. If the Owner elects to terminate the agreement, the Contractor shall be paid:

- A. for completed and acceptable work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such work,
- B. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, equipment or materials as required by the Contract Documents in connection with uncompleted work, plus fair and reasonable sums for overhead and profit on such expenses,
- C. for all claims, costs, losses and damages incurred in settlement of terminated contracts with subcontractors, suppliers and others; and
- D. for reasonable expenses directly attributable to termination.

35. **CONTRACT DOCUMENTS** The Contract Documents comprise the entire agreement between the Owner and Contractor concerning the work. The Contract Documents are complimentary; what is called for by one is as binding as called by all. The Contract Documents will be construed in accordance with the law of the place of the project.

It is the intent of the Contract Documents to describe a functionally complete project or part thereof. Any work, materials or equipment that may be reasonably inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. The Contractor shall provide and pay for all materials, labor, equipment, utilities, transportation, supervision and all other services and facilities necessary to complete the Work within the specified time.

References to standards, specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such

reference be specific or by implication, shall mean the latest standard, specification, manual, code or laws and regulations in effect at the time of the opening of bids, except as may be otherwise specifically stated in the Contract Documents.

If, during the performance of the work, the Contractor discovers any conflict, error, ambiguity or discrepancy within the Contract Documents, the Contractor shall report it to the Engineer in writing immediately. The Contractor shall not proceed with the work affected by such until an amendment or supplement to the Contract Documents has been issued.

The Contract Documents may be amended to provide for additions, deletions and revisions in the work or to modify the terms or conditions thereof by either a written amendment or change order. The Contract Documents may be supplemented or minor variations in the work through use of a field order, Through Engineer's approval of shop drawings or samples, or the Engineer's written interpretation or clarification.

36. **LAND AVAILABILITY** The Owner shall furnish the lands upon which the work is to be performed, rights-of-way and easements for access thereto, and such other lands that are designated for the use of the Contractor. Upon reasonable written request, the Owner shall furnish the Contractor with a correct statement of record legal title and legal description of the lands which the work is to be performed and the Owner's interest therein as necessary for giving notice of or filing a mechanics lien against such lands in accordance with applicable laws and regulations. The Owner shall identify any encumbrances or restrictions not of general application but specifically related to the use of lands so furnished with which the Contractor will have to comply in performing the work. The Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.
37. **REUSE OF DOCUMENTS** The Contractor and any subcontractor or supplier or other person or organization performing or furnishing any of the work under a direct or indirect contract with the Owner shall not:
- A. have or acquire any title to or ownership rights in any of the drawings, specifications or other documents prepared by or bearing the seal of the Engineer or Engineer's consultant,
 - B. reuse any of such drawings, specifications or other documents on extensions of the project or any other project without written consent of the Owner and Engineer and specific written verification or adaptation by the Engineer.
38. **LAWS AND REGULATIONS** The Contractor Shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. The Owner and Engineer Shall not be responsible for monitoring the Contractor's compliance With Laws and Regulations. The Contractor shall bear all claims, costs, losses and damages caused by, arising out of or resulting from performing the Work contrary to Laws and Regulations.
39. **STANDARDS** Reference to standards, codes, specifications or regulations shall be construed to mean those which are in effect on the effective date of the Agreement. The responsibilities of the Owner, Contractor or Engineer or their agents, employees shall not be changed by provisions within referenced standards, codes, specifications or regulations. The provisions of the Contract Documents shall be deemed to take precedence ambiguities, conflicts or errors with referenced standards, codes, specifications or regulations.
40. **TAXES** The Contractor shall pay all applicable taxes required to be paid by the Contractor as required by laws and regulations in the locality of the project in conjunction with the performance of the work.

GENERAL CONDITIONS SUPPLEMENT

A. Insurance Limits

All Contractors, including Subcontractors, shall procure and maintain during the life of this contract and for 18 months after the project's completion date, General Liability protection which names the Owners and Engineers as additional insureds. Proof of such coverage is required.

B. The Contractor shall maintain during the life of this contract Owner's and Contractors' Protective Liability coverage in the name of:

- 1) The Owner
- 2) The Engineer,

in the amount of \$1,000,000 each occurrence and \$2,000,000 aggregate.

C. The Contractor shall have, as a minimum, an insurance policy from an insurance company licensed by the State of Michigan as described below:

- 1) Comprehensive General Liability including coverage for contractual liability, completed operations and product liability, to include CG 20 10 and CG 20 37.
- 2) Amounts
 - a.

Comprehensive General Liability	
Bodily injury	\$1,000,000 each occurrence \$2,000,000 aggregate
Property damage	\$1,000,000 each occurrence \$2,000,000 aggregate
 - b. Commercial General Liability insurance limits shall be \$1,000,000 each occurrence and \$2,000,000 aggregate.
 - c.

Comprehensive Automobile Liability	
Combined Single Limit	\$1,000,000
 - d.

Workman's Compensation	
Employer's Liability	\$500,000/\$500,000/\$500,000
(i)	The Workman's Compensation policy shall be endorsed with a Waiver of Subrogation in favor of the Owner and Nelson Tank Engineering & Consulting, Inc.
 - e. Commercial Umbrella Liability insurance limits shall be \$1,000,000 each occurrence.

D. Additional Insured

The Owner and Nelson Tank Engineering & Consulting, Inc. shall be additional insureds on the Contractor's and subcontractor's primary and excess insurance policies for Commercial General Liability, Automobile Liability and Commercial Umbrella policies. The additional insured coverage shall be primary and non-contributory to any of the Owner's insurance policies. The Certificate of

Insurance will show the Owner and Nelson Tank Engineering & Consulting, Inc. as additional insureds on the Contractor's and subcontractor's primary and excess insurance policies for Commercial General Liability, Automobile Liability and Commercial Umbrella policies.

E. Waiver of Subrogation

The Contractor agrees to waive rights of subrogation which any insurer of the Contractor may acquire from the Contractor by virtue of the payment of any loss. Contractor shall obtain any endorsement necessary to affect this Waiver of Subrogation.

F. Indemnification

The Contractor agrees to indemnify and save harmless the Owner, Nelson Tank Engineering & Consulting, Inc. and all of their officers, partners, agents and employees from and against all loss or expense (including court costs and attorney's fees) by reason of liability imposed by law upon Owner and Nelson Tank Engineering & Consulting, Inc. for damages because of bodily injury, including death at any time, resulting therefrom sustained by any person or persons or on account of damage to or destruction of property, real or personal, including loss of use thereof, arising out of or in consequence of performance of this Work, whether such injuries to or death of persons or damage to property is due or claimed to be due to the negligence of the Contractor, its Subcontractors, the Owner, Nelson Tank Engineering & Consulting, Inc., their officers, partners, agents and employees, except only such injury, death or damage as shall have been occasioned by the sole negligence of the Owner or Nelson Tank Engineering & Consulting, Inc.

G. No work will be performed without the above policies being currently in effect.

H. Should the policy be canceled or expired, the Contractor shall cease all activities pending reinstatement of such policy in conformity with the above.

I. Proof of insurance shall be the Certificate of Insurance, or if requested, a copy of the policy, or both.

DIVISION ONE - GENERAL

PART 1 GENERAL

1.01 GENERAL

- A. The specifications (Division One through Nine) have been written in imperative or abbreviated form.
- B. The imperative language of the technical specifications is directed toward the Contractor unless noted otherwise.
- C. Incomplete sentences shall be completed by inserting "shall" or "shall be" and similar mandatory phrases by inference.

1.02 WORK SUMMARY

- A. It is the intent of these Contract Specifications to complete the project in a highly proficient manner that ensures first class project.
- B. Any details, techniques or methods not specifically mentioned, but obviously required to meet the specifications, their intent and accepted trade practices shall be used to produce a first-class job and shall be considered incidental to the work.
- C. The Contractor shall provide and furnish all labor, materials, tools and equipment to complete the work as described. The work includes the following:

- 1) Repair column and riser grout.
- 2) Furnish and install fall prevention to all ladders.
- 3) Remove and replace fill pipe insulation.
- 4) Furnish and install roof hatch gasket.
- 5) Remove cathodic protection anode.
- 6) Remove wet interior access tube platform.
- 7) Abrasive blast clean and repaint wet interior.
- 8) Abrasive blast clean and repaint dry interior.
- 9) Abrasive blast clean and repaint exterior with containment.
- 10) Apply lettering/logo per attached base bid drawing.
- 11) Furnish dechlorinating diffuser and tablets.

ALTERNATE PRICING:

- 12) Apply lettering/logo per attached alternate bid drawing.

1.03 EXISTING CONDITIONS

- A. Tank erection date: 1969

DIVISION ONE - GENERAL

- B. Capacity: 750,000-gallons
- C. Tank design: PDM, Toro-spherical
- D. Height to high water line: 84 feet
- E. Google map coordinates: 46.48777, -84.36272
- F. Interior coating type: Epoxy
- G. Exterior coating type: Aluminum Alkyd
 - 1) Environmental tests
 - (a) Lead: Present
- H. Dry interior coating type: Aluminum Alkyd
 - 1) Environmental tests
 - (a) Lead: Present

1.04 PAYMENT

- A. Payment requests shall be based upon the following:
 - 1) Values set forth in the Bid Schedule.
 - 2) Partial or progress payments will be considered.
 - 3) Payment shall be based on the completion of the work and shall be made in lump sum.
 - 4) Material or mobilization costs will not be considered in pay requests.
- B. Council/Board meetings:
 - 1) Set on the 1st and 3rd Monday of each month.
 - 2) Submit pay request to Engineer fifteen (15) days prior to council/board meetings.

1.05 MEETINGS

- A. Owner or Engineer may request a preconstruction meeting prior to the delivery of materials or the start of work.
- B. Contractor shall attend this meeting, if so required, and shall notify major subcontractors of such.
- C. The meeting will be held at the Owner's suggested location on a mutually acceptable date.
- D. Engineer will administer the meeting, set the agenda and distribute the minutes.
- E. Participants shall report corrections and comments within ten (10) days of receipt of the minutes.
- F. The Owner or Engineer may call for periodic meetings to:
 - 1) Establish the progress of the work.
 - 2) Review problems, conflicts or concerns.

DIVISION ONE - GENERAL

- 3) Meetings will be held at the Owner's suggested location on a mutually acceptable date.

1.06 SUBMITTALS

- A. Provide submittals to the Engineer upon request in accordance with the General Conditions (Article 15).
- B. Certify that the Contract Specifications have been satisfied and the Contractor's obligations have been met.
- C. Submittals shall include but are not limited to the following:
 - 1) Material invoices
 - 2) Progress schedule
 - 3) Shop drawings
 - 4) Product data
 - 5) Samples
 - 6) Worker certifications
 - 7) Waste manifests
 - 8) Permits
- D. Make submittals in such sequence as to cause no delay in the work or the work of others.
- E. No damages will be awarded or extension of time granted due to the submittal review process.
- F. Make all corrections or changes in the submittals required by the Engineer and resubmit.
 - 1) Indicate any changes that have been made other than those requested by the Engineer.
 - 2) Present in a clear and thorough manner all shop drawings and product data.
 - 3) Depict dimensions and clearances on shop drawings with details referencing the Contract Specification.
 - 4) Modify or supplement Manufacture's standard product data sheets to provide information specifically applicable to the work.

1.07 INSPECTION AND TESTING

- A. Inspection and testing are essential to the proper execution of the work. Inspection and testing not specifically mentioned shall be done by generally accepted methods, unless otherwise specified by the Engineer. Assistance for the inspections shall be considered incidental to the work. The Contractor shall comply with the following:
 - 1) Notify the Engineer that an inspection interval has been reached.
 - 2) Provide the Engineer with a written progress schedule for establishing inspection intervals that meets the Engineer's requirements.

DIVISION ONE - GENERAL

- 3) Provide the Engineer with 48-hour notification of any expected change in schedule, including weather delays.
- 4) Provide safe access to the work in the form of scaffolding, rigging, etc. and personnel for operation of such to assist in expediting each inspection.
- 5) Halt all work in the immediate area of the inspector until such time as the inspection has been completed.
- 6) Contractor shall pay all costs for inspections where:
 - (a) Inspection interval has not been met.
 - (b) Defective work requires additional visit.
 - (c) Poor scheduling or communication results in extra inspection visit.

