

CONSTRUCTION REQUEST FOR PROPOSAL

RFP# 22-75

Floc Drive Room Floor Drain Improvements

City of Ann Arbor
Water Treatment Services Unit



Due Date: November 16, 2022 by 2:00 p.m.

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

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SECTION I - GENERAL INFORMATION

A. OBJECTIVE

Construction services to improve a floor drain system at the Ann Arbor Water Treatment Plant.

B. QUESTIONS AND CLARIFICATIONS / DESIGNATED CITY CONTACTS

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

All questions shall be submitted on or before October 31, 2022 at 5:00 p.m., and should be addressed as follows:

Scope of Work/Proposal Content questions shall be e-mailed to **brian.rubel@tetrattech.com**

RFP Process and Compliance questions shall be e-mailed to Colin Spencer, Buyer - CSpencer@a2gov.org

Should any prospective bidder be in doubt as to the true meaning of any portion of this RFP, or should the prospective bidder find any ambiguity, inconsistency, or omission therein, the prospective bidder shall make a written request for an official interpretation or correction by the due date for questions above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to a2gov.org and MITN.info and it shall be the prospective bidder's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFP, and must be incorporated in the proposal where applicable.

C. PRE-PROPOSAL MEETING

A pre-proposal conference for this project will be held on October 25, 2022 at 10:00 a.m. at **Water Treatment Plant, 919 Sunset Road, Ann Arbor, MI 48103.**

Attendance at this conference is highly recommended. Administrative and technical questions regarding this project will be answered at this time. The pre-proposal conference is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the proposal will be affirmed in an addendum.

D. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the prospective bidder. An official authorized to bind the bidder to its provisions must sign

the proposal. Each proposal must remain valid for at least one hundred and twenty (120) days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the bidder's ability to meet the requirements of the RFP. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

E. SELECTION CRITERIA

Responses to this RFP will be evaluated using a point system as shown in Section III. A selection committee comprised primarily of staff from the City will complete the evaluation.

If interviews are desired by the City, the selected firms will be given the opportunity to discuss their proposal, qualifications, past experience, and their fee proposal in more detail. The City further reserves the right to interview the key personnel assigned by the selected bidder to this project.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the proposal response shall be documented and included as part of the final contract.

F. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City on or before November 16, 2022 by 2:00 p.m. Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each respondent should submit in a sealed envelope

- **one (1) original proposal**
- **one (1) additional proposal copy**
- **one (1) digital copy of the proposal preferably on a USB/flash drive as one file in PDF format**

Proposals submitted should be clearly marked: **“RFP No. 22-75 – FLOC DRIVE ROOM FLOOR DRAIN IMPROVEMENTS** and list the bidder's name and address.

Proposals must be addressed and delivered to:
City of Ann Arbor
c/o Customer Service
301 East Huron Street
Ann Arbor, MI 48107

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.

Hand delivered proposals may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule/entrance of City Hall which is accessible to the public

at all hours. The City will not be liable to any prospective bidder for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal.

Bidders are responsible for submission of their proposal. Additional time will not be granted to a single prospective bidder. However, additional time may be granted to all prospective bidders at the discretion of the City.

A proposal may be disqualified if the following required forms are not included with the proposal:

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

Proposals that fail to provide these forms listed above upon proposal opening may be deemed non-responsive and may not be considered for award.

G. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

H. TYPE OF CONTRACT

A sample of the Construction Agreement is included as Attachment A. Those who wish to submit a proposal to the City are required to review this sample agreement carefully. **The City will not entertain changes to its Construction Agreement.**

For all construction work, the respondent must further adhere to the City of Ann Arbor General Conditions. The General Conditions are included herein. Retainage will be held as necessary based on individual tasks and not on the total contract value. The Contractor shall provide the required bonds included in the Contract Documents for the duration of the Contract.

The City reserves the right to award the total proposal, to reject any or all proposals in whole or in part, and to waive any informality or technical defects if, in the City's sole judgment, the best interests of the City will be so served.

This RFP and the selected bidder's response thereto, shall constitute the basis of the scope of services in the contract by reference.

I. NONDISCRIMINATION

All bidders proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as

outlined in Attachment G shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

J. WAGE REQUIREMENTS

The Attachments provided herein outline the requirements for payment of prevailing wages or of a "living wage" to employees providing service to the City under this contract. The successful bidder must comply with all applicable requirements and provide documentary proof of compliance when requested.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. Use of Michigan Department of Transportation Prevailing Wage Forms (sample attached hereto) or a City-approved equivalent will be required along with wage rate interviews.

For laborers whose wage level are subject to federal, state and/or local prevailing wage law the appropriate Davis-Bacon wage rate classification is identified based upon the work including within this contract. **The wage determination(s) current on the date 10 days before proposals are due shall apply to this contract.** The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: www.wdol.gov.

For the purposes of this RFP the Construction Type of Building will apply.

K. CONFLICT OF INTEREST DISCLOSURE

The City of Ann Arbor Purchasing Policy requires that the consultant complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected bidder unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Conflict of Interest Disclosure Form is attached.

L. COST LIABILITY

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the bidder prior to the execution of an Agreement. The liability of the City is limited to the terms and conditions outlined in the Agreement. By submitting a proposal, bidder agrees to bear all costs incurred or related to the preparation, submission, and selection process for the proposal.

M. DEBARMENT

Submission of a proposal in response to this RFP is certification that the Respondent is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

N. PROPOSAL PROTEST

All proposal protests must be in writing and filed with the Purchasing Manager within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If any bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Manager. The Purchasing Manager will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

Any inquiries or requests regarding this procurement should be only submitted in writing to the Designated City Contacts provided herein. Attempts by the bidder to initiate contact with anyone other than the Designated City Contacts provided herein that the bidder believes can influence the procurement decision, e.g., Elected Officials, City Administrator, Selection Committee Members, Appointed Committee Members, etc., may lead to immediate elimination from further consideration.

O. SCHEDULE

The following is the schedule for this RFP process.

Activity/Event	Anticipated Date
Written Question Deadline	October 31, 2022, 5:00 p.m. (Local Time)
Addenda Published (if needed)	Week of October 31, 2022
Proposal Due Date	November 16, 2022, 2:00 p.m. (Local Time)
Selection/Negotiations	November 2022
Expected City Council Authorizations	January 2023

The above schedule is for information purposes only and is subject to change at the City’s discretion.

P. IRS FORM W-9

The selected bidder will be required to provide the City of Ann Arbor an IRS form W-9.

Q. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in terms or conditions of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all bidders.
4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more contractors or service providers to perform services.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this RFP, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within the RFP.

R. IDLEFREE ORDINANCE

The City of Ann Arbor adopted an idling reduction Ordinance that went into effect July 1, 2017. The full text of the ordinance (including exemptions) can be found at: www.a2gov.org/idlefree.

Under the ordinance, No Operator of a Commercial Vehicle shall cause or permit the Commercial Vehicle to Idle:

- (a) For any period of time while the Commercial Vehicle is unoccupied; or
- (b) For more than 5 minutes in any 60-minute period while the Commercial Vehicle is occupied.

In addition, generators and other internal combustion engines are covered

- (1) Excluding Motor Vehicle engines, no internal combustion engine shall be operated except when it is providing power or electrical energy to equipment or a tool that is actively in use.

S. ENVIRONMENTAL COMMITMENT

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote, and encourage the City's commitment to the environment.

The City encourages potential vendors to bring forward emerging and progressive products and services that are best suited to the City's environmental principles.

T. BID SECURITY

Each bid must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

U. MAJOR SUBCONTRACTORS

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor. The Bidder shall not change or replace a subcontractor without approval by the City.

V. LIQUIDATED DAMAGES

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

SECTION II - SCOPE OF WORK

Please see the plan set for more details.

SECTION III - MINIMUM INFORMATION REQUIRED

PROPOSAL FORMAT

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

Bidders should organize Proposals into the following Sections:

- A. Qualifications, Experience and Accountability
- B. Workplace Safety
- C. Workforce Development
- D. Social Equity and Sustainability
- E. Schedule of Pricing/Cost
- F. Authorized Negotiator
- G. Attachments

Bidders are strongly encouraged to provide details for all of the information requested below within initial proposals. Backup documentation may be requested at the sole discretion of the City to validate all of the responses provided herein by bidders. False statements by bidders to any of the criteria provided herein will result in the proposal being considered non-responsive and will not be considered for award.

Pursuant to Sec 1:314(9) of the City Code which sets forth requirements for evaluating construction bids, Bidders should submit the following:

A. Qualifications, Experience and Accountability - 20 Points

1. Qualifications and experience of the bidder and of key persons, management, and supervisory personnel to be assigned by the bidder.
2. References from individuals or entities the bidder has worked for within the last five (5) years including information regarding records of performance and job site cooperation.
3. Evidence of any quality assurance program used by the bidder and the results of any such program on the bidder's previous projects.
4. A statement from the bidder as to any major subcontractors it expects to engage including the name, work, and amount.

B. Workplace Safety – 20 Points

1. Documentation of an on-going, Michigan OSHA-approved safety-training program for employees to be used on the proposed job site.

2. Evidence of the bidder's worker's compensation Experience Modification Rating ("EMR"). Preference within this criterion will be given to an EMR of 1.0 or less based on a three-year average.
3. Evidence that all craft labor that will be employed by the bidder for the project has, or will have prior to project commencement, completed at least the OSHA 10-hour training course for safety established by the U.S. Department of Labor, Occupational Safety & Health Administration.
4. The safety record of bidder and major subcontractors, including OSHA, MIOSHA, or other safety violations.

C. Workforce Development – 20 Points

1. The ratio of masters or journeypersons to apprentices proposed to be used on the construction project job site, if apprentices are to be used on the project.
2. Documentation as to bidder's pay rates, health insurance, pension or other retirement benefits, paid leave, or other fringe benefits to its employees.
3. Documentation that the bidder participates in a Registered Apprenticeship Program that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the USDOL Office of Apprenticeship.

D. Social Equity and Sustainability – 20 Points

1. A statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan. The City will consider in evaluating which bids best serve its interests, the extent to which responsible and qualified bidders are able to achieve this goal.
2. Evidence of Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses.
3. Evidence that the bidder is an equal opportunity employer and does not discriminate on the basis of race, sex, pregnancy, age, religion, national origin, marital status, sexual orientation, gender identity or expression, height, weight, or disability.
4. The bidder's proposed use of sustainable products, technologies, or practices for the project, which reduce the impact on human health and the environment, including raw materials acquisition, production,

manufacturing, packaging, distribution, reuse, operation, maintenance, and waste management.

- 5. The bidder's environmental record, including findings of violations and penalties imposed by government agencies.

E. Schedule of Pricing/Cost – 20 Points

Company: _____

Notes:

- 1. Provide a Unit Price and Total Price for all bid items specified.
- 2. Quantities included in the bid table represent estimated quantities for different work. The CONTRACTOR shall be compensated for the actual number of items completed using the unit prices provided.
- 3. The City, at its sole discretion, may elect to delete any portion of the work delineated below, with no change to the unit prices provided. Work shall be determined based upon the availability of funds.
- 4. Any item not provided in the following list shall be considered incidental.
- 5. Change order shall be awarded based on the base bid or any combination of a base bid and alternate bid in any manner the City believes to be in its best interest.