1.08 CLEAN UP AND SITE WORK

- A. The Contractor shall maintain the construction site in a condition that:
 - 1) Is conducive to proper execution of the Contract.
 - 2) Eliminates possible safety hazards.
 - 3) Minimizes the unpleasant aesthetics to the area residents.
- B. Any damage to public or private property caused by the Contractor shall be repaired or corrected at the Contractor's expense.
- C. Monitor and maintain the site continually throughout the course of the work.
- D. Collect and deposit waste, rubbish and debris in a work site dumpster or roll-off box until removal.
- E. Remove from the site, upon completion, the following:
 - 1) Rubbish and waste.
 - 2) Surplus materials.
 - 3) Construction debris.
 - 4) Equipment and tools.
 - 5) Machinery.
- F. Leave the site clean and ready for use by the Owner and restore to original condition those portions of the site not designated for alteration by the Contract documents.
 - 1) Lawn Restoration
 - (a) Level and smooth ground surface to original condition.
 - (b) Import fertile, friable topsoil, containing a minimum of 2.5% and a maximum of 12% organic matter as determined by the Loss on Ignition Test with not more than 50% clay and not more than 55% sand as determined by ASTM D 422.
 - (01) Bring soil to friable condition by disking or harrowing to a depth of 3 to 4 inches. Apply fertilizer and seeding to soil in friable condition.
 - (02) Apply fertilizer uniformly to 500 pounds per acre.

DIVISION ONE - GENERAL

- (03) Work fertilizer in topsoil to a depth of 1 to 2 inches.
 - (c) At least 90% of the material shall pass the No. 10 sieve and shall be free of deleterious material larger than 1-inch in diameter.
 - (d) Material shall be free of refuse or material toxic to plant growth.
 - (e) Seed lawns per MDOT Class A.
 - (01) Apply seeding between April 20 to November 1
 - (02) Hand rake all lawn areas.
 - (03) Sow lawn seed at 200 pounds per acre.
 - (f) Seed other areas per MDOT roadside.
 - (01) Sow other seed at 100 pounds per acre.
 - (g) Apply mulching to all seeded areas uniformly at 2-1/2 bales per 1000 square feet.
- G. Conduct an inspection of all work areas, interior and exterior surfaces to verify that it is clean.

1.09 TEMPORARY FACILITIES

- A. The Contractor shall be responsible and pay for all costs associated with temporary facilities used in the execution of the work.
- 1) Unless otherwise stated or provided, the Contractor shall supply temporary electrical power to the site.
 - (a) Electrical wiring and distribution shall conform to the National Electrical Code.
 - 2) Acquire any permits and pay any associated fees required prior to the use of hydrants as a water source.
 - (a) Pay costs for water consumed during the execution of the work at the current rate.
 - 3) Install, maintain and remove temporary sanitary facilities.
 - (a) Keep well maintained and observe all health department rules and regulations.
 - (b) Take precautions to prevent the creation of unsanitary conditions.

1.10 MATERIALS, EQUIPMENT AND STORAGE

- A. Provide transportation, delivery, unloading and handling of equipment and materials to the site in an undamaged condition and on schedule to avoid delays.
- 1) Materials and equipment shall be delivered in:
 - (a) Original containers.
 - (b) Packaging with labels intact and legible.
 - 2) Materials and equipment shall be unloaded and handled by:

DIVISION ONE - GENERAL

- (a) Trained personnel and equipment at the site to prevent damage.
 - (b) Methods and at designated lifting points to prevent overstressing or permanent damage.
- B. Provide suitable storage for equipment and materials immediately upon delivery.
 - 1) Store products subject to damage by elements in accordance with manufactures' recommendations.
 - 2) Provide protection to all installed materials and equipment as necessary to prevent damage from subsequent work.
- C. Remove or replace materials or equipment, at Contractor's expense, damaged during the following:
 - 1) Transportation
 - 2) Handling
 - 3) Storage
 - 4) Installation
 - 5) Subsequent operations
- D. Provide protection of installed materials and equipment to prevent damage from subsequent performance of the work.

1.11 AVAILABILITY OF LANDS AND USE OF PREMISES

- A. Maintain construction operations within the Owner's property boundaries, existing Rights of Way and established construction easements for the project.
- B. If deemed necessary to perform construction operations outside these boundaries, obtain written agreements with property owners or agencies that have jurisdiction.
- C. Furnish the Owner and Engineer copies of all said written agreements prior to construction activities on these properties.
- D. Until final restoration can be made, maintain affected areas, in a passable condition, including but not limited to:
 - 1) Public roads
 - 2) Driveways
 - 3) Sidewalks
 - 4) Parking areas
- E. Provide emergency access to property within the vicinity for police, fire equipment or ambulance services.

1.12 PERMITS

- A. Secure all permits of temporary nature required by agency having jurisdiction.
- B. Abide by all of agency's rules and regulations.

DIVISION ONE - GENERAL

- C. Pay for all costs associated with permits and inspections as agency may charge to insure compliance with their requirements.

1.13 COORDINATION

- A. Coordinate work in the Project area with:
 - 1) Subcontractors.
 - 2) Utility companies, if any.
 - 3) All other Contractors.
- B. Use typical construction sequencing practices to avoid interference and delays in the areas with common construction activities.
 - 1) Perform all weld and structural repairs prior to painting.

1.14 COOPERATION

- A. Conduct operations in such a manner that minimize interference with other contractors, utilities or any public agency on or near the construction site.
- B. Cooperate with such other parties to cause as little interference as possible with their operations.
- C. Do not conduct operations when local restrictions on working hours, weekend and holiday work are in effect.
- D. No additional compensation shall be provided to the Contractor for delays or interference due to the operations of such parties.
- E. Owner reserves the right to conduct other work by itself or through contract.

1.15 PROTECTION OF PROPERTY

- A. Protect adjacent public or private property from potential damage resulting from the execution of the work.
- B. Restore, at Contractor's expense, any private or public property damaged as a result of any act or omission on his part or on the part of his employees or agents.
 - 1) Damaged property shall be restored to a condition similar to and equal to that existing before such damage was done.
 - 2) If Contractor fails to make such repairs or replacement, Owner may, after 48 hours notice to Contractor:
 - (a) Proceed to make such repairs or replacement.
 - (b) Deduct the cost from any moneys due or that will become due the Contractor.

DIVISION ONE - GENERAL

1.16 WORK ACCESS AND RIGGING

- A. Contractor shall provide sufficient rigging and equipment necessary for the proper execution of the work.
- B. Equipment, rigging, staging and scaffolding shall conform to the requirements as set forth by OSHA Construction Standards.
- C. Rigging shall allow for close access for the work to allow full execution of the work and close examination for inspection.
- D. Any modifications to the structure shall require prior approval from the Engineer.
 - 1) When approved, openings cut shall incorporate threaded couplings welded completely with plugs to be installed upon completion.
- E. Scaffolding shall be constructed in accordance with the manufacture's recommendations in regard to height and width and with OSHA 1926.451.
 - 1) Height to width ratio shall not exceed 4:1 without other provisions installed.

1.17 FENCES

- A. Remove and replace fences as indicated by specifications or as directed by the Engineer.
- B. Where fences are encountered during construction but not indicated in specification nor directed by Engineer, Contractor shall replace or restore such.
 - 1) Replace fencing damaged materials at Contractor's expense.
 - 2) Replace fencing to a condition comparable to that prior to construction.
- C. After removal and replacement, all surplus material shall be removed and disposed.
- D. Holes or voids resulting from removal of fencing shall be backfilled with a suitable material, approved by Engineer.

DIVISION THREE - GROUT REPAIR

PART 1 GENERAL

1.01 CONCRETE FORMWORK

- A. Conform to ACI 301 - Specifications for Structural Concrete for Buildings.
- B. Conform to ACI 347 - Recommended Practice for Concrete Formwork.

1.02 CONCRETE REINFORCEMENT

- A. The work shall comply with the following:
 - 1) ACI 117 Standard Specifications for Tolerances for Concrete Construction and Materials.
 - 2) ACI 315 - Details and Detailing of Concrete Reinforcement.
 - 3) ACI 318 - Building Code Requirements for Reinforced Concrete.

1.03 CAST IN PLACE CONCRETE

- A. The work shall comply with the following:
 - 1) ACI 117 Standard Specifications for Tolerances for Concrete Construction and Materials.
 - 2) ACI 301- Specifications for Structural Concrete for Buildings.
 - 3) ACI 318 - Building Code Requirements for Reinforced Concrete.
 - 4) ACI 302.1R - Guide for Concrete Floor and Slab Construction.
 - 5) ASTM C 33 - Specification for Concrete Aggregates.
 - 6) ASTM C 39 Specification for Compressive Strength of Cylindrical Concrete Specimens.
 - 7) ASTM C 94 - Specification for Ready-Mixed Concrete.
 - 8) ASTM C 150 - Specification for Portland Cement.
 - 9) ASTM C 494 - Specification for Chemical Admixtures for Concrete.
 - 10) MDOT - Standard Specifications for Construction.

DIVISION THREE - GROUT REPAIR

PART 2 PRODUCTS

2.01 SUBSTITUTIONS

- A. Only the products specified shall be used or incorporated in the work. Specified product alternates may be used, however, only one manufacture shall be selected for the entire project. Products specified are prequalified and have met minimum ASTM test requirements. Any request for substitute materials will be evaluated based on the substitute product's ability to meet ASTM test standards.

2.02 CONCRETE MATERIAL

- A. The materials shall meet the requirements of:
 - 1) ACI 301.
 - 2) ACI 350R.
 - 3) MDOT Standard Specification.
- B. Curing Compounds - ASTM C309
- C. Concrete Formwork - ACI 347
 - 1) Formwork shall be true to produce a hardened concrete product to required size, shape, grade and alignment outlined in these specifications or indicated on the plans.
 - 2) Forms shall be braced, rigid and mortar tight maintaining their position under all loads during concrete placement.
 - 3) Forms shall be constructed to ensure the surface of the finished concrete is reasonably free of fins, ridges, offsets or similar defects.
- D. Water:
 - 1) Water shall be free from oil, alkali, acid, organic or any other deleterious substances.
- E. Mortar and Grout
 - 1) All grout shall be a nonshrink and complete packaged mixture to which water is added at the jobsite. No admixtures shall be used without prior acceptance of the Engineer.
 - 2) Acceptable manufactures are the following:
 - a) Sonneborn - Sonnegrout
 - b) L&M Construction Chemicals - Duragrout
 - c) Master Builders - Masterflow

DIVISION THREE - GROUT REPAIR

PART 3 EXECUTION

3.01 FORMWORK

- A. Install form ties in regular and uniform pattern.
- B. Clean forms as erection proceeds.
- C. Apply releasing agents in accordance with manufacture's recommendations.
- D. Retighten forms after concrete placement as necessary to prevent leaking.
- E. Minimize damage to concrete surfaces and maintain structural integrity of members when removing forms.

3.02 GROUT REPAIR - COLUMNS AND RISER

- A. Prepare surfaces in strict accordance with manufacture's recommendations. Surfaces to receive grout shall be prepared as follows:
 - 1) Remove all existing damaged, cracked, delaminating, laitance and spalling grout and concrete by sandblasting, chiseling, hammering or other appropriate methods.
 - 2) Install shims to prevent any settlement.
 - 3) Remove any chemical curing compounds, oil, grease, dirt and loose particles.
 - 4) Clean anchor bolts and the underside of the bearing plate.
 - 5) Saturate concrete, including holes, prior to grouting.
- B. Install non-shrink grout in strict accordance with manufacturer's recommendations:
 - 1) Install within two hours of initial mixing.
 - 2) Do not install after it has begun to set.
 - 3) Place non-shrink grout in fill area between the foundation and the base plate.
 - 4) Remove shims after the grout has attained its ultimate bearing strength.
 - 5) Cap openings left from shim removal.
 - 6) Do not install when the mean air temperature is below 40 degrees F.
 - 7) Protect against freezing for 48 hours after placement.