Section 1 – Bid Form

Item No.	Item Description	Qty	Unit	Unit Price	Total Price
1.	General Conditions (Max, 10% of items 2 through 8)	1	LS	\$	\$
2.	Demolition	1	LS	\$	\$
3.	Floor Drains and Drain Pipe	1	LS	\$	\$
4.	Sump Pumps and Cover	1	LS		
5.	Final Closeout	1	LS	\$	\$
6.	Permit Allowance	1	LS	\$ 2,000	\$ 2,000
7.	Misc. Allowance	1	LS	\$15,000	\$15,000
8.	Certified Payroll Compliance and Reporting	1	LS	\$	\$
TOTAL BASE QUOTATION (ITEMS 1 THROUGH 8)					\$

(\$ _____)

(Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

QUOTATION FORM

SECTION 2 – MATERIAL, EQUIPMENT AND ENVIRONMENTAL ALTERNATES

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the request for quotation. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

If an environmental alternative is bid the City strongly encourages bidders to provide recent examples of product testing and previous successful use for the City to properly evaluate the environmental alternative. Testing data from independent accredited organizations are strongly preferred.

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
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If the Contractor does not suggest any material or equipment alternate, the Contractor should complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the Contract.

Signature of Authorized Representative of Contractor _____ Date _____

BID FORM
SECTION 3 - TIME ALTERNATE

If the Contractor takes exception to the time stipulated in the Summary of Work, it is requested to stipulate below its proposed time for performance of the work.

If the Contractor does not suggest any time alternate, the Contractor should complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the Contract.

Signature of Authorized Representative of Contractor _____ Date _____

BID FORM
SECTION 4 - MAJOR SUBCONTRACTORS

For purposes of this Contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of Contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision to Section 4 of the General Conditions covering subcontractor's employees who perform work on this contract.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

<u>Subcontractor</u> <u>(Name and Address)</u>	<u>Work</u>	<u>Amount</u>
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Mechanical

Electrical

If the Bidder does not expect to engage any major subcontractor, the Bidder should complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the Contract.

Signature of Authorized Representative of Contractor _____ Date _____

F. AUTHORIZED NEGOTIATOR / NEGOTIATIBLE ELEMENTS (ALTERNATES)

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City.

The proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the bidder wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-2, it is requested to stipulate its proposed time for performance of the work.

Consideration for any proposed alternative items or time may be negotiated at the discretion of the City.

G. ATTACHMENTS

General Declaration, Legal Status of Bidder, Conflict of Interest Form, Living Wage Compliance Form, Prevailing Wage Compliance Form and the Non-Discrimination Form should be completed and returned with the proposal. These elements should be included as attachments to the proposal submission.

PROPOSAL EVALUATION

1. The selection committee will evaluate each proposal by the above-described criteria and point system. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be a candidate for an interview if interviews are selected to be held by the City. The committee may contact references to verify material submitted by the bidder.
2. The committee then will schedule interviews with the selected firms if necessary. The selected firms will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan (if applicable) and pricing.
3. The interview should include the project team members expected to work on the project, but no more than six members total. The interview shall consist of a presentation of up to thirty minutes (or the length provided by the committee) by the

bidder, including the person who will be the project manager on this contract, followed by approximately thirty minutes of questions and answers. Audiovisual aids may be used during the oral interviews. The committee may record the oral interviews.

4. The firms interviewed will then be re-evaluated by the above criteria and adjustments to scoring will be made as appropriate. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a contract by City Council, if suitable proposals are received.

The City reserves the right to waive the interview process and evaluate the bidder based on their proposal and pricing schedules alone.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.

Work to be done under this contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents.

Any proposal that does not conform fully to these instructions may be rejected.

PREPARATION OF PROPOSALS

Proposals should have no plastic bindings but will not be rejected as non-responsive for being bound. Staples or binder clips are acceptable. Proposals should be printed double sided on recycled paper.

Each person signing the proposal certifies that they are a person in the bidder's firm/organization responsible for the decisions regarding the fees being offered in the Proposal and has not and will not participate in any action contrary to the terms of this provision.

ADDENDA

If it becomes necessary to revise any part of the RFP, notice of the addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or the City of Ann Arbor web site www.A2gov.org for all parties to download.

Each bidder should acknowledge in its proposal all addenda it has received on the General Declarations form provided in the Attachments section herein. The failure of a bidder to receive or acknowledge receipt of any addenda shall not relieve the bidder of the responsibility for complying with the terms thereof. The City will not be bound by oral responses to inquiries or written responses other than official written addenda.

SECTION IV - ATTACHMENTS

Attachment A – Sample Standard Contract

Attachment B – General Declarations

Attachment C - Legal Status of Bidder

Attachment D – Prevailing Wage Declaration of Compliance Form

Attachment E – Living Wage Declaration of Compliance Form

Attachment F – Living Wage Ordinance Poster

Attachment G – Vendor Conflict of Interest Disclosure Form

Attachment H – Non-Discrimination Ordinance Declaration of Compliance Form

Attachment I – Non-Discrimination Ordinance Poster

Sample Certified Payroll Report Template

**ATTACHMENT A
SAMPLE STANDARD CONTRACT**

If a contract is awarded, the selected contractor will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors of service to the City of Ann Arbor such as the following:

Administrative Use Only
Contract Date: _____

CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and _____ ("Contractor")

(An individual/partnership/corporation, include state of incorporation) (Address)

Based upon the mutual promises below, the Contractor and the City agree as follows:

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled **[Insert Title of Bid and Bid Number]** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

- | | |
|--|-------------------------|
| Non-discrimination and Living Wage Declaration of Compliance Forms (if applicable) | General Conditions |
| Vendor Conflict of Interest Form | Standard Specifications |
| Prevailing Wage Declaration of Compliance Form (if applicable) | Detailed Specifications |
| Bid Forms | Plans |
| Contract and Exhibits | Addenda |
| Bonds | |

ARTICLE II - Definitions

Administering Service Area/Unit means **Water Treatment Services Unit**

Project means **Floc Drive Room Floor Drain Improvements**

Supervising Professional means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed, the Supervising Professional is: **[Insert the person's name]** whose job title is **[Insert job**

title]. If there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

Contractor's Representative means _____ **[Insert name]** whose job title is **[Insert job title]**.

ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within one hundred and fifty (150) consecutive calendar days.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to \$1,500 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

ARTICLE IV - The Contract Sum

Choose one only.

- (A) The City shall pay to the Contractor for the performance of the Contract, the lump sum price as given in the Bid Form in the amount of:
_____ Dollars (\$_____)

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the City.

ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this Contract, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under

this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.

ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any Contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this Contract.

ARTICLE VIII - Notice

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

ARTICLE IX - Indemnification

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor's behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

ARTICLE XI – Electronic Transactions

The City and Contractor agree that signatures on this Contract may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this Contract. This Contract may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
City Administrator

By _____
Services Area Administrator

Approved as to form and content

Atleen Kaur, City Attorney

PERFORMANCE BOND

- (1) of _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$ _____, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled _____, for RFP No. _____ and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
 - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.
- (6) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

SIGNED AND SEALED this _____ day of _____, 202_.

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Atleen Kaur, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

LABOR AND MATERIAL BOND

- (1) _____
of _____(referred to
as "Principal"), and _____, a corporation
duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound
to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants
as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et
seq., in the amount of
\$ _____, for the payment of which Principal and Surety bind themselves, their
heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled _____

_____, for RFP No. _____; and this bond is
given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as
amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably
required under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have
no obligation if the Principal promptly and fully pays the claimants.
- (5) Principal, Surety, and the City agree that signatures on this bond may be delivered
electronically in lieu of an original signature and agree to treat electronic signatures as original
signatures that bind them to this bond. This bond may be executed and delivered by facsimile
and upon such delivery, the facsimile signature will be deemed to have the same effect as if
the original signature had been delivered to the other party.

SIGNED AND SEALED this _____ day of _____, 202_

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

Section 2 - Order of Completion

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

Section 3 - Familiarity with Work

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

Section 4 - Wage Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of

subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

Section 5 - Non-Discrimination

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or

employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

Section 11 - Inspection of Work

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be

executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section I3. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material

at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

- (1) unsettled liens;
- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the

written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

Section 21 - Delays and the City's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

Section 23 - City's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

Section 27 - Payments Withheld Prior to Final Acceptance of Work

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

Section 28 - Contractor's Insurance

- (1) The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage that may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of any work under this contract, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the required policies and endorsements. The certificates of insurance endorsements and/or copies of

policy language shall document that the Contractor satisfies the following minimum requirements. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

Required insurance policies include:

- (a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

- Bodily Injury by Accident - \$500,000 each accident
 - Bodily Injury by Disease - \$500,000 each employee
 - Bodily Injury by Disease - \$500,000 each policy limit

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. The following minimum limits of liability are required:

- \$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
 - \$2,000,000 Per Project General Aggregate
 - \$1,000,000 Personal and Advertising Injury
 - \$2,000,000 Products and Completed Operations Aggregate, which, notwithstanding anything to the contrary herein, shall be maintained for three years from the date the Project is completed.

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

- (d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- (2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute

with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City for any insurance listed herein.

- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and un-qualified 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number(s); name of insurance company(s); name and address of the agent(s) or authorized representative(s); name(s), email address(es), and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which may be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) and all required endorsements to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.
- (4) Any Insurance provider of Contractor shall be authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-authorized insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the City Attorney.

Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

Section 33 - Rights of Various Interests

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

Section 42 - Sales Taxes

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

Section 43

CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period _____, 20____, to _____, 20____, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract titled _____, for which I shall ask, demand, sue for, or claim compensation or extension of time from the City, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

Contractor

Date

By _____
(Signature)

Its _____
(Title of Office)

Past due invoices, if any, are listed below.

Section 44

CONTRACTOR'S AFFIDAVIT

The undersigned Contractor, _____, represents that on _____, 20__, it was awarded a contract by the City of Ann Arbor, Michigan to _____ under the terms and conditions of a Contract titled _____. The Contractor represents that all work has now been accomplished and the Contract is complete.

The Contractor warrants and certifies that all of its indebtedness arising by reason of the Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing the project, as well as all other claims arising from the performance of the Contract, have been fully paid or satisfactorily settled. The Contractor agrees that, if any claim should hereafter arise, it shall assume responsibility for it immediately upon request to do so by the City of Ann Arbor.

The Contractor, for valuable consideration received, does further waive, release and relinquish any and all claims or right of lien which the Contractor now has or may acquire upon the subject premises for labor and material used in the project owned by the City of Ann Arbor.

This affidavit is freely and voluntarily given with full knowledge of the facts.

_____ Contractor _____ Date

By _____
(Signature)

Its _____
(Title of Office)

Subscribed and sworn to before me, on this ____ day of _____, 20__
_____, _____ County, Michigan

Notary Public
_____ County, MI
My commission expires on:

STANDARD SPECIFICATIONS

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

DETAILED SPECIFICATIONS

DETAILED SPECIFICATIONS

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SECTION 01 11 13 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. The Work to be performed shall consist of furnishing tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services (including applying for permits, paying permit fees, and scheduling and closing inspections), including but not limited to fuel, power, water, essential communications, and performing all Work or other operations required in strict accordance with the Drawings and these specifications. The Work shall be complete, and all Work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be provided by the Contractor as though originally so indicated, at no increase in cost to the City.
- B. The Project is located at the Ann Arbor Water Treatment Plant, 919 Sunset Road, Ann Arbor, MI 48103.
- C. The Work consists of demolition, installation of new floor drains, new sump pumps and cover, and all other work needed for a complete job.
- D. The Work shall consist of work in the WTP cistern. This is a confined space and CONTRACTOR shall perform work in accordance with confined space requirements of Michigan OSHA and City of Ann Arbor.

1.02 WORK SEQUENCE

- A. CONTRACTOR shall arrange its Work so that at no time shall it cause unnecessary interruption to the operation of existing facilities. In order to meet the overall objective of this Project, certain elements of the Work must be completed in a particular sequence. It may also be necessary to do certain parts of the Work outside normal working hours. CONTRACTOR shall do this Work at such times and at no additional cost to Owner. CONTRACTOR shall be completely responsible for fines and other enforcement imposed upon the facility resulting from inadvertent or unplanned interruptions caused by CONTRACTOR that result in water quality violations. CONTRACTOR shall be responsible for the means and methods of construction but a suggested sequence of construction is as follows:
 - 1. Demolish floor drains and common plumbing in downstream portion of project.
 - 2. Demolish floor drains in one half of room. Install new drain in that half.
 - 3. Demolish and install floor drains in other half of room.
 - 4. Replace sump pump and pump cover
- B. CONTRACTOR shall submit complete details of its plan to Engineer for review
- C. Suggested sequence for work is (work shall start demonstration period by end of specified ranges): April 1 through May 25, 2023. Cistern and drive units are likely to be inoperable during this duration.

1.03 CONTRACTOR USE OF PREMISES

- A. Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public. Confine operations to areas within Contract limits indicated. Portions of the Site beyond areas in which construction operations are indicated are not to be disturbed.
- B. Keep driveways and entrances serving the premises clear and available to Owner, Owner's employees, and private property owners at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on Site. Areas for Contractor's trailers, equipment, and material storage, and CONTRACTOR's employee parking shall be as indicated on Drawings or agreed by Owner prior to the start of construction.
- C. Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.
- D. City will not make restrooms available for Contractor personnel. Refer to section 01 50 00 for restroom requirements.

1.04 OWNER OCCUPANCY

- A. Full OWNER Occupancy: Owner will occupy the Site and existing building during the entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.

1.05 MISCELLANEOUS PROVISIONS

- A. Time and Sequence of Work: In general, it is the intention and understanding that CONTRACTOR shall have control over the sequence or order of execution of the several parts of the Work to be done under the Contract and over the method of accomplishing the required results, except as some particular sequence or method may be distinctly demanded by the Drawings and Project Manual or by the expressed provisions of the Contract. Engineer may, however, make such reasonable requirements as may, in ENGINEER's judgment, be necessary for the proper and effective protection of Work partially or wholly completed, and to these requirements CONTRACTOR shall conform.
- B. The Contractor shall be responsible for coordinating the general construction and electrical, HVAC, plumbing, and controls construction schedules and for ensuring that permanent or temporary service is available for all existing, proposed, and temporary facilities that are required to be on line at any given time. Work shall be done during weather conditions conducive to the work. If performed during extreme temperatures, Contractor shall supply temporary heating, cooling and/or ventilation.
- C. The Contractor has the option of providing temporary facilities that can eliminate a constraint, provided it is done without cost to the Owner and provided that all requirements of these Specifications are fulfilled. Work not specifically covered in the following paragraphs may, in general, be done at any time during the contract period, subject to the operating requirements and constraints and construction requirements outlined hereinafter. All references to days in this Section shall be consecutive calendar days.

1.06 GENERAL CONSTRAINTS

- A. The Contractor shall schedule the Work so that the plant is maintained in continuous operation. All treatment processes shall be maintained in continuous operation during the construction period except during approved process interruptions. Shutdowns and diversions shall conform to the requirements hereinafter specified and shall be minimized by the Contractor as much as possible. If in the judgment of the Engineer a requested shutdown is not required for the Contractor to perform the Work, the Contractor shall utilize approved alternative methods to accomplish the Work. All shutdowns shall be coordinated with and scheduled at times suitable to the Owner. Shutdowns shall not begin until all required materials are on hand and ready for installation. Each shutdown period shall commence at a time approved by the Owner. If the Contractor completes all required Work before the specified transfer period has ended, the Owner may immediately place the existing system back into service.
- B. The Contractor shall give Owner advance notice of proposed shutdowns of any pipe, process, equipment, tank, treatment train, or power source, and shall present all desired shutdowns in the 30 and 60 day schedules at the progress meetings. Shutdowns shall be fully coordinated with the Owner at least 30 days before the scheduled shutdown. Contractor shall lockout/tagout equipment and power sources involved in the shutdowns and diversions. The Owner's personnel shall operate Owner's facilities during shutdowns.
- C. The Contractor shall submit a proposed written plan of work, with a request to schedule shutdown work for Owner and Engineer approval. Work plan shall include sequence of events, needs for coordination with plant staff, plans for lock-out/tag-out, contingency plans for how to return equipment and tanks to service early if needed for emergencies, and details of how the duration of the shut-down will be minimized.
- D. Short-term shutdowns (24 hours or less) shall require 7 days prior notice to schedule date and time with Owner, unless otherwise noted herein. Once a short-term shutdown starts, Contractor shall work continuously until the work is complete and the disrupted process or system can be returned to service. Long-term shutdowns (longer than 24 hours) shall require 30 days prior notice to schedule date and time with Owner, unless otherwise noted herein. The Contractor shall submit a plan of work showing sequence of events throughout shutdown period, and listing all items requiring coordination with Owner's staff. The Contractor shall schedule a coordination meeting with the Owner prior to the initiation of a long-term shutdown. Once a long-term shutdown starts, Contractor shall work on the shutdown area full days, every regular work day, until the work is complete and the disrupted process or system can be returned to service, unless otherwise required herein.
- E. Any temporary work, facilities, roads, walks, protection of existing structures, piping, blind flanges, valves, equipment, etc. that may be required within the Contractor's work limits to maintain continuous and dependable plant operation shall be furnished by the Contractor at the direction of the Owner or Engineer at no extra cost to the Owner.
- F. The Owner shall have the authority to order work stopped or prohibited that would, in his opinion, unreasonably result in interrupting the necessary functions of the plant operations. The Owner reserves the right to cancel a scheduled shutdown, without additional compensation due the Contractor, and will consider a contract extension if the cancellation affects the contractor's critical path.
- G. Unless specifically required by this specification, the Contractor shall not request more than one shutdown occur simultaneously.

- H. If the Contractor impairs performance or operation of the plant as a result of not complying with specified provisions for maintaining plant operations, then the Contractor shall immediately make all repairs or replacements and do all work necessary to restore the plant to operation to the satisfaction of the Owner and Engineer. Such work shall progress continuously to completion 24 hours per day and seven work days per week.
- I. After any damage to the existing facilities by the Contractor's Work that, in the opinion of the Owner, constitutes an emergency, the Contractor shall be immediately available and provide immediate services for the repair of damage and mitigation of the emergency.
- J. Shutdowns shall be scheduled between Monday and Friday, unless there are extenuating circumstances approved by the Engineer. Owner reserves the right to require the AHU-6 shutdown to be conducted on a weekend if needed to maintain plant operations.

1.07 GENERAL REQUIREMENTS

- A. Access to Plant Site, Roadways, and Parking Areas
 - 1. An unobstructed traffic route through all water plant gates shall be maintained at all times for the Owner's operations personnel and maintenance equipment. The pavement areas needed for crane erection, with 14 days advanced notice, may be closed for nonconsecutive, one-day periods to deliver the air handling unit and demolish the existing unit. Consecutive one-day periods, with advanced notice, will be considered but cannot be guaranteed. The Contractor shall be responsible for providing access to the construction area. Contractor shall be responsible for notices and signage needed to maintain access for WTP operations. Contractor's personnel shall park on approved City street curbs and shall not park on the water treatment plant site.
 - 2. An unobstructed traffic route around the plant site shall be maintained at all times (except for closures approved in the above text) for the Owner's operations personnel, maintenance equipment, and delivery vehicles. Vehicular access to the treatment units, buildings, and bulk chemical storage facilities for Owner personnel and for chemical delivery vehicles shall be maintained at all times by the Contractor except as explicitly permitted hereinafter.
 - 3. It shall be the responsibility of the General Contractor to obtain any permits required from the City of Ann Arbor Building Department or other governmental agency having jurisdiction and pay all associated fees. Contractor shall schedule and coordinate all inspections. Costs incurred by rescheduled inspections as a result of Contractor not being prepared shall be at Contractor's expenses.
 - 4. The Contractor shall be responsible for removal of snow in areas of the Contractor's work.
 - 5. The Contractor will not disturb the maintenance of plant operations without a written and approved plan. These operations at a minimum include chemical deliveries, sludge hauling and general deliveries.
 - 6. The Contractor will submit plans for approval for any needed outages or disturbances to operations. These plans will include the area, process or systems that will be impacted and duration of the outage. No plans can be implemented without written authorization from Owner or Engineer.
- B. Personnel Access
 - 1. Treatment plant personnel shall have access to all areas which remain in operation throughout the construction period. The Contractor shall locate stored material, dispose of construction debris and trash, provide temporary walkways, provide temporary lighting, and other such work

as directed by the Engineer to maintain personnel access to areas in operation. Access and adequate parking areas for plant personnel must be maintained throughout construction.

- C. Plumbing Facilities
 - 1. Unless otherwise allowed by the Engineer, sanitary facilities in the existing structures shall be operational at all times for plant operating personnel. All other building plumbing systems such as roof and floor drains, pumping, etc., shall be maintained for all structures.

- D. Power, Light and Communications Systems (General)
 - 1. Electric power, lighting service and communications systems shall be maintained in uninterrupted operation in all areas which remain in operation. Individual units may be disconnected as required for replacement, but service shall be available at all times including periods when plant elements are out of service. Shutdown of electrical facilities, when allowed, shall be limited to not more than two (2) hours unless otherwise noted or approved by the Owner. The Owner may allow longer outages under conditions determined by the Owner by making use of the existing engine generator at the plant. The Contractor shall coordinate shutdowns required to minimize the duration of shutdowns and the total number of shutdowns required to complete construction. Owner's phone service to the plant shall be maintained in continuous operation during construction.