DIVISION FIVE - GENERAL

PART 1 GENERAL

1.01 OMISSIONS

- A. The intent of these specifications is to receive the materials and workmanship necessary to produce a first-class job. Any details, techniques or methods not specifically mentioned, but obviously required to meet the specifications, their intent and accepted trade practices shall be used to produce a first-class job and shall be considered incidental to the work.

1.02 DEFINITIONS

- A. SSPC Society of Protective Coatings
- B. NACE National Association of Corrosion Engineers
- C. ASTM American Society for Testing Materials
- D. OSHA Occupational Safety and Health Administration
- E. AWWA American Water Works Association
- F. AWS American Welding Society
- G. ASME American Society of Mechanical Engineers
- H. AISC American Institute of Steel Construction
- I. API American Petroleum Institute

1.03 WELDING AND FABRICATION

- A. All preparation, welding and fabrication shall be performed in accordance with the latest editions of:
 - 1) AWWA D100
 - 2) AWS D1.1
 - 3) API 650 where applicable.
- B. Welding completed by certified welders experienced in the specific welding required.
 - 1) Submit certified welding certificates to the Engineer prior to the Notice to Proceed.
- C. Grind all welds smooth to remove slag, spatter and rough edges.
 - 1) Ground welds shall meet the NACE RP0178 or Visual Comparator for "Ground Smooth and Blended."
- D. Structural members may vary from straightens within the tolerances allowed for wide flange shapes by ASTM Specification A6.
- E. Erected members shall be free from twists, bends, peaking and banding.
- F. Materials with sharp bends or kinks shall be rejected and removed from the site.

DIVISION FIVE - GENERAL

1.04 BULLETIN BOARD

- A. Provide and maintain a bulletin board at the project site that is available and accessible during the course of the work. The bulletin board shall include, but not be limited to:
 - 1) OSHA safety information.
 - 2) Federal, state and local labor law notices.
 - 3) SDS.
 - 4) Local emergency phone numbers.
- B. Locate in an area protected from weather and potential vandalism during non-working hours.

1.05 QUALIFICATIONS

- A. Provide certifications for all welders performing welding processes or operations.
- B. Welders shall have satisfactorily passed AWS qualification tests within the previous 12 months.
- C. Pay all costs associated with AWS certifications or recertifications.

1.06 PROTECTION OF NONWORK AREAS

- A. Protect all areas not subject to modification during the work. The Contractor shall provide protection for but not limited to:
 - 1) Level controls.
 - 2) Electrical panels, conduit, outlets, lighting and junction boxes.
 - 3) Cathodic protection systems.
 - 4) Insulation.
 - 5) Fall prevention equipment.
 - 6) Antennae.
 - 7) Motors, pumps, seals and bearings.
 - 8) Gaskets.
 - 9) Screens.
 - 10) Gauges and level indicators.
- B. Mask, tape, tarp or use other appropriate means to protect all surfaces or appurtenances not subject to alteration, including adjacent personal or private property.
- C. Make corrections to the satisfaction of the owner of the damaged property if damage occurs. If the damaged cannot be corrected by cleaning, the Contractor shall incur the costs for replacement of the damaged property.
- D. Notify the Engineer or Owner for a determination prior to execution of the work if a question exists on whether an item requires protection.

DIVISION FIVE - GENERAL

1.07 QUALITY CONTROL AND ASSURANCE

- A. Maintain quality assurance programs prior to, during and through full completion of the work.
- B. Foreman shall perform quality control inspections for all aspects of the work.
- C. Foreman shall make these inspections prior to the inspectors scheduled visit.

1.08 WARRANTY

- A. Provide a full warranty on all materials and workmanship for the period of one year after the finalization of the Contract.
 - 1) Repair all defects in materials or workmanship, at no expense to the Owner, discovered within the above-mentioned time frame.
 - 2) Pay for all indirect costs incurred by the Owner due to such repairs to include but are not limited to:
 - (a) Utility expenses.
 - (b) Direct labor costs.
 - (c) Subsequent inspections.
 - (d) Consulting fees.
 - (e) Equipment rental.
 - 3) The costs associated with the one-year inspection, if performed, will be assumed by the Owner.
 - 4) Warranty repairs, if necessary, shall be performed in accordance with these specifications and subject to the Engineer's approval.

1.09 REPAIR OF DEFECTS

- A. Repair all defects as marked by the Engineer and in accordance with AWWA D-100 and the Contract Specifications. All repairs shall be completed in accordance with these specifications and subject to the same quality and with the same restrictions as if completed initially.
 - 1) Correct or repair to permissible limits the following defects:
 - (a) Berries.
 - (b) Craters.
 - (c) Undercut.
 - (d) Porosity.
 - (e) Incomplete welds.
 - 2) Remove construction lugs and grind welds flush.
 - 3) Reweld gouged steel or arc strikes and grind flush.

DIVISION FIVE - GENERAL

- 4) All welds which are an integral part of the design shall be ground smooth to remove:
 - (a) Slag.
 - (b) Spatter.
 - (c) Sharp edges.
 - (d) Excessive reinforcement.

1.10 WATER SEEPAGE

- A. Furnish and install temporary pipe plugs and drains in the event water seepage occurs from inlet or outlet.
 - 1) The plugs shall provide complete water stoppage or shall allow the bypass of water to an appropriate drain.
 - 2) Bypass pipe plugs shall be Cherne Muni-Ball or equivalent.
 - 3) Furnish drain piping.

1.11 PRESSURE RELIEF VALVES

- A. Furnish the Owner with pressure relief valves for the operation of the distribution system.
 - 1) Furnish 2 valves.
 - 2) Jayco model 312 bronze valve, 2-½ inch.
 - 3) Provide threaded adapters (National Standard Thread) to allow attachment to the fire hydrants.
- B. Deliver valves to the Owner one week prior to the Contractors arrival.
- C. Remove valves from the hydrants only after the tank has been returned to full service.
- D. The cost of the rental of valves shall be considered incidental to painting and repair.

DIVISION FIVE - GENERAL

PART 2 PRODUCTS

2.01 FABRICATION

- A. All steel used in fabrication shall meet or exceed AWWA D-100 standards (latest revision) for each intended use. Materials and equipment delivered to the site shall be new and in good condition.

2.02 MATERIAL SCHEDULE

- A. Fall prevention device - cable system:
 - 1) DBI-SALA Lad-Saf Cable Ladder System, galvanized.
 - (a) Detachable Sleeves: DBI Sala 6160054 Lad-Saf X3.
 - (01) Provide two with safety carabiner.
 - 2) DBI-SALA Climbing harness.
 - (a) Delta Cross - over style positioning/climbing harness.
 - (b) Provide two.
 - (01) Universal (1110725).
 - (c) Provide two dual lanyards with large J-hooks.
 - (01) 3M Protecta Pro-Stop shock absorbing (1340250) .
- B. Insulation:
 - 1) Owens Corning Trymer 2000.
 - 2) 2-inch.
- C. Frost Jacket
 - 1) Childers, smooth or stucco finish.
 - 2) .016-inch-thick aluminum.
- D. Hatch Gasket
 - 1) Approved Manufactures:
 - (a) McMaster-Carr.
 - 2) Water- and Weather-Resistant Rubber.
 - 3) Push-on Seal with Bulb on Top, Hollow, for 1/4" Edge, 3/8" Wide.

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PART 3 EXECUTION

3.01 CABLE FALL PREVENTION DEVICE - ALL INTERIOR LADDERS

- A. Furnish and install a cable type fall prevention device on all interior ladders.
- B. Install per manufacture's recommendations.
- C. System shall include:
 - 1) Top shock absorbing bracket.
 - 2) Bottom bracket.
 - 3) Aircraft cable.
 - 4) Intermediate cable guides.
 - 5) Two detachable cable safety sleeves (Lad-Saf X3).
 - 6) Two safety harnesses each with a 5-foot lanyard and two self-locking carabiners.

3.02 FILL PIPE INSULATION

- A. Remove existing insulation from entire length of fill pipe.
- B. Properly dispose of all removed materials.
- C. Clean and paint fill pipe in accordance with Division Nine Painting.
- D. Apply insulation after coating has been allowed sufficient cure.
- E. Install aluminum frost jacket with banded and pop riveted seams.
- F. Install insulation and frost jacket per manufacture recommendations.
 - 1) Install beginning at base working up to entrance into tank.
 - (a) Jacketing shall shed water.
 - (b) Include vertical sections within pit if applicable.
 - 2) Use properly sized insulation for:
 - (a) Pipes.
 - (b) Couplings.
 - (c) Flanges.
 - (d) Expansion joints.
 - 3) Tape all horizontal and vertical seams.
 - 4) Custom fit areas including:
 - (a) Flanges
 - (b) Expansion joints
 - (c) Dresser couplings
 - (d) Elbows
 - (e) Angled pipe sections

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- (f) Portals through balconies

3.03 ROOF HATCH GASKET INSTALLATION

- A. Install new rubber edge seal gasket to roof hatch.
 - 1) All exterior exposed hatches shall be rain proof.
 - (a) Provide gasket on ring.
- B. Adjust hinges on hatch cover to seat flat and level with ring.
 - 1) Cutting and rewelding may be necessary.
- C. Touch up coatings per Division Nine Finishes.

3.04 CATHODIC ANODE REMOVAL

- A. Remove and dispose cathodic protection internal anode including the following:
 - 1) All wires.
 - 2) Anodes.
 - 3) Reference cells.
 - 4) PVC supports.
 - 5) Tether ropes.
 - 6) Buoys.
- B. Internal brackets, eyelets and pressure fitting shall remain.
- C. External conduit, system rectifier, support panel and power supply shall remain.

3.05 WET INTERIOR ACCESS TUBE BALCONY REMOVAL

- A. Remove internal balcony at top of access tube:
 - 1) Grind all welds or connections flush with the access tube.
- B. Paint in accordance with Division Nine Finishes.

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PART 1 GENERAL

1.01 OMISSIONS

- A. The intent of these specifications is to receive the materials and workmanship necessary to produce a first-class job. Any details, techniques or methods not specifically mentioned, but obviously required to meet the specifications, their intent and accepted trade practices shall be used to produce a first-class job and shall be considered incidental to the work.

1.02 DEFINITIONS

- A. SSPC Society of Protective Coatings
- B. NACENational Association of Corrosion Engineers, International
- C. ASTMAmerican Society for Testing Materials
- D. OSHAOccupational Safety and Health Administration
- E. AWWAAmerican Water Works Association

1.03 SDS

- A. Furnish and deliver material safety data sheets to the Owner for all materials used in and in association with the execution of the work. SDS shall be furnished for, but not limited to:
 - 1) Coatings.
 - 2) Fillers.
 - 3) Surfacers.
 - 4) Thinners.
 - 5) Abrasives.
- B. File SDS with Owner.
- C. SDS to be stored and available at project site.

1.04 BULLETIN BOARD

- A. Provide and maintain a bulletin board at project site that is available and accessible during the course of work. The bulletin board shall include, but not be limited to:
 - 1) OSHA safety information.
 - 2) Federal, state and local labor law notices.
 - 3) SDS.
 - 4) Local emergency phone numbers.

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- B. Locate in an area protected from weather and potential vandalism during non-working hours.

1.05 PROTECTION OF NONWORK AREAS

- A. Protect all areas not subject to modification during the work. The Contractor shall provide protection for but not limited to:
 - 1) Level controls.
 - 2) Electrical panels, conduit, outlets, lighting and junction boxes.
 - 3) Cathodic protection systems.
 - 4) Insulation.
 - 5) Fall prevention equipment.
 - 6) Antennae, coaxial wire.
 - 7) Motors, pumps, seals and bearings.
 - 8) Gaskets.
 - 9) Screens.
 - 10) Gauges and level indicators.
- B. Mask, tape, tarp or use other appropriate means to protect all surfaces or appurtenances not subject to alteration, including adjacent personal or private property.
- C. Make corrections to the satisfaction of the owner of the damaged property if damage occurs. If the damaged cannot be corrected by cleaning, the Contractor shall incur the costs for replacement of the damaged property.
- D. Notify Engineer or Owner for a determination prior to execution of work if a question exists on whether an item requires protection.