1.08 SPECIFIC OPERATIONAL CONSTRAINTS

- A. The Contractor shall schedule the work for the following based on the constraints given in such a manner as to maintain the water treatment plant operation. Contractor shall submit a proposed construction schedule including all planned system shutdowns and tie-ins for the Owner's and Engineer's review no later than 30 calendar days after issuance of the Notice to Proceed. At a minimum, Construction Schedule shall indicate a proposed start date and duration for each of the items listed in this section. No construction shall begin on any of the items listed in this section until the proposed schedule has been approved.

- B. City will pump water from cistern prior to CONTRACTOR commencing work. CONTRACTOR shall plan work based on the assumption that several inches of water may remain in work space.

- C. Specific operational constraints are specified in Table 1 with liquidated damages that may apply.

**Table 1
Ann Arbor WTP
Summary of Shutdown Notices, Durations, Dates, Deadlines, and Liquidated Damages**

Item	Notice to Owner (days)	Maximum Duration	Dates and Deadlines	Liquidated Damages
Substantial Completion	N/A	N/A	May 25, 2023	\$1,500/day

D. Anticipated Contract Dates are:

Notice to Proceed
Submittals to Engineer or Owner
Floor Drains and Sump Operational
Final Completion

January 15, 2023
No Later Than February 1, 2023
May 25, 2023
June 10, 2023

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 21 00– ALLOWANCES

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for processing Allowances. Selected materials and equipment, and in some cases their installation, are shown and specified in the Contract Documents by Allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by Change Order.

1.02 DEFINITIONS

- A. Lump Sum Allowance: A monetary sum that includes, as part of the Contract Price, the associated costs and requirements to complete the specified Allowance.

1.03 SUBMITTALS

- A. Submit invoices or delivery slips to indicate actual quantities of materials delivered to the Site for use in fulfillment of each Allowance.

1.04 OWNER'S INSTRUCTIONS

- A. At the earliest feasible date after Contract Award, advise Engineer of the date when the final selection and purchase of each product or system described by an Allowance must be completed in order to avoid delay in performance of the Work.
- B. When requested by Engineer, obtain Bids for each Allowance for use in making final selections; include recommendations that are relevant to performance of the Work.
- C. Purchase products and systems as selected by Engineer from the designated supplier.
- D. Use Allowances only as directed for Owner's purposes, and only by Change Orders which designate amounts to be charged to the Allowance.
- E. If the actual price for the specified Allowance is more or less than the stated Allowance, the Contract Price shall be adjusted accordingly by Change Order. The adjustment in Contract Price shall be made in accordance with Section 15 of the General Conditions.
- F. Change Orders authorizing use of funds from the Contingency or Provisionary Allowances will include CONTRACTOR's related costs and reasonable overhead and profit margins.
- G. At Project closeout, any amounts remaining in Allowances will be credited to Owner by Change Order.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect products and services covered by an Allowance promptly upon delivery for damage or defects.

3.02 PREPARATION

- A. Coordinate materials and their installation for each Allowance with related materials and installations to ensure that each Allowance item is completely integrated and interfaced with related construction activities.

SCHEDULE OF ALLOWANCES

1. Lump Sum Allowance for Building Permit. An Allowance of \$2,000 shall be included in the Contract Price for this Work. CONTRACTOR shall make all arrangements for and shall pay for this Work under this Contract. For further information, contact:

Company City of Ann Arbor Building Department
Address 301 E. Huron Street, Ann Arbor, MI 48104
Phone 734-794-6267

2. Lump Sum Allowance for Miscellaneous work. An allowance of \$15,000 shall be included in the Contract Price for this Work. CONTRACTOR shall make all arrangements for and shall pay for this Work under this Contract as work is defined during the course of the project.

END OF SECTION

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.03 MINOR CHANGES IN THE WORK

- A. Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on the response to Contractor's Request for Information (RFI).

1.04 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Engineer.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Engineer.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Proposal Request Form: Use form acceptable to Engineer.

1.05 CHANGE ORDER PROCEDURES

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

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 27 00 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies administrative and procedural requirements for measurement and payment. Payment for Work under this Contract will be made on a unit price or lump sum basis for Work actually completed. Final measurements of the Work will be taken by ENGINEER to determine the amount of Work completed. The method of applying the unit prices to measured quantities shall be as specified in this Section.

1.02 OWNER'S INSTRUCTIONS

- A. Payment will only be made for items listed on Bid Form. The costs for other Work required for a complete Project will be included in the prices Bid for the other items of Work listed on Bid Form.
- B. Payment for each item will be in accordance with the General Conditions, and include all applicable labor, material, equipment, and ancillary items to complete the Work specified.
- C. All measurements shall be rounded to the nearest whole unit.

1.03 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by ENGINEER and paid for by OWNER.
- B. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- C. The date for each progress payment will be determined at the Pre-Construction Conference. The period of construction Work covered by each Application for Payment is 1 month. Actual start/end dates will be determined at the Pre-Construction Conference.
- D. Use the AIA (American Institute of Architects) Application and Certification for Payment form for Applications for Payment.
 - 1. Complete every entry on the form, including execution by person authorized to sign legal documents on behalf of CONTRACTOR.
 - 2. Incomplete applications will be returned without action.
- E. Initial Application for Payment: Administrative actions and submittals that must precede submittal of the first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. List of principal suppliers and fabricators.
 - 3. CONTRACTOR's Construction Schedule (preliminary if not final).
 - 4. Schedule of principal products.
 - 5. Submittal Schedule (preliminary if not final).

- F. Application for Payment at Substantial Completion: Administrative actions and submittals that shall proceed or coincide with this application include:
1. Warranties (guarantees) and maintenance agreements.
 2. Maintenance instructions.
 3. Meter readings.
 4. Start-up performance and balancing reports.
 5. Changeover information related to OWNER's occupancy, use, operation, and maintenance.
 6. Final cleaning.
 7. Application for reduction of retainage, and consent of surety.
 8. Advice on shifting insurance coverages.
 9. Final progress photographs.
 10. List of incomplete Work, recognized as exceptions to ENGINEER's Certificate of Substantial Completion.
- G. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Assurance that unsettled claims will be settled.
 4. Assurance that Work not complete and accepted will be completed without undue delay.
 5. Transmittal of required Project construction records to OWNER.
 6. Proof that taxes, fees, and similar obligations have been paid.
 7. Removal of temporary facilities and services.
 8. Removal of surplus materials, rubbish, and similar elements.
 9. CONTRACTOR's waivers of mechanics liens for Project.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

SCHEDULE OF UNIT PRICES

Description: Allowances
Payment: Lump Sum.
Measurement: Each.
Work Required: As specified in Section 01 21 00 - Allowances.

Description: General Conditions, Max 10% of Total Base Bid
Payment: Lump Sum.
Measurement: Each.
Work Required: This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification. The amount for this work shall be no more than 10% of the total base bid.

Description: Demolition
Payment: Lump Sum.
Measurement: Each.
Work Required: Remove floor drains from flocc drive room and cistern, and all related work as shown on Contract Drawings and as specified.

Description: Floor Drains and Drain Pipe
Payment: Lump Sum.
Measurement: Each.
Work Required: Construct new floor drains and piping in cistern including supports, cuts in existing floor, and all related work as shown on Contract Drawings and as specified.

Description: Sump Pumps and Hatch
Payment: Lump Sum
Measurement: Each
Work Required: Install new sump pumps, sump cover, electrical work, and all related work as shown on Contract Drawings and as specified.

Description: Final Closeout
Payment: Lump Sum.
Measurement: Each.
Work Required: Submission of O&M documents, submission of record drawings, work outlined in specification 01 77 00 and all other work associated with closing out contract items.

Description: Certified Payroll Compliance and Reporting
Payment: Lump Sum.
Measurement: Each.
Work Required: The unit price for this item of work shall include all supervisory, accounting, administrative, and equipment costs needed to monitor and perform all work related to maintaining compliance with the tasks specified in this Detailed Specification, the City of Ann Arbor Code of Ordinances, its Prevailing Wage Compliance policy and the applicable Federal and State laws.

Payment for this work will be made with each progress payment, on a pro-rata basis, based on the percentage of construction completed. When all of the work of this contract has been completed, the measurement of this item shall be 1.0 times the Lump Sum bid amount. This amount will not be increased for any reason, including extensions of time, extra work, and/or adjustments to existing items of work.

END OF SECTION

SECTION 01 29 00 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements governing CONTRACTOR's Applications for Payment.
- B. Related Sections:
 - 1. CONTRACTOR's Construction Schedule and Submittal Schedule are included in Section 01330.

1.02 OWNER'S INSTRUCTIONS

- A. Schedule of Values:
 - 1. Coordinate preparation of Schedule of Values with preparation of CONTRACTOR's Construction Schedule.
 - 2. Correlate line items on Schedule of Values with other required administrative schedules and forms, including:
 - a. CONTRACTOR's Construction Schedule.
 - b. Application for Payment form.
 - c. List of subcontractors.
 - d. Schedule of Allowances.
 - e. Schedule of Alternates.
 - f. List of products.
 - g. List of principal suppliers and fabricators.
 - h. Schedule of Submittals.
 - 3. Submit Schedule of Values to ENGINEER at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.
 - 4. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for Schedule of Values.
 - 5. Identification: Include the following Project identification on Schedule of Values:
 - a. Project name and location.
 - b. Name of ENGINEER.
 - c. Project number.
 - d. CONTRACTOR's name and address.
 - e. Date of submittal.
 - 6. Arrange Schedule of Values in a tabular form with separate rows for each Specification Section and separate columns for each major structure or area of Work.
 - 7. Provide a breakdown of the Contract Price in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
 - 8. Round off amounts to the nearest whole dollar; the total shall equal the Contract Price.
 - 9. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 10. Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually on Applications for Payment. Each item on Schedule of Values

and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.

11. At CONTRACTOR's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items on Schedule of Values or distributed as general overhead expense.
 12. Update and resubmit Schedule of Values when Change Orders or Work Change Directives result in a change in the Contract Price.
 13. A Lump Sum payment equal to 1-1/2% of the total Bid Price (to include all bonds, insurance, etc.) will be allowed for "mobilization" as a progress payment line item and as a portion of the amount bid for General Conditions. The actual cost of bonds and insurance (up to maximum payment of 1-1/2%) will be considered in the initial payment request provided that cost documentation suitable to the OWNER is furnished by the CONTRACTOR. Any outstanding balance of the mobilization line item will be payable when the Project work is 10% complete as indicated by the approved progress payments (less costs of mobilization and stored equipment).
 14. Payment Restrictions
 - a. Major equipment items will be paid according to the following schedule:
 - 1) Upon equipment delivery – 60% of the contract amount
 - 2) Upon successful start-up, testing and validation (i.e. substantial completion) – 30% of the contract amount
 - 3) Upon completion of punch list work (i.e. final completion) – 10% of the contract amount
 - b. Retainage shall apply to the above payment sequence
 - c. Major equipment items are considered to consist of the following items:
 - 1) Electric motors
 - 2) Generator
 - 3) VFDs
 - 4) Motor control centers
 - 5) Air handling units/Roof-top units.
- B. Initial Application for Payment: Administrative actions and submittals that must precede submittal of the first Application for Payment include the following:
1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. CONTRACTOR's Construction Schedule (preliminary if not final).
 5. Schedule of principal products.
 6. Submittal Schedule (preliminary if not final).
- C. Applications For Payment:
1. Each Application for Payment shall be consistent with previous applications and payments as certified by ENGINEER and paid for by OWNER.
 2. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
 3. The date for each progress payment will be determined at the Pre-Construction Conference. The period of construction Work covered by each Application for Payment is 1 month. Actual start/end dates will be determined at the Pre-Construction Conference.
 4. Complete every entry on the form, including execution by person authorized to sign legal documents on behalf of CONTRACTOR. Incomplete applications will be returned without action.
 5. Entries shall match data on Schedule of Values and CONTRACTOR's Construction Schedule. Use updated Schedules if revisions have been made.

6. Include amounts of Change Orders and Work Change Directives issued prior to the last day of the construction period covered by the application.
 7. Submit executed electronic copy of each Application for Payment to ENGINEER; including waivers of lien and similar attachments.
 8. After review by engineer and revisions, transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to ENGINEER or OWNER as defined at preconstruction meeting.
- D. Application for Payment at Substantial Completion:
1. Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for OWNER occupancy of designated portions of the Work.
 2. Administrative actions and submittals that shall proceed or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties (guarantees) and maintenance agreements.
 - c. Test/adjust/balance records.
 - d. Maintenance instructions.
 - e. Meter readings.
 - f. Start-up performance reports.
 - g. Changeover information related to OWNER's occupancy, use, operation, and maintenance.
 - h. Final cleaning.
 - i. Application for reduction of retainage and consent of surety.
 - j. Final progress photographs.
 - k. List of incomplete Work, recognized as exceptions to ENGINEER'S Certificate of Substantial Completion.
- E. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
1. Submit documents required for progress payments.
 2. Submit documents required in the General Conditions, as may be modified by the Supplementary Conditions.
 3. Completion of Project closeout requirements.
 4. Completion of items specified for completion after Substantial Completion.
 5. Transmittal of required Project construction records to OWNER.
 6. Proof that taxes, fees, and similar obligations have been paid.
 7. Submit Consent of Surety.
 8. Removal of temporary facilities and services.
 9. Completion of all punch list items.
 10. Submission of warranties
 11. Submission of operation and maintenance materials
 12. Completion of record drawings
 13. Removal of surplus materials, rubbish, and similar elements.
 14. Releases of Waivers of Lien Rights:
 - a. When submitting releases of waivers of lien rights, provide release or waiver by CONTRACTOR of each SUBCONTRACTOR and supplier that provided CONTRACTOR with labor, material, or equipment.
 - b. Provide a list of Subcontractors and Suppliers for which release or waiver of lien is required.

- c. Each release or waiver of lien shall be signed by an authorized representative of entity submitting release or waiver to CONTRACTOR, and shall include Subcontractor's or Supplier's corporate seal if applicable.
- d. Release or waiver of lien may be conditional upon receipt of final payment..

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 31 00 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
 - 1. Coordination of Work under this Contract.
 - 2. Scheduling
 - 3. Permits
 - 4. Administrative and supervisory personnel.
 - 5. Land survey work.
 - 6. Pre-Construction Conference.
 - 7. Progress meetings.
 - 8. Inspections
 - 9. Start-up
 - 10. General installation provisions.
 - 11. Cleaning and protection.

- B. Related Sections Specified Elsewhere:
 - 1. Equipment installation check, and operation, maintenance, and training of OWNER's personnel are included in Sections for specific equipment items.
 - 2. Requirements for CONTRACTOR's Construction Schedule are included in Section 01 33 00.
 - 3. Liquidated Damages in Section 01 11 13, general conditions and agreement

1.02 SUBMITTALS

- A. Within 15 days of Notice to Proceed, submit a list of CONTRACTOR's principal staff assignments, including the Superintendent and other personnel in attendance at Site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

1.03 SCHEDULING

- A. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair. Make adequate provisions to accommodate items scheduled for later installation. CONTRACTOR shall coordinate the general construction including the work of subcontractors.

- B. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at Site in accordance with Laws or Regulations. Contractor shall train CONTRACTOR's employees on use of these sheets and shall keep a master copy on hand at Site.

- C. Coordination with Other Contractors:
 - 1. Contractor shall so conduct CONTRACTOR's operations as not to interfere with or injure the Work of other Contractors or workmen employed on adjoining or related Work, and CONTRACTOR shall promptly make good any injury or damage which may be done to such Work by CONTRACTOR or CONTRACTOR's employees or agents.
 - 2. Should a contract for adjoining Work be awarded to another contractor, and should the Work on one of these contracts interfere with that of the other, ENGINEER shall decide which contract shall cease Work for the time being and which shall continue, or whether Work on both contracts shall continue at the same time and in what manner.

- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of schedules.
 - 2. Installation and removal of temporary facilities.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Project closeout activities.

1.04 PERMITS

- A. It is the responsibility of the CONTRACTOR to obtain and pay for any permits required to complete the work as well as scheduling/coordinating all inspections.

1.05 PRE-CONSTRUCTION CONFERENCE

- A. ENGINEER will schedule a Pre-Construction Conference and organizational meeting at the Site or other convenient location prior to commencement of construction activities to review responsibilities and personnel assignments.

- B. Attendees: OWNER, Engineer and ENGINEER's consultants, CONTRACTOR and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

- C. Agenda: Discuss items of significance that could affect progress including such topics as:
 - 1. Tentative Construction Schedule.
 - 2. Critical Work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing field decisions and Change Orders.
 - 5. Procedures for processing Applications for Payment.
 - 6. Distribution of Contract Documents.
 - 7. Submittal of Shop Drawings, product data, and samples.
 - 8. Preparation of Record Documents.
 - 9. Use of the premises.
 - 10. Office, Work, and storage areas.
 - 11. Equipment deliveries and priorities.
 - 12. Safety procedures.
 - 13. First aid.

14. Security.
15. Housekeeping.
16. Working hours.

1.06 PROGRESS MEETINGS

- A. Attendees: In addition to representatives of OWNER and Engineer, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- B. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
- C. CONTRACTOR's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to CONTRACTOR's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- D. Reporting: ENGINEER will prepare and distribute copies of minutes of the meeting to each party present and to other parties who should have been present. The minutes will include a brief summary, in narrative form, of progress since the previous meeting and report.
- E. Schedule Updating: CONTRACTOR shall revise Construction Schedule after each progress meeting where revisions to Schedule have been made or recognized. Issue revised Schedule no later than 3 days after the progress meeting date to ENGINEER for distribution concurrently with the progress meeting minutes.

1.07 INSPECTIONS

- A. CONTRACTOR shall participate in inspections with OWNER and ENGINEER as needed throughout the project.

1.08 LOCK-OUT/TAG-OUT

- A. CONTRACTOR shall be responsible for locking and tagging all valves and electrical equipment in accordance with OWNER policies and procedures.

1.09 START-UP

- A. CONTRACTOR shall coordinate the start-up of air handling units, ventilation equipment and related equipment with the City. The City shall be notified not less than 4 weeks prior to start-up.

1.10 SITE SUPERINTENDENT

- A. CONTRACTOR shall provide a site superintendent present at all times work under the contract is being completed. The site superintendent shall have the authority to make decisions on all aspects of work in this contract.

PART 2 - PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

END OF SECTION

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 1. Startup construction schedule.
 2. Contractor's Construction Schedule.
 3. Construction schedule updating reports.
 4. Daily construction reports.
 5. Material location reports.
 6. Site condition reports.
 7. Unusual event reports.

1.03 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling t construction Project. Activities included in a construction schedule consume time and resources.
 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.04 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. PDF file.
- B. Startup construction schedule.
1. Submittal of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Construction Schedule Updating Reports: Submit with Applications for Payment.
- D. Daily Construction Reports: Submit at weekly intervals.
- E. Site Condition Reports: Submit at time of discovery of differing conditions.
- F. Unusual Event Reports: Submit at time of unusual event.
- G. Qualification Data: For scheduling consultant.

1.05 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.06 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.

4. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Seasonal variations.
 - g. Environmental control.
 5. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Submittals.
 - b. Purchases.
 - c. Fabrication.
 - d. Deliveries.
 - e. Installation.
 - f. Tests and inspections.
 - g. Adjusting.
 - h. Startup and placement into final use and operation.
 - i. Commissioning.
 6. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Temporary enclosure and space conditioning.
 - c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Substantial Completion.
- D. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and the Contract Time.
- E. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule three days before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate final completion percentage for each activity.
- F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

- G. Distribution: Distribute copies of approved schedule to Architect/Engineer Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.07 GANTT-CHART SCHEDULE REQUIREMENTS

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.08 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.
 - 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 - 7. Testing and inspection.
 - 8. Accidents.
 - 9. Meetings and significant decisions.
 - 10. Unusual events.
 - 11. Stoppages, delays, shortages, and losses.
 - 12. Meter readings and similar recordings.
 - 13. Emergency procedures.
 - 14. Orders and requests of authorities having jurisdiction.
 - 15. Change Orders received and implemented.
 - 16. Construction Change Directives received and implemented.
 - 17. Services connected and disconnected.
 - 18. Equipment or system tests and startups.
 - 19. Partial completions and occupancies.
 - 20. Substantial Completions authorized.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- C. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events,

persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00 - SUBMITTALS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals, including, but not necessarily limited to, the following:
 - 1. CONTRACTOR's Construction Schedule.
 - 2. Submittal Schedule.
 - 3. Shop Drawings.
 - 4. Product data.
 - 5. Samples.
 - 6. Progress photographs.
 - 7. Record photographs.

- B. Topics covered elsewhere include, but are not limited to:
 - 1. Permits.
 - 2. Applications for payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
 - 6. Demonstration and Training

1.02 SCHEDULE OF VALUES

- A. Within fourteen (14) days after issuance of Notice to Proceed, CONTRACTOR shall submit two (2) copies of the proposed schedule of values for the ENGINEER's review and approval.
- B. Schedule of values shall meet requirements of Section 01 29 00.
- C. Schedule of values shall be revised as needed based on ENGINEER's comments.
- D. Schedule of values shall be organized according to specification divisions.
- E. Schedule of values shall include sections for tracking all costs associated with each stage of the project.

1.03 SUBMITTALS

- A. Bonds and Insurance Certificates shall be submitted to and approved by OWNER and ENGINEER prior to the initiation of any construction on Site.
- B. Permits, Licenses, and Certificates: For OWNER's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents; correspondence and records established in conjunction with compliance with standards; and regulations bearing upon performance of the Work.

1.04 SUBMITTAL PROCEDURES

A. Coordination:

1. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
3. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
4. ENGINEER reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing:

1. Allow sufficient review time so that installation shall not be delayed as a result of the time required to process submittals, including time for resubmittals.
2. ENGINEER will review and return submittals with reasonable promptness, or advise CONTRACTOR when a submittal being processed must be delayed for coordination or receipt of additional information by putting the submittal "On Hold" and returning a transmittal identifying the reasons for the delay.
3. No extension of Contract Time will be authorized because of failure to transmit submittals to ENGINEER sufficiently in advance of the Work to permit processing.