1.06 ENVIRONMENTAL CONSTRAINTS

- A. Perform all surface preparation and painting during suitable and favorable climatic conditions. Cease all work and take preventative measures for the following:
 - 1) Unfavorable weather is present that may adversely affect the long-term quality of the work.
 - 2) If poor or unsuitable weather is forecast. Take such precautions to prevent damage to the work.
- B. In no instances, shall painting be allowed:
 - 1) During periods of rain.
 - 2) When rain is forecast prior to full coating cure.
 - 3) During fog.
 - 4) During snow.
 - 5) When the relative humidity exceeds 85%.
 - 6) When the surface temperature is less than 5 degrees above the dew point.

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- (a) Provide the following equipment and record a daily log:
 - (01) Sling psychrometer
 - (02) Surface temperature gauge
 - (03) Psychometric tables
- 7) When wind speed and direction create the potential for property damage and or create unsafe working conditions for painting or abrasive blast cleaning.

1.07 MATERIAL STORAGE

- A. Store materials in accordance with manufacturer's recommendations.
- B. Store materials in an enclosed area where temperature conditions can be controlled.
 - 1) Provide a temperature recorder (min/max).
- C. Materials shall be stored in sealed, unopened, undamaged containers in accordance with the following:
 - 1) Original containers.
 - 2) Packaging with labels intact and legible.
 - 3) Material invoices showing quantity and date delivered.
- D. Any material deemed unsuitable by the Engineer or his representative shall:
 - 1) Be marked by the inspector or Contractors field superintendent.
 - (a) Materials shall be marked with fluorescent paint.
 - 2) Or be removed from the site by the end of the day.
 - 3) The use of unsuitable materials shall be construed as a failure of the area or areas painted.
 - (a) These areas shall be removed by abrasive blast cleaning.
 - (01) If the area cannot be determined, all paint applied from that date forward shall be rejected.
 - (b) Painting shall be in accordance with these specifications as if completed originally.

1.08 COMPRESSED AIR AFTER COOLERS

- A. Abrasive blast cleaning equipment shall incorporate moisture traps and air cooler.
- B. Equipment shall be set up on compressed air line prior to entering the blast pot.
- C. After cooler to be sized to cool the hot compressed air to within 5°F to 20°F of the ambient air temperature.
- D. Equipment shall match the output of the compressor for proper performance.
 - 1) Shall be Sullivan Palatek, Aircell or equal.

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1.09 MIXING AND THINNING

- A. Mix all materials in accordance with the manufacturer's recommendations.
- B. Use a high shear mixer to create homogenous mixture.
 - 1) Clean mixer daily.
 - (a) If the mixer is not cleaned, the paint mixed with it shall be deemed defective and shall be rejected.
- C. Agitate zinc rich coatings in accordance with manufacturer's recommendations.
 - 1) Any zinc primer applied that was not under constant low speed agitation shall be deemed defective and shall be rejected.
- D. Follow manufacturer's instructions for thinning only when necessary.
 - 1) Any coatings applied that uses the incorrect thinner shall be deemed defective and shall be rejected.
- E. In no instance, shall thinner be added to materials that have thickened due to catalyzation or are near the pot life.
 - 1) Discontinue use of all materials reaching this condition.
- F. Remove from the site and properly dispose of all spent thinner used for clean up.
- G. Remove any left-over materials from the site.
- H. Provide ground tarping in mixing area.

1.10 APPLICATION

- A. Apply coatings in accordance with manufacturer's recommendations and these specifications, whichever is more stringent.
- B. Perform painting in accordance with good painting practices per SSPC-PA1.
- C. Prepare surfaces to specified standard prior to any coating application.
 - 1) Prior to application of primers or any subsequent coats of paint, all surfaces shall be clean and free of:
 - (a) Dirt.
 - (b) Dust.
 - (c) Oil.
 - (d) Grease.
 - (e) Moisture.
 - (f) Stains, etc.
- D. Painting shall be prohibited on surfaces that do not achieve manufacturer's minimum or exceed the maximum temperature requirements.
- E. Apply all exterior coatings by brush and roller only.
- F. Apply coatings at the proper rate and wet film thickness to achieve the dry film thickness specified for each coat and for the entire system.

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- G. Provide and replace rollers, brushes, spray tips, etc. as they become worn, caked, deteriorated or lose their effectiveness.

1.11 REPAIR OF DEFECTS

- A. Repair all surface preparation and coating defects daily and in manner that produces a first-class job. The following defects shall be corrected:
 - 1) Runs, drips and sags.
 - 2) Entrapped material.
 - 3) Skips.
 - 4) Excessive dry film thickness.
 - 5) Overspray.
 - 6) Slugs.
 - 7) Roller nap.
 - 8) Blemishes.
- B. Remove defects completely by sanding, scraping, power tool sanding or abrasive blast cleaning.
- C. Feather smooth adjacent coatings by power tool sanding.
- D. Grinders with grinding wheel discs are prohibited.
- E. Complete repairs in accordance with these specifications and subject to same quality as if completed initially.

1.12 CURE

- A. Allow cure in accordance with manufacturer's recommendations and these specifications, whichever is more stringent.
 - 1) Allow 24 hours' minimum cure time for each coat.
 - 2) Provide 7 days' minimum cure after application of topcoat on immersion coating systems.
 - (a) Extend cure periods in accordance with manufacturer's recommendations.
 - 3) Maintain forced ventilation throughout the entire curing phase on immersion surfaces.
- B. If temperature, humidity, ventilation or other factors effecting cure vary from normal recommended schedules, adjust cure times in accordance with manufacturer's recommendations.
 - 1) Provide heating and dehumidification (DH) equipment when cool temperatures or high humidity exist and shall become mandatory during months of October through April inclusive.
 - (a) In addition, DH units shall be mandatory when any of the following apply:

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- (01) Average air temps, as determined by the Engineer, fall below 55 degrees.
 - (02) Acceptable humidity levels cannot be controlled by normal ventilation.
 - (b) In addition, heating units shall be mandatory when any of the following apply:
 - (01) Average air temps, as determined by Engineer, fall below 45 degrees.
 - (c) Use Munters DCD Series or Dryco desiccant dehumidifier through surface preparation and painting.
 - (d) For heating use Munters or Dryco indirect heating equipment.
 - (e) Systems shall have remote monitoring system accessible 24/7 to the Inspector or Engineer via internet.
 - (f) System shall run continuously through surface preparation, painting and cure.
 - (g) Size units in accordance with manufacturers representative's recommendations.
 - (h) Connect using appropriately sized outlet piping or tubing.
- 2) Heating and dehumidification shall be performed at the Contractor's expense and shall be considered incidental to painting.
- C. Complete cure prior to the Contract date of completion.
- D. Fast cure or low temperature materials are subject to the review of Engineer and shall be in accordance with normal submittal procedure.
 - 1) Provide low temperature or fast cure products when:
 - (a) Average surface temperatures fall below 60 degrees.
 - (b) Low surface temperatures fall below manufacturers lower limit for cure.
 - (c) The use of normal cure products would extend the completion date past the Contract completion date.

1.13 QUALITY CONTROL AND ASSURANCE

- A. Maintain quality assurance programs prior to, during and through full completion of work.
- B. Foreman shall have full authority for conducting work for the Contractor, subject to limitations within Contract Documents, and shall maintain quality assurance programs.
- C. Foreman shall perform quality control inspections for all aspects of work.
- D. Foreman shall make these inspections prior to inspectors scheduled visit.
- E. Defects in work shall be corrected and coatings fully cured prior to inspector's arrival.

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1.14 WARRANTY

- A. Provide a full warranty on all materials and workmanship for a period of one year after finalization of Contract. Repair all defects in materials or workmanship, at no expense to Owner, discovered within above-mentioned time frame.
- B. Pay for all indirect costs incurred by Owner due to such repairs to include but are not limited to:
 - (a) Utility expenses.
 - (b) Direct labor costs.
 - (c) Subsequent inspections.
 - (d) Consulting and inspection fees.
 - (e) Equipment rental.
- C. Costs associated with one-year inspection, if performed, will be assumed by the Owner.
- D. Warranty repairs, if necessary, shall be performed in accordance with these specifications and subject to Engineer's approval.

1.15 DISINFECTION

- A. Contractor:
 - 1) Disinfect tank in accordance with AWWA method #3 (C-652), latest revision.
 - 2) Pay for all direct and indirect costs for disinfection, sampling and testing, including additional measures required if the samples fail test.
 - 3) **Furnish Owner with Pollardwater LPD-250 aluminum Dechlorinating Diffuser.**
 - 4) **Furnish dechlorinating tablets (sodium sulfite) to dechlorinate full tank of water.**
 - (a) **Pail of 140 tablets.**
 - (01) 1 tablet per 1000 gallons.**
- B. Owner:
 - 1) Prior to filling the tank, the water main should be flushed thoroughly through the hydrant to ensure clean, chlorinated water is available.
 - 2) After disinfection, waste first full tank of water, prior to sampling. Any wasted chlorinated water will be dechlorinated prior to discharge to any surface water body, sewer or drain per the permit requirements, or per the governing agency.
 - 3) Collect water samples at specified intervals for bacteriological testing in accordance with rules and procedures of State Health Department, EGLE or EPA, whichever has jurisdiction.
 - 4) Two consecutive water samples taken 24 hours apart are required for bacteriological analysis.

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1.16 APPEARANCE

- A. Use appropriate methods and practices when applying coatings to maximize the aesthetic appearance of finish coat. The finish coat shall be:
 - 1) Uniform in appearance and completely hide the underlying coat.
 - 2) Applied using such techniques that minimize roller marks and laps.
 - 3) Applied in long strokes finished in same direction.
- B. Correction of defects shall require recoating a larger area (to a seam or change in shape) to maintain a pleasing aesthetic appearance.
- C. Remove all dust, debris, overspray, etc. from finish coat by appropriate means.
- D. Remove all dust and debris created by surface preparation by power washing prior to finalization.

1.17 VENTILATION

- A. Supply industrial grade dust collectors during abrasive blast cleaning, abrasive removal, cleaning.
 - 1) Dust collection equipment requirements:
 - (a) Minimum of 40,000 cfm.
 - (b) Shall be customized to fit securely to tank, prevent leaks and ensure maximum effectiveness. No dust release shall be permitted.
 - (c) Provide negative air pressure within vessel to prevent dust escaping out vents, hatches, cathodic lift holes or other openings in structure.
 - (d) Exhaust through dust collector and regularly cleaned (daily) dust filters.
- B. Supply ventilation fans during coating application and cure.
 - 1) Ventilation equipment requirements:
 - (a) Minimum of 10,000 cfm.
 - (b) Shall be customized to fit securely to tank, prevent leaks and ensure maximum effectiveness.
 - (c) Shall be operated and maintained through final cure.
- C. The collection systems, but not the ventilation fans, may be discontinued only during cure. Lead removal projects shall require air filtration dust collectors.

1.18 LIGHTING AND ELECTRICAL

- A. Provide lighting, in areas where visibility is poor, to ensure safety and increase productivity.
- B. All lights and switches shall be explosion proof when working within confined space.
- C. Electrical service may not be available at site.
 - 1) In such instances furnish temporary electrical service.
 - 2) All temporary electrical service shall meet local requirements.

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- 3) Contract with local utility for service installation.
- 4) Obtain any required electrical permit.

1.19 WATER SEEPAGE

- A. Furnish and install temporary pipe plugs in the event water seepage occurs from inlet or outlet.
- B. The plugs shall provide complete water stoppage or shall allow the bypass of water to an appropriate drain.
- C. Bypass pipe plugs shall be Cherne Muni-Ball or equivalent.
- D. Furnish drain piping.

1.20 DEWATERING

- A. Provide dewatering for water remaining within the vessel.
- B. Remove and dispose of water and sediments.
 - 1) **Do not use the fill or drainpipe.**
 - 2) **Drain through mud valve or use a pump to external hose or piping.**
- C. Owner will dewater down to the top of fill or drainpipe.