C. Submittal Preparation:

1. Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
2. Provide a space approximately 4 inches by 5 inches on the label or beside the title block on submittals not originating from CONTRACTOR to record CONTRACTOR's review and approval markings and the action taken.
3. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of ENGINEER.
 - d. Name and address of CONTRACTOR.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
4. Any markings done by CONTRACTOR shall be done in a color other than red. Red is reserved for ENGINEER's marking.
5. The number of copies to be submitted will be determined at the pre-construction conference. Reproducibles may be submitted and will be marked and returned to CONTRACTOR. Blue or black line prints shall be submitted in sufficient quantity for distribution to ENGINEER and OWNER recipients.

D. Submittal Transmittal:

1. Package each submittal appropriately for shipping and handling. This shall include an index either on the transmittal or within the submittal itself. Transmit each submittal from CONTRACTOR to ENGINEER using a transmittal form. Submittals received from sources other than CONTRACTOR will be returned without action. Use separate transmittals for items

from different specification sections. Number each submittal consecutively. Number submittals with specification section numbering. Resubmittals should have the same number as the original, plus a suffix letter designation for each resubmittal (i.e., 01 31 00-A, 01 31 00-B, etc.).

2. Indicate on the transmittal relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include CONTRACTOR's certification that information complies with Contract Document requirements. On resubmittal, all changes shall be clearly identified for ease of review. Resubmittals shall be reviewed for the clearly identified changes only. Any changes not clearly identified will not be reviewed and original submittal shall govern.

1.05 CONSTRUCTION SCHEDULE

- A. Within fourteen (14) days after issuance of the Notice to Proceed, the CONTRACTOR shall prepare three (3) copies of the proposed schedule and submit two (2) copies to the ENGINEER for review and approval. Hard copies of project schedule shall be in color with critical path shown. CONTRACTOR shall also submit electronic copy of schedule.
 1. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on Schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
 2. Coordinate Construction Schedule with Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
 3. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on Schedule to allow time for ENGINEER's procedures necessary for certification of Substantial Completion.
- B. Schedule Updating: Revise Schedule after each meeting or activity where revisions have been recognized or made within 2 weeks following the meeting or activity.

1.06 SUBMITTAL SCHEDULE

- A. After development and acceptance of Construction Schedule, prepare a complete Schedule of Submittals. Submit Schedule within 10 days of the date required for establishment of Construction Schedule.
- B. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products, as well as Construction Schedule.
- C. Prepare Schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:
 1. Scheduled date for the first submittal.
 2. Related Section number.
 3. Submittal category.
 4. Name of subcontractor.
 5. Description of the part of the Work covered.
 6. Scheduled date for resubmittal.
 7. Scheduled date ENGINEER's final release or approval.
- D. Following response to initial submittal, print and distribute copies to ENGINEER, OWNER, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

- E. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- F. Schedule Updating: Revise Schedule after each meeting or activity where revisions have been recognized or made within 48 hours following the meeting or activity.

1.07 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings. Include the following information:
 - 1. Dimensions.
 - 2. Identification of products and materials included.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurement.
- C. Nameplate data for equipment including electric motors shall be included on Shop Drawings. Electric motor data shall state the manufacturer, horsepower, service factor, voltage, enclosure type, oversize wiring box, etc.
- D. Shop Drawings shall indicate shop painting requirements to include type of paint and manufacturer.
- E. Standard manufactured items in the form of catalog work sheets showing illustrated cuts of the items to be furnished, scale details, sizes, dimensions, quantity, and all other pertinent information should be submitted and approved in a similar manner.
- F. Measurements given on Shop Drawings or standard catalog sheets, as established from Contract Drawings and as approved by ENGINEER, shall be followed. When it is necessary to verify field measurements, they shall be checked and established by CONTRACTOR. The field measurements so established shall be followed by CONTRACTOR and by all affected trades.
- G. Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 inches by 11 inches but no larger than 36 inches by 48 inches.
- H. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

1.08 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as Shop Drawings.

- B. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 - 1. Manufacturer's printed recommendations.
 - 2. Compliance with recognized trade association standards.
 - 3. Compliance with recognized testing agency standards.
 - 4. Application of testing agency labels and seals.
 - 5. Notation of dimensions verified by field measurement.
 - 6. Notation of coordination requirements.
- C. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.09 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
- B. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineer's Sample. Include the following:
 - 1. Generic description of the Sample.
 - 2. Sample source.
 - 3. Product name or name of manufacturer.
 - 4. Compliance with recognized standards.
 - 5. Availability and delivery time.
- C. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
- D. Where variation in color, pattern, texture, or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3) that show approximate limits of the variations.
- E. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
- F. Preliminary Submittals: Where Samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
 - 1. Preliminary submittals will be reviewed and returned with ENGINEER's mark indicating selection and other action.
- G. Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; 1 will be returned marked with the action taken.

- H. Maintain sets of Samples, as returned, at the Site, for quality comparisons throughout the course of construction.
- I. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- J. Sample sets may be used to obtain final acceptance of the construction associated with each set.

1.10 ENGINEER'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, ENGINEER will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is CONTRACTOR's responsibility.
- B. Action Stamp: ENGINEER will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "No Exceptions Taken," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "Furnish as Corrected," that part of the Work covered by the submittal may proceed, provided it complies with notation or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - 3. Returned for Resubmittal: When submittal is marked "Rejected" or "Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Rejected" or "Revise and Resubmit" to be used at Site, or elsewhere where Work is in progress.
 - 4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Acknowledge Receipt."
 - 5. The approval of ENGINEER shall not relieve CONTRACTOR of responsibility for errors on Drawings or submittals as ENGINEER's checking is intended to cover compliance with Drawings and Specifications and not enter into every detail of the shop work.

1.11 RECORD PHOTOGRAPHS

- A. CONTRACTOR shall take a minimum of 48 pre-construction photographs to document the condition of the site prior to beginning work. These photos should document the conditions of the roof, ceiling and walls before and after installation.
- B. After final acceptance of the Work, 48 photographs shall be taken of each structure and major feature of the Project as directed by ENGINEER. These photographs shall be taken from points and at times directed by ENGINEER.
- C. Photographs shall include condition of parking lots and access roads before and after installation.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 35 16 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes special procedures for alteration work.

1.02 DEFINITIONS

- A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
- B. Consolidate: To strengthen loose or deteriorated materials in place.
- C. Design Reference Sample: A sample that represents the Architect's pre-bid selection of work to be matched; it may be existing work or work specially produced for the Project.
- D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- K. Retain: To keep existing items that are not to be removed or dismantled.
- L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.03 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Conference for Alteration Work: Before starting alteration work, conduct conference at Project site.
 - 1. Attendees: In addition to representatives of Owner, Architect, and Contractor, testing service representative, and chemical-cleaner manufacturer(s) shall be represented at the meeting.

2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
 - a. Fire-prevention plan.
 - b. Governing regulations.
 - c. Areas where existing construction is to remain and the required protection.
 - d. Hauling routes.
 - e. Sequence of alteration work operations.
 - f. Storage, protection, and accounting for salvaged and specially fabricated items.
 - g. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
 3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.
- B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at monthly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
1. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
 2. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.04 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1.05 INFORMATIONAL SUBMITTALS

- A. Alteration Work Program: Submit 30 days before work begins.
- B. Fire-Prevention Plan: Submit 30 days before work begins.

1.06 QUALITY ASSURANCE

- A. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.
- B. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
 1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

- C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.
- D. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.07 STORAGE AND HANDLING OF SALVAGED MATERIALS

- A. Salvaged Materials:
 - 1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
 - 2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area designated by Owner.
 - 5. Protect items from damage during transport and storage.
- B. Salvaged Materials for Reinstallation:
 - 1. Repair and clean items for reuse as indicated.
 - 2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.
- C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.
- D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
 - 1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
 - 2. Secure stored materials to protect from theft.
 - 3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

PART 2 - PRODUCTS –

NOT USED

PART 3 - EXECUTION

3.01 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.
 - 1. Use only proven protection methods, appropriate to each area and surface being protected.
 - 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
 - 3. Erect temporary barriers to form and maintain fire-egress routes.
 - 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
 - 5. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
 - 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 - 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 - 8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.

- B. Temporary Protection of Materials to Remain:
 - 1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 - 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.

- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

- D. Utility and Communications Services:
 - 1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
 - 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
 - 3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

- E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
 - 1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
 - 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

- F. Existing Roofing: Prior to the start of work in an area, install roofing protection.

3.02 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following:
 - 1. Comply with NFPA 241 requirements unless otherwise indicated.
 - 2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
 - 1. Obtain Owner's approval for operations involving use of open-flame or welding or other high-heat equipment. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
 - 2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
 - 3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 - 4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 - 5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 - 6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
 - e. Maintain fire-watch personnel at Project site until two hours after conclusion of daily work.
- C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.
- D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
 - 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.03 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.04 GENERAL ALTERATION WORK

- A. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs or video recordings.
- B. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
- C. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
 - 1. Do not proceed with the work in question until directed by Architect.

END OF SECTION

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.

1.02 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.
- E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."
- H. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.03 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated Design Services Statement: Submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.04 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.05 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.06 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Statement on condition of substrates and their acceptability for installation of product.
 - 2. Statement that products at Project site comply with requirements.
 - 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 5. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Statement that equipment complies with requirements.
 - 2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 3. Other required items indicated in individual Specification Sections.

1.07 QUALITY ASSURANCE

- A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.
 - 1. Requirements of authorities having jurisdiction supersede requirements for specialists.
- G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.

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

1.08 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 1. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor will not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect, Commissioning Authority, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected Work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.

- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittals."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 6. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

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

- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DEFINITIONS

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

1.03 INDUSTRY STANDARDS

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

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

1.04 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 4. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 5. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 6. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
 - 7. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 - 8. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 - 9. AF&PA - American Forest & Paper Association; www.afandpa.org.
 - 10. AGA - American Gas Association; www.aga.org.
 - 11. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 - 12. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 - 13. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 14. AIA - American Institute of Architects (The); www.aia.org.
 - 15. AISC - American Institute of Steel Construction; www.aisc.org.
 - 16. AISI - American Iron and Steel Institute; www.steel.org.
 - 17. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 - 18. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 - 19. ANSI - American National Standards Institute; www.ansi.org.
 - 20. APA - APA - The Engineered Wood Association; www.apawood.org.
 - 21. APA - Architectural Precast Association; www.archprecast.org.
 - 22. API - American Petroleum Institute; www.api.org.
 - 23. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
 - 24. ARI - American Refrigeration Institute; (See AHRI).
 - 25. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
 - 26. ASCE - American Society of Civil Engineers; www.asce.org.
 - 27. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
 - 28. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
 - 29. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.

30. ASSE - American Society of Safety Engineers (The); www.asse.org.
31. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
32. ASTM - ASTM International; (American Society for Testing and Materials International); www.astm.org.
33. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
34. AWEA - American Wind Energy Association; www.awea.org.
35. AWI - Architectural Woodwork Institute; www.awinet.org.
36. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
37. AWPA - American Wood Protection Association; (Formerly: American Wood-Preservers' Association); www.awpa.com.
38. AWS - American Welding Society; www.aws.org.
39. AWWA - American Water Works Association; www.awwa.org.
40. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
41. BIA - Brick Industry Association (The); www.gobrick.com.
42. BICSI - BICSI, Inc.; www.bicsi.org.
43. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.com.
44. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
45. BOCA - BOCA; (Building Officials and Code Administrators International Inc.); (See ICC).
46. CDA - Copper Development Association; www.copper.org.
47. CEA - Canadian Electricity Association; www.electricity.ca.
48. CEA - Consumer Electronics Association; www.ce.org.
49. CFFA - Chemical Fabrics & Film Association, Inc.; www.chemicalfabricsandfilm.com.
50. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
51. CGA - Compressed Gas Association; www.cganet.com.
52. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
53. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
54. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
55. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
56. CPA - Composite Panel Association; www.pbmdf.com.
57. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
58. CRRC - Cool Roof Rating Council; www.coolroofs.org.
59. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
60. CSA - Canadian Standards Association; www.csa.ca.
61. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
62. CSI - Construction Specifications Institute (The); www.csinet.org.
63. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
64. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
65. CWC - Composite Wood Council; (See CPA).
66. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
67. DHI - Door and Hardware Institute; www.dhi.org.
68. ECA - Electronic Components Association; www.ec-central.org.
69. ECAMA - Electronic Components Assemblies & Materials Association; (See ECA).
70. EIA - Electronic Industries Alliance; (See TIA).
71. EIMA - EIFS Industry Members Association; www.eima.com.
72. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
73. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
74. ESTA - Entertainment Services and Technology Association; (See PLASA).
75. EVO - Efficiency Valuation Organization; www.evo-world.org.
76. FM Approvals - FM Approvals LLC; www.fmglobal.com.

77. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
78. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
79. FSA - Fluid Sealing Association; www.fluidsealing.com.
80. FSC - Forest Stewardship Council U.S.; www.fscus.org.
81. GA - Gypsum Association; www.gypsum.org.
82. GANA - Glass Association of North America; www.glasswebsite.com.
83. GS - Green Seal; www.greenseal.org.
84. HI - Hydraulic Institute; www.pumps.org.
85. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
86. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
87. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
88. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
89. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
90. IAS - International Approval Services; (See CSA).
91. ICBO - International Conference of Building Officials; (See ICC).
92. ICC - International Code Council; www.iccsafe.org.
93. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
94. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
95. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
96. IEC - International Electrotechnical Commission; www.iec.ch.
97. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
98. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
99. IESNA - Illuminating Engineering Society of North America; (See IES).
100. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
101. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
102. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
103. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
104. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
105. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
106. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
107. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
108. ISO - International Organization for Standardization; www.iso.org.
109. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
110. ITU - International Telecommunication Union; www.itu.int/home.
111. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
112. LMA - Laminating Materials Association; (See CPA).
113. LPI - Lightning Protection Institute; www.lightning.org.
114. MBMA - Metal Building Manufacturers Association; www.mbma.com.
115. MCA - Metal Construction Association; www.metalconstruction.org.
116. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
117. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
118. MHIA - Material Handling Industry of America; www.mhia.org.
119. MIA - Marble Institute of America; www.marble-institute.com.
120. MMPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); www.wmmpa.com.
121. MPI - Master Painters Institute; www.paintinfo.com.

122. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
123. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
124. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
125. NADCA - National Air Duct Cleaners Association; www.nadca.com.
126. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
127. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
- 128.
129. NCMA - National Concrete Masonry Association; www.ncma.org.
130. NEBB - National Environmental Balancing Bureau; www.nebb.org.
131. NECA - National Electrical Contractors Association; www.necanet.org.
132. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
133. NEMA - National Electrical Manufacturers Association; www.nema.org.
134. NETA - InterNational Electrical Testing Association; www.netaworld.org.
135. NFHS - National Federation of State High School Associations; www.nfhs.org.
136. NFPA - NFPA; (National Fire Protection Association); www.nfpa.org.
137. NFPA - NFPA International; (See NFPA).
138. NFRC - National Fenestration Rating Council; www.nfrc.org.
139. NHLA - National Hardwood Lumber Association; www.nhla.com.
140. NLGA - National Lumber Grades Authority; www.nlga.org.
141. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
142. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
143. NRCA - National Roofing Contractors Association; www.nrca.net.
144. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
145. NSF - NSF International; (National Sanitation Foundation International); www.nsf.org.
146. NSPE - National Society of Professional Engineers; www.nspe.org.
147. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
148. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
149. NWFA - National Wood Flooring Association; www.nwfa.org.
150. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
151. PDI - Plumbing & Drainage Institute; www.pdionline.org.
152. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
153. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
154. RFCI - Resilient Floor Covering Institute; www.rfci.com.
155. RIS - Redwood Inspection Service; www.redwoodinspection.com.
156. SAE - SAE International; (Society of Automotive Engineers); www.sae.org.
157. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
158. SDI - Steel Deck Institute; www.sdi.org.
159. SDI - Steel Door Institute; www.steeldoor.org.
160. SEFA - Scientific Equipment and Furniture Association; www.sefalabs.com.
161. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
162. SIA - Security Industry Association; www.siaonline.org.
163. SJI - Steel Joist Institute; www.steeljoist.org.
164. SMA - Screen Manufacturers Association; www.smainfo.org.
165. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
166. SMPTE - Society of Motion Picture and Television Engineers; www.smppte.org.
167. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
168. SPIB - Southern Pine Inspection Bureau; www.spib.org.

169. SPRI - Single Ply Roofing Industry; www.spri.org.
170. SRCC - Solar Rating and Certification Corporation; www.solar-rating.org.
171. SSINA - Specialty Steel Industry of North America; www.ssina.com.
172. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
173. STI - Steel Tank Institute; www.steeltank.com.
174. SWI - Steel Window Institute; www.steelwindows.com.
175. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
176. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
177. TCNA - Tile Council of North America, Inc.; (Formerly: Tile Council of America); www.tileusa.com.
178. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
179. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
180. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
181. TMS - The Masonry Society; www.masonrysociety.org.
182. TPI - Truss Plate Institute; www.tpinst.org.
183. TPI - Turfgrass Producers International; www.turfgrassod.org.
184. TRI - Tile Roofing Institute; www.tilerroofing.org.
185. UBC - Uniform Building Code; (See ICC).
186. UL - Underwriters Laboratories Inc.; www.ul.com.
187. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
188. USGBC - U.S. Green Building Council; www.usgbc.org.
189. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
190. WASTEC - Waste Equipment Technology Association; www.wastec.org.
191. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
192. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
193. WDMA - Window & Door Manufacturers Association; www.wdma.com.
194. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); www.wicnet.org.
195. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
196. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
197. WPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut für Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; <http://dodssp.daps.dla.mil>.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.

7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; <http://eetd.lbl.gov>.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeia; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF - State of California; Department of Consumer Affairs; Bureau of Electronic Appliance and Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR - California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS - California Department of Health Services; (See CDPH).
4. CDPH - California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC - California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD - South Coast Air Quality Management District; www.aqmd.gov.

7. TFS - Texas Forest Service; Forest Resource Development and Sustainable Forestry;
<http://txforestsERVICE.tamu.edu>.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 45 00 – QUALITY CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Quality control and control of installation.
- B. References.
- C. Manufacturers' field services

1.02 QUALITY CONTROL AND CONTROL OF INSTALLATION

- D. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- E. Comply with manufacturer's instructions, including each step in sequence.
- F. Should manufacturers' instructions conflict with Contract Documents, request clarification from ENGINEER before proceeding.
- G. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- H. Perform Work by persons qualified to produce required and specified quality.
- I. Verify that field measurements are as indicated on Shop Drawings or as instructed by the manufacturer.
- J. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
- K. All materials and equipment shall be new, unless otherwise noted.

1.03 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Should specified reference standards conflict with Contract Documents, request clarification from the ENGINEER before proceeding.
- C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the ENGINEER shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.04 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies procedural and administrative requirements for temporary services and facilities.
- B. Temporary Utilities include, but are not limited to:
 - 1. Water service and distribution.
 - 2. Temporary electric power.
 - 3. Temporary lighting.
- C. Temporary Construction and Support Facilities include, but are not limited to:
 - 1. Temporary heating facilities.
 - 2. CONTRACTOR's field offices and storage sheds.
 - 3. Sanitary facilities.
- D. Construction Buildings and Facilities include, but are not limited to.
 - 1. Temporary enclosures.
 - 2. Temporary Project identification signs.
 - 3. Temporary Site identification signs.
 - 4. Temporary Project bulletin boards.
 - 5. Stairs.
 - 6. Hoists.
 - 7. Ongoing construction cleanup.
 - 8. Storage of equipment and material.

1.02 REFERENCES

- A. Codes and Standards:
 - 1. Comply with NFPA Code 241, "Building Construction and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library, "Temporary Electrical Facilities."
 - 2. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services," prepared jointly by AGC and ASC, for industry recommendations.
 - 3. Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

1.03 SUBMITTALS

- A. Shop Drawings: Submit in accordance with Section 01330, Shop Drawings covering the items included under this Section. Shop Drawing submittals shall include:
 - 1. Temporary Utilities: Submit a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to OWNER, change over from use of temporary service to use of the permanent service.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to:
 - 1. Building Code requirements.
 - 2. Health and Safety regulations.
 - 3. Utility Company regulations.
 - 4. Police, Fire Department, and Rescue Squad rules.
 - 5. Environmental Protection regulations.
 - 6. State and Local Soil Erosion and Sedimentation Control regulations.
 - 7. National Fire Protection Association (NFPA):NFPA No.70-93
 - 8. National Electrical Code (NEC) and local amendments thereto.
 - 9. Comply with federal, state, and local codes and regulations, and utility company requirements.
 - 10. American Water Works Association and National Sanitation Foundation.
 - 11. UL

- B. Inspection: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

- A. There is no available sanitary service and limited water available at the project site. Unless otherwise provided in these Specifications, CONTRACTOR shall make CONTRACTOR's own arrangements for water, and sewer services for use during the construction of the Work and shall pay for all temporary facilities, connections, extensions, and services.
 - 1. Cost or use charges for temporary facilities are not chargeable to OWNER or ENGINEER, and will not be accepted as a basis of claims for a Change Order.

- B. Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on Site.

1.06 SEQUENCING AND SCHEDULING

- A. CONTRACTOR shall inform the local Fire Department in advance of CONTRACTOR's program of street obstruction and detours, so that the Fire Department can set up plans for servicing the area in case of an emergency.
 - 1. CONTRACTOR shall also notify the public agency having jurisdiction over the roads at least 1 week prior to obstructing any street.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide new materials; if acceptable to ENGINEER, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

- B. Water: Provide potable water approved by local health authorities.