1.21 INSPECTION

- A. Provide 48-hour notice to Engineer that the inspection interval has been met.
 - 1) Contractor shall pay additional engineering fees caused by premature or unnecessary inspections.
 - 2) Prior to notifying Engineer of future inspection, Contractor shall inspect work and correct all defects.
- B. Unless otherwise agreed upon and prior to applying additional coat, each coat of paint will be inspected and defects corrected.
- C. Inspections may include but are not limited to:
 - 1) Materials.
 - 2) Surface preparation.
 - 3) Dry film thickness measurements.
 - (a) Film thickness shall be measured from the top peaks of the profile.
 - (b) Measurements will be adjusted for the gauge error or BMR due to the profile.
 - 4) Wet film thickness testing.
 - 5) Holiday testing.
 - 6) Visual observations of defects.
 - 7) Cure.

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PART 2 PRODUCTS

2.01 ABRASIVES

- A. Acceptable Manufacturers:
 - 1) Black Beauty (20-40)
 - 2) Amberblast (AB #3)
 - 3) DuPont Starblast or Staurolite
- B. Mix abrasive and Blastox for all abrasive cleaning of painted steel.
 - 1) In accordance with Blastox recommendations.
- C. Pretreatment of steel with spray on materials may be used as alternate to Blastox.
 - 1) Acceptable Manufacturers
 - (a) PreTox 2000
 - (b) Enviro-Prep 33010
 - 2) Apply wet film thickness in accordance with manufacturer's recommendations.
- D. If mixture determined to have insufficient Blastox, PreTox or EnviroPrep and tests determine hazardous, Contractor to bear all direct and indirect costs for:
 - 1) Testing.
 - 2) Documentation.
 - 3) Transportation.
 - 4) Treatment.
 - 5) Final disposal.
- E. The use of steel grit may be allowed if the recommended surface profiles can be maintained.

2.02 WET INTERIOR COATING - FULL (21) NSF 61 & 600

- A. Qualified Manufacturers (NSF 61/600 approved)
- B. Coating Manufacturer: Tnemec
 - 1) Primer:
 - (a) Series: 94H2O
 - (b) Color: Green
 - (c) DFT: 2.5 - 3.5 Mils
 - 2) Intermediate:
 - (a) Series: 21
 - (b) Color: White
 - (c) DFT: 6.0 - 10.0 Mils

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- 3) Stripe:
 - (a) Series: 21
 - (b) Color: White
 - (c) DFT: 4.0 - 6.0 Mils
- 4) Finish:
 - (a) Series: 21
 - (b) Color: White
 - (c) DFT: 6.0 - 10.0 Mils
- 5) Total DFT: 14.5 - 23.5
- C. Seam Sealer Manufacturer
 - 1) Sikaflex 1A

2.03 DRY INTERIOR COATING - FULL (N140)

- A. Coating Manufacturer: Tnemec
 - 1) Primer:
 - (a) Series: 94H2O
 - (b) Color: Green
 - (c) DFT: 2.5 - 3.5 Mils
 - 2) Intermediate:
 - (a) Series: N140
 - (b) Color: Tank White
 - (c) DFT: 4.0 - 6.0 Mils
 - 3) Stripe:
 - (a) Series: N140
 - (b) Color: White
 - (c) DFT: 4.0 - 6.0 Mils
 - 4) Finish:
 - (a) Series: N140
 - (b) Color: White
 - (c) DFT: 4.0 - 6.0 Mils
 - 5) Total DFT: 10.5- 15.5

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2.04 EXTERIOR COATING - FULL (1094)

- A. Coating Manufacturer: Tnemec
 - 1) Primer:
 - (a) Series: 94H2O, Green
 - (b) DFT: 2.5 - 3.5 Mils
 - 2) Intermediate:
 - (a) Series: 69
 - (b) DFT: 2.5 - 3.5 Mils
 - 3) Finish:
 - (a) Series: 1094
 - (b) DFT: 2.0 - 3.0 Mils
 - 4) Total DFT: 7.0 - 10.0
 - 5) Finish colors selected by owner or as indicated in model.
 - (a) Intermediate and finish colors matched to ensure full coverage with no shadowing.

2.05 CONTAINMENT SYSTEM

- A. TEPE system as distributed by Eagle Industries of New Orleans, LA or equal and shall be specifically designed for use on elevated structures that may encounter moderate wind speeds and occasional gusts.
- B. Containment shall be a Class 2A or greater as defined by SSPC Technology Guide #6.
 - 1) Completely enclose the structure (roof, sidewalls, pedestal or columns, including ground cover).
 - 2) Connect to the structure by a flexible system consisting of temporary braces, supports, cables, etc.
 - (a) Provide temporary supports or columns in areas where point loads exceed the tank's design parameters or where the plate thickness is thin.
 - (b) Provide temporary concrete footings or an entire concrete ring wall for the setting of cable anchors.
 - (01) The number of temporary footings should be suitable for the loads involved. In no instances shall the footings be able to slide due to wind loads.
 - (c) Simple twist-in deadman anchors alone shall not be permitted.
 - (d) Unless permitted by Owner, all footings shall be removed and the grounds restored.
 - 3) Tarping:
 - (a) Fabricate from dense woven material or solid tarp that prevent the escape of spent abrasive, paint and dust.
 - (b) Fasten vertical tarp sections with ties or stitching.

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- (c) Two-foot overlaps each seam stitched or matted together.
 - (d) Eight-foot dual overlap on fixed roof tarp to moveable sidewall column tarps.
 - (01) Roof bonnet shall overlap sidewall tarp on both interior and exterior.
 - (02) Sidewall tarp, when lifted into place, shall be positioned within the gap (pocket) created by the dual roof tarp.
 - (e) Tarping shall be manufactured by Eagle Industries or equal.
- 4) Ground cover:
 - (a) Extend ground tarp 10 feet beyond vertical tarping.
 - (b) Use plywood or OMB with impermeable tarp beneath.
 - (c) A thin concrete pad may be used as an alternate.
- C. Provide a vestibule for access from the containment area to the decontamination facility.
 - 1) The vestibule shall connect directly with the decontamination facility.
- D. Provide portals for ventilation equipment and specified high volume dust collectors.
- E. Incorporate dust collectors as an integral part of the containment system.
 - 1) Eagle Industries Jet Clean, model 20D or Equal.
- F. Supply a minimum of 30,000 cfm in dust collection capacity.

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PART 3 EXECUTION

3.01 SURFACE PREPARATION - GENERAL

- A. Supply sufficient equipment and ensure an adequate crew size to complete the work within the Contract times.
- B. Select the proper equipment to optimize production rates and reduce dust emissions.
- C. Protect all areas not intended for painting by appropriate means.
 - 1) Protection shall be able to withstand damage caused by any and all means and methods of surface preparation.

3.02 SURFACE PREPARATION - SPECIFIC

- A. Wet Interior Surfaces - Full Blast
 - 1) Compressor output shall maintain a minimum pressure of 100 PSI as measured by needle gauge at each blast nozzle.
 - 2) Unless otherwise specified, select the proper abrasive grade and hardness to optimize production rates, ensure surface profile and reduce dust emissions.
 - 3) Abrasive blast clean surfaces and appurtenances to a near white grade (SSPC-SP10).
 - (a) Profile shall meet the requirements of the specified coating system.
- B. Dry Interior Surfaces - Full Blast
 - 1) Compressor output shall maintain a minimum pressure of 100 PSI as measured by needle gauge at each blast nozzle.
 - 2) Unless otherwise specified, select the proper abrasive grade and hardness to optimize production rates, ensure surface profile and reduce dust emissions.
 - 3) Abrasive blast clean steel surfaces and appurtenances to a commercial grade (SSPC-SP6).
 - 4) Abrasive blast clean ductile Iron pipe surfaces and appurtenances to NAPF 500-03-04.
 - 5) Abrasive blast clean ductile Iron fittings surfaces and appurtenances to NAPF 500-03-05, blast clean #1.
 - 6) Profile shall meet the requirements of the specified coating system.
- C. Exterior Surfaces - Full Blast
 - 1) Compressor output shall maintain a minimum pressure of 100 PSI as measured by needle gauge at each blast nozzle.
 - 2) Unless otherwise specified, select the proper abrasive grade and hardness to optimize production rates, ensure surface profile and reduce dust emissions.
 - 3) Abrasive blast clean surfaces and appurtenances to a commercial grade (SSPC-SP6).
 - (a) Profile shall meet the requirements of the specified coating system.

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3.03 PAINTING - WET INTERIOR SURFACES

- A. Apply to the rate and manner recommended by the manufacturer, unless otherwise stated in these specifications. Apply each coat as follows:
 - 1) Apply to clean surface prepared as previously defined.
 - 2) Apply to the film thickness range as specified in Part 2-Products.
 - 3) Brush and roll all sharp edges, corners, bolts, welds, laps, flanges, etc., to eliminate skips, misses and holidays.
 - (a) Apply additional dry stripe coat (brush and roller applied) between the intermediate and final coats.

(01) Apply full coat to pitted areas of the bowl.
- B. Remove all runs, drips, sags and overspray by approved methods prior to application of successive coats.
 - 1) If such defects result, remove and apply additional coat to the affected area.
- C. Cover and protect all surfaces and appurtenances not intended for painting.
 - 1) Use canvas or plastic tarps.
 - 2) Protect bowl or floor during painting of roof or upper sidewall.
 - 3) Prior to abrasive blast cleaning:
 - (a) Cover fill pipe.
 - (b) Cover overflow pipe.
- D. Remove dust and spent abrasive from painted surface prior to application of successive coats.
 - 1) If directed by Engineer, pressure wash to remove dust and debris between coats and after application of the finish coat.
- E. Apply NSF approved seam sealer to the interior roof:
 - 1) Apply to areas above the high-water line to include:
 - (a) Steel plate lap seams.
 - (b) Porous or rough welds.
 - (c) Unwelded appurtenances through the roof shell.
 - (d) Includes roof beams for elevated tanks only.
 - 2) Apply according to manufacturer recommendations.
 - (a) Clean all surfaces prior to application.
 - (b) Apply material by completely filling the joint.
 - (01) Do not exceed manufactures requirement for ½ inch total thickness (Sikaflex 1A).
 - (02) Use closed cell backer rod where appropriate.
 - (c) Keep nozzle in the sealant with steady flow to prevent air entrapment.
 - (d) Application temperatures: 40 to 100 degrees F.

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- (e) Allow for sufficient cure in accordance with manufacturer recommendations.

3.04 PAINTING - DRY INTERIOR SURFACES

- A. Apply to the rate and manner recommended by the manufacturer, unless otherwise stated in these specifications. Apply each coat as follows:
 - 1) Apply to clean surface prepared as previously defined.
 - 2) Apply to the film thickness range as specified in Part 2-Products.
 - 3) Brush and roll all sharp edges, corners, bolts, welds, laps, flanges, etc., to eliminate skips, misses and holidays.
 - 4) Brush and roll all sharp edges, corners, bolts, welds, laps, flanges, etc., to eliminate skips, misses and holidays.
 - (a) Apply additional dry stripe coat (brush and roller applied) between the intermediate and final coats.
- B. Areas include steel piping and appurtenances in the pit.
 - 1) Surface preparation previously defined.
- C. Remove all runs, drips, sags and overspray by approved methods prior to application of successive coats.
 - 1) If such defects result, remove and apply additional coat to the affected area.
- D. Cover and protect all surfaces and appurtenances not intended for painting.
 - 1) Use canvas or plastic tarps.
 - 2) Protect balconies and condensate floor during painting.
 - 3) Prior to abrasive blast cleaning, carefully remove fill pipe insulation.
 - (a) Properly dispose.
- E. Reinstall new insulation and frost jacket after the coating has fully cured.
 - 1) Retape along both vertical and horizontal seams.
 - (a) Apply a minimum of two full wraps on the horizontal seams.
 - 2) Install new aluminum frost jacket.
 - (01) Overlap to shed water.
 - (02) Connect with self tapping screws.
 - 3) Custom fit over flanges, valves and expansion joint.
- F. Remove dust and spent abrasive from painted surface prior to application of successive coats.
 - 1) If directed by Engineer, pressure wash to remove dust and debris between coats and after application of the finish coat.

3.05 PAINTING - EXTERIOR SURFACES

- A. Apply to the rate and manner recommended by the manufacturer, unless otherwise stated in these specifications. Apply each coat as follows:

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- 1) Apply to clean surface prepared as previously defined.
- 2) Apply to the film thickness range as specified in Part 2-Products.
- 3) Brush and roll all sharp edges, corners, bolts, welds, laps, flanges, etc., to eliminate skips, misses and holidays.
- B. Remove all runs, drips, sags and overspray by approved methods prior to application of successive coats.
 - 1) If such defects result, remove and apply additional coat to the affected area.
- C. Cover and protect all surfaces and appurtenances not intended for painting.
 - 1) Use canvas or plastic tarps.
- D. Remove screens from overflow pipe and vent areas.
 - 1) Clean areas in accordance with previously defined surface preparation.
 - 2) Replace screens after painting and sufficient cure.
 - (a) Use new screen material.

3.06 WASTE COLLECTION AND STORAGE

- A. All wastes generated by surface preparation operations (hazardous or nonhazardous) shall be collected and stored in leak proof containers (barrels or roll off boxes) with covers. The waste shall be taken from the structure and deposited directly into the storage containers.
 - 1) Containers shall be on site before operations begin.
 - 2) Containers shall not be located in areas where run-off may occur or flood plains.
 - 3) Containers shall have locking covers (padlock or bolt).
 - (a) No snap rings allowed.
 - 4) In no instance shall the waste generated be stored on the ground nor shall the waste be stored on tarps.
 - 5) Cover containers at all times except for actual loading of spent materials.
 - 6) Label container identifying the waste material.
- B. The waste shall remain on site until testing determines the disposal method.
 - 1) Provide security fencing for hazardous waste storage.
 - (a) Include provisions for locking.
 - (b) Fence shall be 6-foot chain link with steel posts.
- C. Pay for the cost for collection and storage of the waste.

3.07 WASTE DISPOSAL

- A. The testing, handling, transportation and disposal of waste shall be completed in accordance with these specifications and federal, state and local rules and regulations.
- B. Sampling:

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- 1) In presence of Engineer, collect representative samples of spent materials generated, for waste determination.
 - 2) TCLP tested for ten metals.
 - 3) Use a certified independent laboratory that specializes in such.
 - 4) Pay for testing.
 - 5) Pay for additional tests the landfill or treatment facility requires.
- C. Disposal:
- 1) Dispose all wastes generated by surface preparation, abrasive blasting or chemical stripping.
 - 2) Store waste on site in approved containers until test results are received and a generator number has been issued, if applicable.
 - 3) Pay for cost if the waste is determined non-hazardous or hazardous by TCLP testing.
- D. Transportation:
- 1) Transport waste either to a nonhazardous landfill or to a licensed hazardous waste facility for treatment and landfiling dependent upon testing.
 - 2) Use a licensed hazardous waste hauler if applicable.
 - 3) Provide manifests for hauling, treatment and disposal if applicable.
 - 4) Provide handlers with appropriate protective clothing to include but not limited to:
 - (a) Tyvek full body protective suits.
 - (b) Gloves.
 - (c) Respirators.

3.08 CONTAINMENT OPERATIONS

- A. The Contractor shall operate and maintain the containment system during abrasive blast cleaning operations in accordance with SSPC - Technology Guide 6.
- B. The containment system shall totally enclose the entire structure including the ground with no gaps or openings permitted.
- 1) Prevent any escape of dust or spent materials.
 - 2) Inspect the tarps, daily, and make repairs prior to the initiation of abrasive blast cleaning.
 - 3) Cease all abrasive blasting until corrective measures have been taken and meet with the Engineers approval.
 - 4) Do not lower tarp when spent abrasive has collected along the structure.
- C. Dust collectors shall be operated at all times during and a minimum of twenty (20) minutes thereafter:
- 1) Abrasive blast cleaning.
 - 2) Blow down.
 - 3) Final cleanup.

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- 4) Dust collector shall be maintained to create negative air pressure within the containment area.
- D. Suspend all abrasive blast cleaning operations when:
 - 1) Visible emissions (SSPC Method A) determine dust or debris escaping.
 - 2) Level 1 emissions shall be set as the standard.
 - (a) No more than 1% in an 8-hour day (5 minutes).
 - 3) Wind velocity prevents the effective containment of all spent materials.
 - 4) Wind velocity creates unsafe working conditions.

3.09 SOIL ANALYSIS

- A. Soil analysis shall be conducted surrounding the structure.
- B. Prior to project start up collect soil samples in four locations (N, E, S & W).
 - 1) Each sample shall be a composite sample consisting of the following.
 - (a) Five $\frac{3}{4}$ inch dia. by $\frac{1}{2}$ inch depth plugs in each square foot area.
 - 2) Document each location.
- C. Post samples shall be taken at identical locations using the same procedure.
- D. Samples shall be tested for toxic metals in accordance with EPA Method 3050 or approved equivalent.
- E. Sample results will be used to determine whether additional site clean up is necessary.

3.10 SYSTEM REMOVAL

- A. The containment system shall be removed from the structure in its entirety including but not limited to:
 - 1) Supports
 - 2) Braces
 - 3) Cables
 - 4) Pulleys
 - 5) Tarps
 - 6) Ground cover
 - 7) Deadmen
 - 8) Footings
- B. Roof lugs may remain on the tank but shall be welded on all sides with no exposed laps.
- C. Grind all welds created by temporary connection flush to the base metal.
- D. Repair damaged coatings on the structure in accordance with these specifications for the appropriate surfaces.

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- E. Return the site to its original condition correcting such damages that may have resulted to:
 - 1) Structure
 - 2) Landscape
 - 3) Adjacent properties.
- F. Remove or smooth damaged landscaping and reseed area.

3.11 WORKER PROTECTION PROGRAM

- A. Develop and implement of a worker protection plan in accordance with 29 CFR 1926.20.
- B. Designate a competent person to implement the program. The competent person shall:
 - 1) Be capable of identifying existing and predictable hazards.
 - 2) Take prompt corrective measures to eliminate hazardous or dangerous working conditions.

3.12 HYGIENE

- A. Comply with all provisions in the "Interim Final Lead in Construction Standard" (29 CFR 1926.62).
- B. Provide a written personal hygiene procedure to all employees and shall be readily accessible at the project site.
- C. All workers exposed to lead above the permissible exposure limit (PEL) of an airborne concentration are required to:
 - 1) Clean or remove protective clothing.
 - 2) Wash hands and exposed skin prior to eating drinking or smoking.
- D. Provide employees with adequate washing facilities:
 - 1) Locate such facilities shall be adjacent to the work site.
 - 2) Provide water, soap and clean towels.

3.13 EXPOSURE ASSESSMENT

- A. Perform in accordance with Interim Final Lead in Construction Standard (29 CFR 1926.62).
- B. Use qualified industrial hygienist.
- C. Provide exposure assessment for all employees in conjunction with the execution of the work.
- D. Airborne lead samplers shall be provided by the Contractor for individual job classifications.
- E. Perform testing during all actions in which lead is encountered.

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- F. Maintain testing until valid and representative samples have been collected for each job classification.
- G. Provide test results to Engineer for verification of completion.

3.14 CONTROL STRATEGIES

- A. Implement control strategies to limit lead exposure in the eight-hour time weighted average (TWA). Strategies may include:
 - 1) Alternating work duties.
 - 2) Work shifts.
 - 3) Personal protective equipment.
 - 4) Ventilation equipment.
- B. Develop administrative controls for each activity or job classification based on exposure levels set by OSHA or actual measurements determined in the field.

3.15 PROTECTIVE CLOTHING

- A. At no cost to the employees, provide workers who are exposed to lead above the PEL and the possibility that skin contamination exists, clean protective clothing and equipment.
- B. Appropriate protective work clothing and equipment used on the construction site may include:
 - 1) Coveralls.
 - 2) Gloves.
 - 3) Vented goggles or face shields with protective goggles.
 - 4) Welding or blasting helmet.
- C. Disposable coveralls may be used, if appropriate, to avoid the need for laundering.
- D. Provide appropriate changing facilities.

3.16 RESPIRATORY PROGRAM

- A. Furnish respirators to supplement engineering controls and work practices whenever these controls are technologically incapable of reducing worker exposures to lead to or below $50 \mu\text{g}/\text{m}^3$.
- B. Whenever respirators are provided, establish a respiratory protection program in accordance with the OSHA standard on respiratory protection, 29 CFR 1910.134.
- C. Don respirators before entering the work area and do not remove until the worker has left the area.
- D. Assure the respirator issued to the worker is properly selected and properly fitted.

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3.17 DECONTAMINATION FACILITIES

- A. Provide and maintain a decontamination facility during the lead removal process in accordance with 29 CFR 1910.141. The facility shall allow for appropriate decontamination of lead-exposed workers.
- B. The facilities shall include:
 - 1) Pre-decon vestibule attached directly to the containment structure.
 - 2) Washing area or sink and decontamination unit.
 - 3) Dirty room, shower room and clean room.
 - 4) Air lock, negative air pressure, HEPA filters and a filtration system for the wastewater.
- C. Workers shall vacuum (HEPA) outer protective clothing and equipment upon entering the pre-decon vestibule and prior to entering the decontamination unit.
- D. An effective housekeeping program shall be implemented.
 - 1) The decontamination unit shall be thoroughly cleaned at the end of each day or shift.
 - 2) Worker's equipment, respirators, clothing and towels shall be cleaned, sanitized or laundered.
 - 3) Contaminated clothing that is to be cleaned, laundered or disposed of shall be placed in closed containers. The containers shall be labeled with the following warning:
 - (a) CAUTION: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state or federal regulations.
 - 4) All contaminated clothing and equipment shall be prevented from reaching the workers home or vehicle.
 - 5) The contaminated water from washing facilities and showers shall be disposed in accordance with applicable local, state or federal regulations.

3.18 BLOOD TESTING AND MEDICAL SURVEILLANCE

- A. Provide blood lead level testing for all employees in connection with the project and exposed to lead at or above the action level of $30 \mu\text{g}/\text{m}^3$.
- B. Test employees prior to and upon completion of the project.
- C. All employees shall be subject to the testing, regardless of if brought in as additional or replacement laborers.
- D. The Owner may request additional (intermediate) testing as deemed necessary.
- E. Qualified medical personnel must be available to advise the Contractor and his employees on the health effects of lead exposure and supervise the medical surveillance program.

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3.19 SIGNS

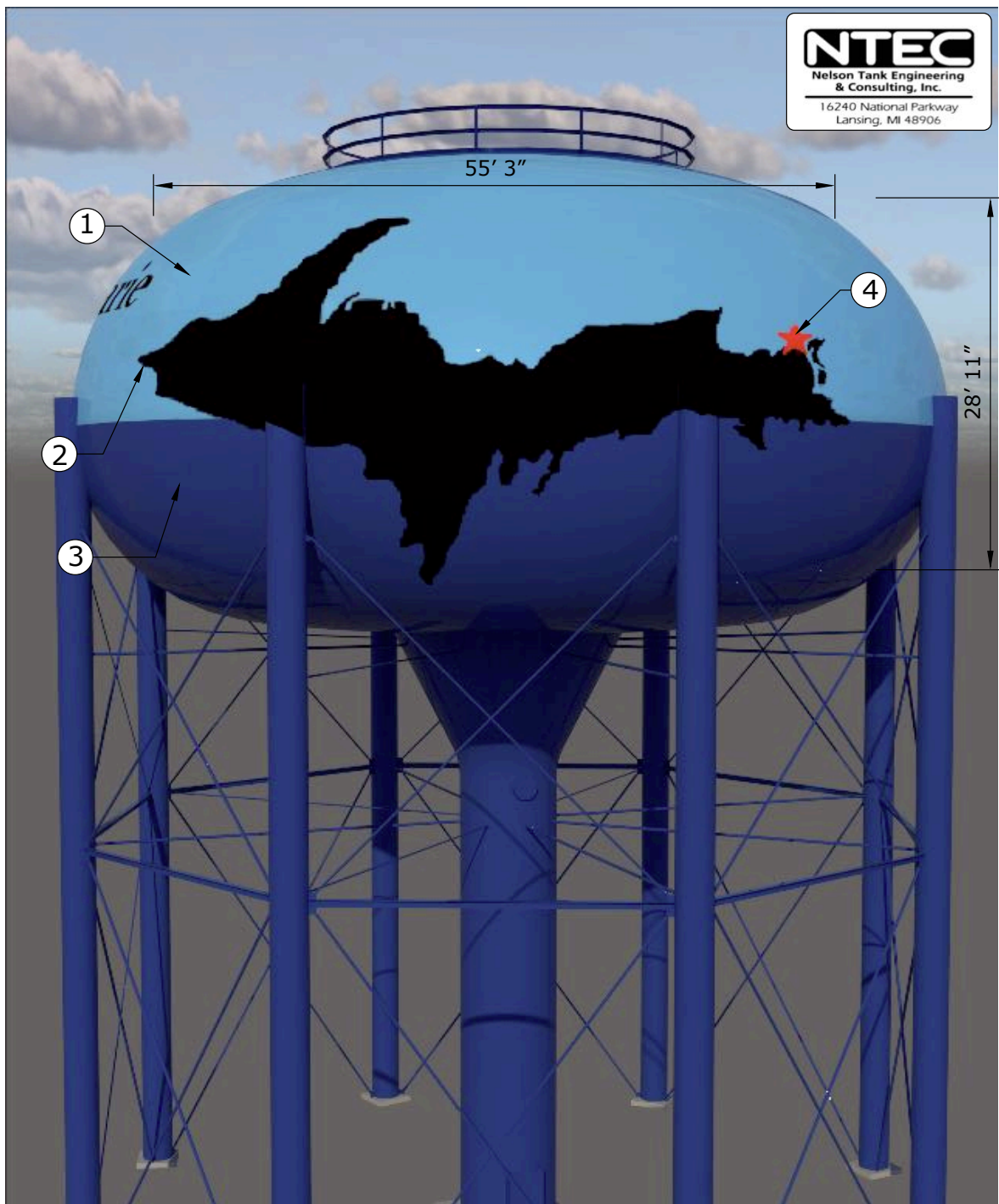
- A. Post and maintain signs around the work site readily visible in areas where the exposure to lead exceeds the PEL. The warning sign shall state the following:
 - 1) WARNING
 - 2) LEAD WORK AREA
 - 3) POISON
 - 4) NO SMOKING OR EATING

3.20 LETTERING/LOGO

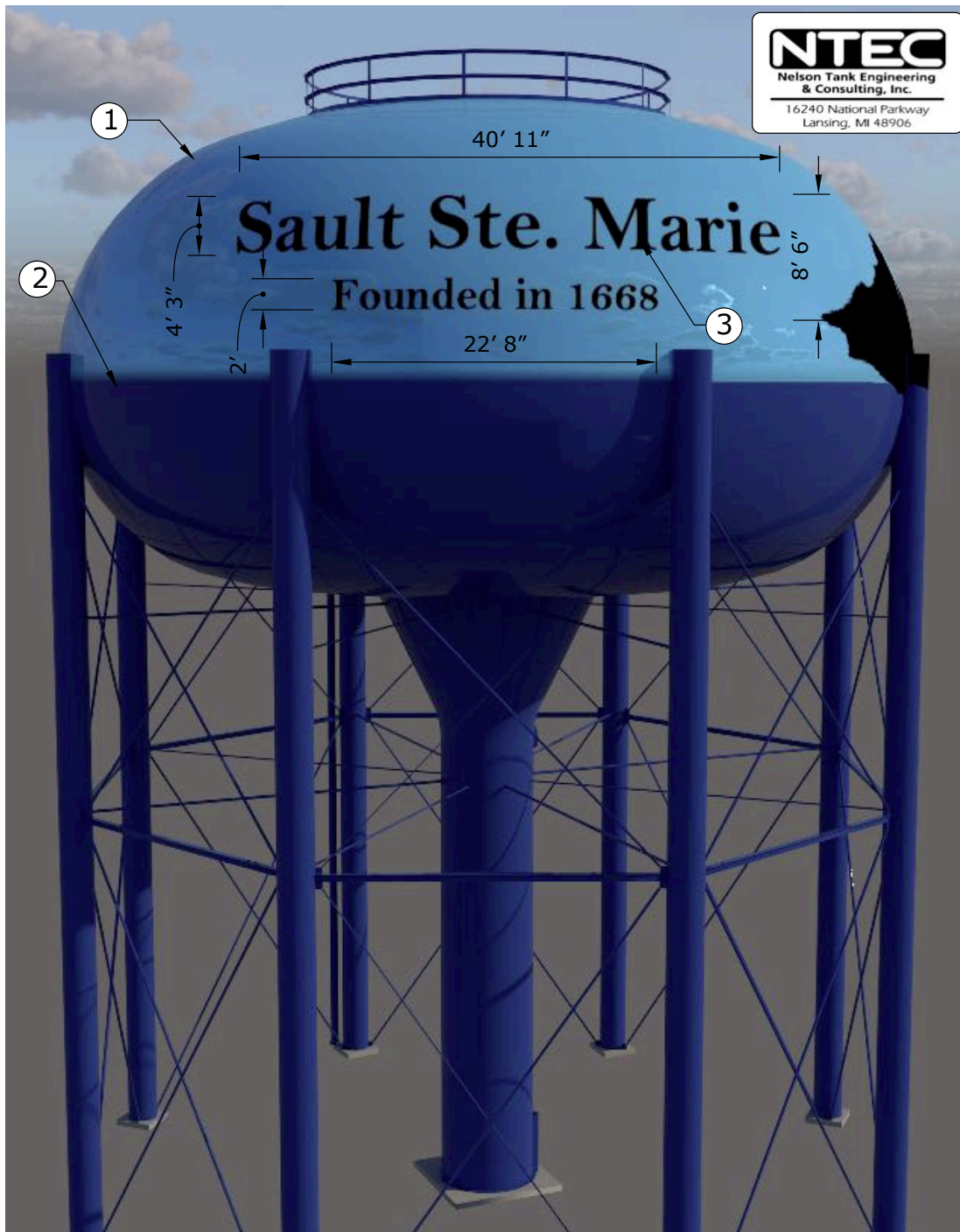
- A. Match the color scheme and logo design per attached base bid drawing or alternate bid drawing.
 - 1) Alternate bid drawing available in jpeg format.
- B. Use Tnemec Series 700 fluorourethane coating.
- C. Apply to 2.0 to 3.0 mils DFT.
- D. Apply second coat if necessary to hide underlying color.
- E. Touch up all runs, drips, sags and spills.

3.21 PRESSURE RELIEF VALVES

- A. Furnish the Owner with pressure relief valves for the operation of the distribution system.
 - 1) Furnish 2 valves.
 - 2) Jayco model 312 bronze valve, 2 ½ inch.
 - 3) Provide threaded adapters (National Standard Thread) to allow attachment to the fire hydrants.
- B. Deliver valves to the Owner one week prior to the Contractors arrival.
- C. Remove valves from the hydrants only after the tank has been returned to full service.
- D. The cost of the rental of valves shall be considered incidental to painting and repair.



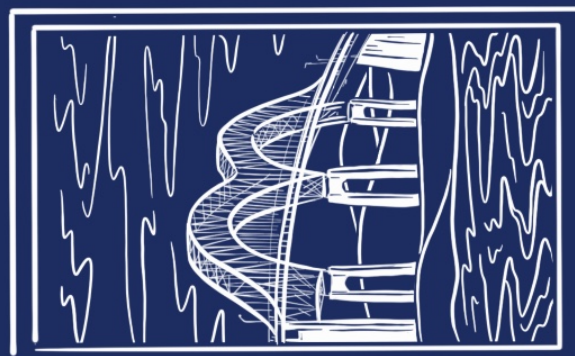
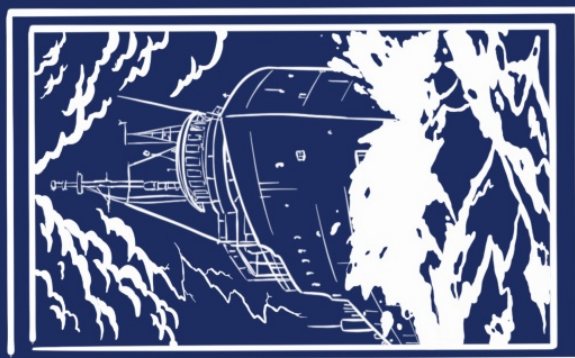
Project	Design Notes		
Sault Ste. Marie, MI 750,000 gallon elevated tank	1. Tnemec: Baby Blue 24BL		
	2. Tnemec: Black 35GR		
	3. Tnemec: Pond 28BL		
Description	4. Tnemec: Ruby Red 20RD		
Logo and Color Layout	5. Location and direction of logo to be picked by Owner		
Drawn by: REO		Date: 1/19/24	Revised by: Date:



Project	Design Notes			
Sault Ste. Marie, MI 750,000 gallon elevated tank	1. Tnemec: Baby Blue 24BL			
	2. Tnemec: Pond 28BL			
	3. Tnemec: Black 35GR			
Description	4. Location and direction of lettering to be picked by Owner			
Lettering and Color Layout				
	Drawn by: REO	Date: 1/19/24	Revised by:	Date:



Project	Design Notes		
Sault Ste. Marie, MI 750,000 gallon elevated tank Description Logo and Color Layout (Alt)	1. All murals to be centered between columns and of the same size.		
	2. Tnemec: Tnemec White 00WH		
	3. Tnemec: Lyle Blue 19BL		
	4. Tnemec: Old Glory Blue 78BL		
Drawn by: REO Date: 1/19/24 Revised by:		Date:	



FIELD REPORT FORM

I. GENERAL

OWNER:	City of Sault Ste. Marie	DATE:	November 18, 2021 December 2, 2021
ADDRESS:	W 4 th Ave	HEIGHT:	84'-0" HWL, 54' LWL
TANK SIZE:	750,000-gallon	CONSTRUCTION:	Welded
TANK DESIGN:	Torospherical	LETTERING:	Sault Ste. Marie (X2)
MANUFACTURE:	UTI	LOGO:	None
ERECTION DATE:	1969	COLOR:	Silver
LEAD INSP:	Matthew Otberg	ASST INSP:	Steve Kwart

II. CONTROLS

CONTROL LOCATION:	Dry riser	BRAND:	PJK
TELEMETERED:	No	RADIO TRANS:	Yes
HEATED:	No	INSULATED:	No
CATHODIC PROTECTION:	Yes	MANUFACTURER:	Corrpro
RECTIFIER (MAN, AUTO):	Auto	OPERATIONAL:	Yes
ANODE MATERIAL:	Titanium oxide	CONFIGURATION:	Horizontal
ANY DAMAGE:	No	DESCRIBE:	N/A

III. VALVE VAULT

VAULT CONDITION:	Good	HEATED:	No
INSULATED:	No	WATER SEEPAGE:	Flooded at bottom of dry riser
PIPING CONDITION:	Fair	COATING INTACT:	96%
EXPANSION JOINT TYPE:	N/A	CONDITION	--
ALTITUDE VALVE:	Above vault	CONDITION:	Good

IV. FOUNDATION

CONDITION OF CONCRETE:	Good/fair
ANY APPARENT SETTLEMENT:	No
SOIL EROSION OR LACK OF COVER:	No
CRACKS:	No
DELAMINATION:	Yes
SPALLING:	Yes
AGGREGATE EXPOSED:	No
CONDITION OF GROUT:	Poor
CONDITION OF BASE PLATES:	Fair - some coating failure present.

CONDITION OF ANCHOR BOLTS:	Fair - some coating failure present.
SHRUBS ENCROACHING:	No shrubs: however, grass is covering foundation on one side.

V. EXISTING COATING HISTORY

SURFACE	DATE	PAINT SYSTEM	MANUFACTURE	CONTRACTOR
WET INTERIOR:	2004	Epoxy	Tnemec	LC United
DRY INTERIOR:	2004 (overcoat)	Epoxy on platform & aluminum on spots	Tnemec on platform/Induron on spots	LC United
EXTERIOR:	2004 (overcoat)	Aluminum alkyd	Induron	LC United

VI. EXTERIOR CONDITIONS

A. RISER

NUMBER OF SECTIONS:	6 + 1 transition
GENERAL CONDITION OF COATING:	Good
PERCENT TOPCOAT INTACT:	99.999
PERCENT INTERMEDIATE/ PRIMER INTACT:	99.999
ADHESION TEST:	2B
CONDITION OF INSULATION/FROST JACKET:	N/A
RISER TIE BANDS:	N/A
COMMENTS:	Coating breaks and lifting at base. Minor mildew buildup.

B. COLUMNS

DESIGN:	Tubular
NUMBER OF COLUMNS:	8
GENERAL CONDITION OF COATING:	Good
PERCENT TOPCOAT INTACT:	99.999
PERCENT INTERMEDIATE/PRIMER INTACT:	99.999
ADHESION TEST:	2B, 0B
COMMENTS:	Corrosion and lifting at bottom sections of each column. Also, the condition of the grout is poor at each footing.

C. STRUTS

DESIGN:	Perpendicular channels
CONDITION OF CONNECTIONS:	Good
GENERAL CONDITION OF COATING:	Good
PERCENT TOPCOAT INTACT:	99.999
PERCENT INTERMEDIATE/PRIMER INTACT :	99.999
COMMENTS:	Minor corrosion present.

D. SWAY RODS

CONDITION OF PINS:				Good												
PERCENT STEEL LOSS:				>1%												
SWAY ROD LOCATION (CLOCKWISE FROM LADDER)																
BAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 (TOP)	T	T	T	L	T	T	T	T	T	T	T	T	T	T	T	T
2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T

E. BOWL

DESIGN:	Toro
NUMBER OF SECTIONS:	3
GENERAL CONDITION OF COATING:	Good
PERCENT TOPCOAT INTACT:	100
PERCENT INTERMEDIATE/PRIMER INTACT:	100
COMMENTS:	Mildew buildup. No signs of apparent failure.

F. EQUATOR

NUMBER OF SHELL SECTIONS:	1 + knuckle
GENERAL CONDITION OF COATING:	Good
PERCENT TOPCOAT INTACT:	100
PERCENT INTERMEDIATE/PRIMER INTACT:	100
ADHESION TEST:	N/A
COMMENTS:	Streaks of mildew forming.

G. ROOF

DESIGN:	Ellipse
GENERAL CONDITION OF COATING:	Poor
PERCENT TOPCOAT INTACT:	99
PERCENT INTERMEDIATE/PRIMER INTACT:	99
ADHESION TEST:	0B,0B,0B
COMMENTS:	Coating breaks and corrosion randomly spread throughout roof.

H. ACCESSORIES

LADDER CONDITION:	N/A	FALL PREVENTION:	--
CAGED:	N/A	IF YES, WHERE:	--
SHELL LADDER FIXED:	N/A	ROOF LADDER FIXED:	--
OVERFLOW PIPE SIZE:	10"	CONDITION:	Good
SCREEN SIZE:	24 mesh	CONDITION:	Good
STUB:	No	GROUND LEVEL:	Yes
FLAP GATE:	Yes	SPLASH PAD MEASUREMENT:	≈ 7' x 3'
RIP RAP:	No	SLOPED FROM TANK:	--
SHELL MANWAY SIZE	N/A	GASKET CONDITION:	--
RISER DOOR SIZE:	26"X74"	GASKET CONDITION:	--
MUD VALVE: LEGGED or GROUND TANK	No	SIZE:	-
CONDITION OF ROOF VENT:	Good	DESIGN:	Frost free
VACUUM RELIEF:	Yes	DISTANCE FROM SCREEN TO ROOF:	16"
SCREEN SIZE:	24 mesh	SCREEN CONDITION:	Good
CONDITION OF ACCESS TUBE VENT:	N/A	SCREEN POSITION:	--
SCREEN SIZE:	N/A	SCREEN CONDITION:	--
BANDS:	N/A	BAND CONDITION:	
DISTANCE FROM SCREEN TO ROOF:	N/A	-BLANK-	--
CATHODIC CAPS:	No	MISSING OR SLIPPED:	--
ROOF HATCH #1 SIZE:	30"	CONDITION:	Good
GASKET:	No	HASP LOCKED:	Locked
ROOF HATCH #2 SIZE:	N/A	CONDITION:	--
GASKET:	N/A	HASP LOCKED:	--
AVIATION LIGHTS:	Yes	CONDITION:	Working
OBSTRUCTIONS:	No	ANTENNAE:	Yes

BALCONY OR HANDHOLD:	Handhold	LOCATION:	Several areas throughout roof
CONDITION:	Good	-BLANK-	--

VII. INTERIOR CONDITIONS

A. DRY INTERIOR

1. RISER

GENERAL CONDITION OF COATING:	Good/fair
PERCENT TOPCOAT INTACT:	99.9
PERCENT INTERMEDIATE/PRIMER INTACT:	99.9
COMMENTS:	Some lifting and coating breaks at bottom platform (above pit). Minor corrosion at stiffener rings. Evidence of spot blasting.
ADHESION TEST	2B
FILL PIPE INSULATION CONDITION:	Fair, minor damage.
FROST JACKET:	No
EXPANSION JOINT:	Yes - upper platform section.
DESIGN AND CONDITION:	Bellows, fair - heavy corrosion buildup on flanges.
MUD VALVE:	Yes, 3-inch.
LADDER CONDITION:	Good
CAGED:	No
FALL PREVENTION DEVICE:	None
PIPE SUPPORTS CONDITION:	Good
LIGHTING CONDITION:	Working

2. ACCESS TUBE

GENERAL CONDITION OF COATING:	Good
PERCENT TOPCOAT INTACT:	99.999
PERCENT INTERMEDIATE/PRIMER INTACT:	99.999
COMMENTS:	Some pinholes noted
LADDER CONDITION:	Good
FALL PREVENTION DEVICE:	None
PIPE SUPPORTS CONDITION:	Good
COMPRESSION MANWAY SIZE:	N/A
GASKET CONDITION:	N/A
LIGHTING CONDITION:	1 bulb burned out

B. WET INTERIOR

1. BOWL

GENERAL CONDITION OF COATING:		Good	
PERCENT TOPCOAT INTACT:		100	
PERCENT INTERMEDIATE/PRIMER INTACT:		100	
ACTIVE CORROSION:	No	TYPE:	N/A
CONCENTRATION:	N/A	INACTIVE CORROSION:	Yes
DEEPEST PIT:	≈1/8"	AVG PIT DEPTH:	≈1/16"
PIT ESTIMATE:	50,000	WELDING ESTIMATE:	0
PRIOR PIT WELDS:	No	# TO GRIND:	0
STRAY WELDS:	No	LINEAL ESTIMATE:	0
FILL PIPE DIAMETER:	12"	DRAIN DIAMETER:	N/A
ADDTNL PIPING:	No	CONDITION:	--
MIXING SYSTEM:	No	CONDITION:	--
COMMENTS:	The bowl is stained with little sediment present. The coating is in good condition; however, it is heavily pitted (mainly the inner sections). The pitting is inactive and protected by the coating.		

2. EQUATOR

GENERAL CONDITION OF COATING:		Good	
PERCENT TOPCOAT INTACT:		99.999	
PERCENT INTERMEDIATE/PRIMER INTACT:		99.999	
ACTIVE CORROSION:	Yes	TYPE:	Holidays
CONCENTRATION:	Stiffener	INACTIVE CORROSION:	No
DEEPEST PIT:	N/A	AVG PIT DEPTH:	0
PIT ESTIMATE:	0	WELDING ESTIMATE:	0
PRIOR PIT WELDS:	No	# TO GRIND:	0
STRAY WELDS:	No	LINEAL ESTIMATE:	0
PAINTER'S RAIL:	No	STIFFENER:	Yes
ANY LADDER:	No	CONDITION:	--
FALL PREVENTION:	N/A	CONDITION:	--
COMMENTS:	Holidays noted throughout the backside of the stiffener ring.		

3. ACCESS TUBE

GENERAL CONDITION OF COATING:		Good/fair	
PERCENT TOPCOAT INTACT:		99.9	
PERCENT INTERMEDIATE/PRIMER INTACT:		99.9	
ACTIVE CORROSION:	Yes	TYPE:	Surface

CONCENTRATION:	Ladder bracket plates and platform	INACTIVE CORROSION:	Yes (on platform)
DEEPEST PIT:	≈1/16" (Platform)	AVG PIT DEPTH:	≈1/16" (platform)
PIT ESTIMATE:	5,000	WELDING ESTIMATE:	0
PRIOR PIT WELDS:	No	# TO GRIND:	0
STRAY WELDS:	No	LINEAL ESTIMATE:	0
PAINTER'S RAIL:	No	STIFFENER:	No
ANY LADDER:	Yes	CONDITION:	Good
FALL PREVENTION:	Yes - T-rail	CONDITION:	Good
WEIR DESIGN:	Box (at knuckle)	CONDITION:	Good
COMMENTS:	The access tube is in good condition overall. The platform is heavily pitted (mostly inactive); however, some of the railing has experienced steel loss from corrosion. Part of the coating appears to be scraped off from ice damage on the ladder and access tube surfaces.		

4. ROOF

GENERAL CONDITION OF COATING:		Fair/poor	
PERCENT TOPCOAT INTACT:		97	
PERCENT INTERMEDIATE/PRIMER INTACT:		97	
ACTIVE CORROSION:	Yes	TYPE:	Surface
CONCENTRATION:	Roof beams, spider rods, misc.	INACTIVE CORROSION:	No
DEEPEST PIT:	N/A	AVG PIT DEPTH:	--
PIT ESTIMATE:	0	WELDING ESTIMATE:	0
ROOF BEAMS:	Yes	DESIGN:	
NUMBER:	17	CONDITION:	Good
CORROSION TYPE:	Surface	EST. PERCENT LOSS:	>1%
BOLTS:	No	CONDITION:	--
COMMENTS:	Areas of surface corrosion and coating failure. It appears some repair work was done on areas of the roof that are now covered in surface corrosion. The roof is also stained in some areas. The coating has begun to fail on several areas of the spider rods.		

Note: Percentage of intact coating is based upon visual observation of actual paint remaining in comparison to SSPC-Guide Visual Standard No. 2, Figure 1. It does not indicate the coating has good adhesion, is free from defects or is failing. Any surface preparation estimates should consider these variables.

VIII. RECOMMENDATIONS

REPAIRS:	Repair grout at foundation and column footings. Remove dirt and grass from buried column footing. Replace wet interior access tube platform and handrail. Install cable type fall prevention to all ladders. Replace fill pipe insulation. Install roof hatch gasket. Replace burned out bulbs in dry interior.
PAINTING:	Abrasive blast clean and repaint exterior with containment. Abrasive blast clean and repaint dry interior, to include pit piping. Abrasive blast clean and repaint wet interior.
MISC:	Lead detected on both exterior and dry interior surfaces. Replace burned out bulb in dry interior riser.

CROSS HATCH TEST FIGURE

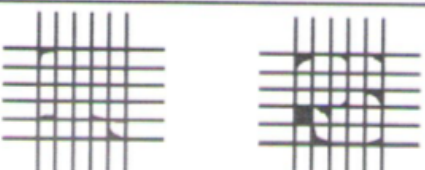
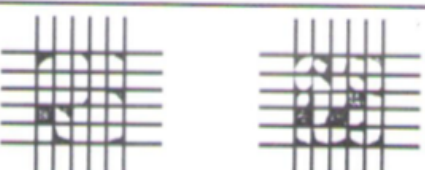
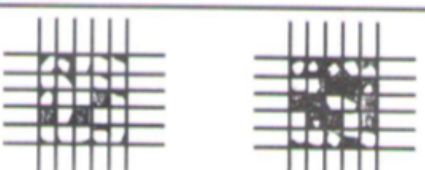
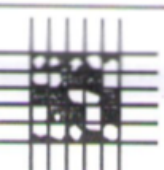
CLASSIFICATION OF ADHESION TEST RESULTS		
CLASSIFICATION	PERCENT AREA REMOVED	SURFACE OF CROSS-CUT AREA FROM WHICH FLAKING HAS OCCURRED FOR SIX PARALLEL CUTS AND ADHESION RANGE BY PERCENT
5B	0% None	
4B	Less than 5%	
3B	5 – 15%	
2B	15 – 35%	
1B	35 – 65%	
0B	Greater than 65%	

FIG. 1 Classification of Adhesion Test Results