2.02 EQUIPMENT

- A. Provide new equipment; if acceptable to ENGINEER, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110 to 120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- C. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- D. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- E. Temporary Toilet Units: Provide self-contained single-occupant toilet units, properly vented and fully enclosed with a glass fiber-reinforced polyester shell or similar nonabsorbent material. Provide handwashing station.
- F. First Aid Supplies: Comply with governing regulations.
- G. Bulletin Board: Provide a weather-protected enclosed bulletin board at Site. The bulletin board shall be mounted in a conspicuous and public outside location.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they shall serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required or as directed by ENGINEER/OWNER.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

- A. Engage the appropriate local utility company to install temporary service or to connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
 - 1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.

- B. Water Service and Distribution: CONTRACTOR shall at all times provide for CONTRACTOR's employees an abundant and convenient supply of cool drinking water taken from a potable source.
- C. Temporary Lighting: Wherever overhead floor or roof deck has been installed, provide temporary lighting with local switching.
 - 1. Install and operate temporary lighting that shall fulfill security and protection requirements, without operating the entire system, and shall provide adequate illumination for construction operations and traffic conditions.
 - 2. When permanent lights and receptacles are installed in new areas of construction, CONTRACTOR may use them, provided CONTRACTOR reimburses OWNER for the energy consumed under the following conditions:
 - a. If the new lights and receptacles are placed on an extension of an existing distribution system, CONTRACTOR shall pay a prorated amount agreed to with OWNER if no meter exists to determine actual energy consumption.
 - b. If the new lights and receptacles are on a new service, CONTRACTOR shall pay the entire bill (which includes transformer losses, power factor penalties, minimum demand charges, energy adjustments, etc.) as metered on the new service. A new service is a plant connection provided under this Contract that will increase OWNER's electrical costs.
 - 3. CONTRACTOR shall investigate the billing structure before requesting the new service to be energized for facility construction purposes. Once energized, the service shall remain energized. Where a new service is required to provide test power to equipment for performance tests, power will not be paid for by OWNER until construction is 90 percent complete as determined by the payment certificates. Any costs associated with CONTRACTOR requests for power prior to the 90 percent construction completion will be paid for by CONTRACTOR. In no case shall OWNER begin paying the entire electrical bill until OWNER has beneficial use of the facilities.
- D. Public and Private Utilities: Where any utilities, water, sewer, gas, telephone, or any other either public or private, are encountered, CONTRACTOR must provide adequate protection for them, and CONTRACTOR shall be held responsible for any damages to such utilities arising from CONTRACTOR's operations.
- E. Water for Construction
 - 1. Owner will not provide water for cleaning or other purposes.
- F. Sanitary Sewers: Sewers are not available. If sewers are not available or cannot be used, provide portable units.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

- A. Temporary Heating Facilities: Provide temporary heat required by construction activities for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
 - 1. Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.
 - 2. Use of gasoline-burning space heaters, open flame, or salamander-type heating units is prohibited.

- B. Sanitary Facilities: Sanitary facilities include temporary toilets, wash facilities, and drinking water fixtures. Comply with regulations and health Codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best service the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
 - 2. Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
 - 3. Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

3.04 CONSTRUCTION BUILDINGS AND FACILITIES INSTALLATION

- A. Storage platforms, sheds, temporary closures for doors, windows and other openings of buildings, temporary sidewalks, runways, and ladders shall be provided.
 - 1. Hazardous areas shall be protected by guardrails and fences. Storage platforms and sheds shall be provided for materials which require protection from the weather.
 - 2. Sheds shall be substantially constructed and covered with "ready roofing." Doors, windows, and other openings in the permanent work shall be closed as soon as necessary to safeguard the construction and materials from tampering or damage.
 - 3. Enclosures for openings easily accessible from the exterior shall be of solid wood or sash, provided with necessary hardware and padlocks. Other openings shall be enclosed by old sash or canvas on wooden frames for the protection of the building against damage by weather.
 - 4. Enclosures shall be weathertight and secured in such manner as not to damage the finish of the building.
- B. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
 - 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
 - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
- C. Temporary Project Bulletin Board: As a minimum, the following items must be posted:
 - 1. Wage Rates (when applicable).
 - 2. Safety Poster (OSHA or State OSHA).
 - 3. Nondiscrimination Poster.
 - 4. Equal Employment Opportunity Statement signed by a Company official.
 - 5. All permits
- D. Hoists: CONTRACTOR shall provide temporary hoists to lift building materials and equipment to the intended areas. Hoists shall be capable of carrying the intended load without exceeding the load limitation of the hoisting device.
- E. Ongoing Construction Cleanup: Project cleanup shall be an ongoing operation. CONTRACTOR shall maintain an order of neatness and good housekeeping comparable to that maintained by OWNER.

Project cleanup applies to the Site and all areas affected by construction operations. CONTRACTOR shall:

1. Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 degrees F (27 degrees C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.
2. Maintain dirt and debris resulting from CONTRACTOR's operations in designated spoil piles as approved by ENGINEER or remove from the Site daily. Dirt and debris shall not collect or interfere with OWNER's facility operations. Excess dirt and debris shall be removed from the Site as needed to confine spoil piles in designated areas.
3. Perform general cleanup inside of OWNER's buildings at least once every two weeks. Cleanup shall include consolidation of stored materials, removal of waste material and debris, and sweeping of flooring surfaces.
4. Maintain clear access to all properties affected by construction activities. Maintain unobstructed access to existing buildings, equipment, safety equipment, and other items requiring OWNER access for facility operation.
5. Keep tools, equipment, and materials in a neat and orderly arrangement.
6. Maintain culverts, sewers, and drainage structures by removing sediment and debris from construction operations.
7. Repair all holes and ruts resulting from construction operations that affect OWNER's use of property with approved material; compact, level, and restore.

F. Storage of Equipment and Material: Pumps and other machinery units shall be stored in weathertight structures provided by CONTRACTOR.

1. Motors, electrical switchgear, gauges, and other equipment of a delicate nature, as determined by ENGINEER, shall be stored in weathertight warehouses which are maintained at a temperature of at least 60 degrees F.
2. Structural steel, miscellaneous and cast iron items may be placed in open yard storage, but any such items having attached motors or other machinery units shall have such units well wrapped with waterproof paper or cloth for protection from the weather.
3. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of ENGINEER.
4. Materials and equipment distributed, stored, and placed upon or near the Site of the Work shall at all times be so disposed as not to interfere with work prosecuted by OWNER or other Contractors in the employment of OWNER or with drainage. Materials and equipment shall not be stored on public streets.

3.05 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by ENGINEER.
- B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10, "Standard for Portable Fire Extinguishers," and NFPA 241, "Standard for Safeguarding Construction, Alterations and Demolition Operations."

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than 1 extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- C. Barricades, Warning Signs, and Lights: Comply with Standards and Code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
1. Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- E. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the Site.
- F. Control of Noise: CONTRACTOR shall eliminate noise to as great an extent as possible at all times. Air compressors shall be equipped with silencers, and the exhaust of all gasoline motors and other power equipment shall be provided with mufflers.
1. CONTRACTOR shall require strict observances of all pertinent ordinances and regulations. Any blasting permitted in such locations shall be done with reduced charges.

3.06 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour-day basis where required to achieve indicated results and to avoid possibility of damage.
- C. Protection: Prevent water-filled piping from freezing.
- D. Termination and Removal: Unless ENGINEER requires that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of CONTRACTOR. OWNER reserves the right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period including, but not limited to:
 - a. Replace air filters and clean inside of ductwork and housings.
 - b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
 - c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION

SECTION 01 53 40 - PROTECTION of ENVIRONMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Contractor in executing work shall maintain work areas, on-and-off site, free from environmental pollution that would be in violation of federal, state, or local regulations.

1.02 PROTECTION of SEWERS

- B. Take adequate measures to prevent impairment of operation of existing sewer system. Prevent construction material, pavement, concrete, earth, or other debris from entering sewer or sewer structure.

1.03 DISPOSAL of EXCESS EXCAVATED and OTHER WASTE MATERIALS

- A. Dispose waste material in accordance with federal and state codes, and local zoning ordinances.
- B. Unacceptable disposal sites include, but are not limited to, sites within wetland or critical habitat, and sites where disposal will have detrimental effect on surface water or groundwater quality.
- C. Make arrangements for disposal subject to submission of proof to engineer that owner(s) of proposed site(s) has valid fill permit issued by appropriate government agency and submission of haul route plan, including map of proposed route(s).
- D. Provide watertight conveyance for liquid, semi-liquid, or saturated solids that tend to bleed during transport. Liquid loss from transported materials not permitted, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.

1.04 PROTECTION of AIR QUALITY

- A. Contain paint aerosols and V.O.C.'s by acceptable work practices.
- B. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by contractor, and encouraging shutdown of motorized equipment not actually in use.
- C. If temporary heating devices are necessary for protection of work, they shall not cause air pollution.

1.05 PROTECTION from FUEL and SOLVENTS

- A. All required material must be submitted prior to the precon meeting. No equipment may be delivered to the site without approval of submittals.
- B. The owner reserves the right to restrict equipment location.
- C. Disposal of waste fluids shall be in conformance with federal, state, and local laws and regulations.

1.06 USE of CHEMICALS

- A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of U.S. EPA, U.S. Department of Agriculture, state, or other applicable regulatory agency.
- B. Use of such chemicals and disposal of residues shall be in conformance with manufacturer's written instructions and applicable regulatory requirements.

1.07 NOISE CONTROL

- A. Conduct operations to cause least annoyance to residents in vicinity of work, and comply with applicable local ordinances.
- B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
- C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
- D. Route vehicles carrying materials over such streets as will cause least annoyance to public and do not operate on public streets between hours of 6:00 P.M. and 7:00 A.M., or on Saturdays, Sundays, or legal holidays unless approved by owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 HAZARDOUS MATERIALS PROJECT PROCEDURES

- A. Applicable Regulations:
 - 1. RCRA, 1976 – Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage and disposal of hazardous wastes nationally.
 - 2. Act 64, 1979 – Michigan's Hazardous Waste Management Act: This statute regulates generation, transportation, treatment, storage, and disposal of hazardous wastes.
 - 3. Act 641 as amended 1990 – Michigan's Solid Waste Act: This statute regulates generation, transportation, treatment, storage and disposal of solid wastes.
- B. Use the Uniform Hazardous Waste Manifest (shipping paper) to use an off-site hazardous waste disposal facility.
- C. Federal, State and local laws and regulations may apply to the storage, handling and disposal of hazardous materials and wastes. The list below includes the regulations which are most frequently encountered:

<u>Topic</u>	<u>Agency and Telephone Number</u>
Small quantity hazardous waste management, including hazardous waste stored in tanks	Hazardous Waste Division, DEQ (517) 373-2730 in Lansing, or District Office Certified County Health Department
Disposal of heavy metals into municipal sanitary sewers	Contact the superintendent of your wastewater treatment plant for permission
Hazard Communication Standards (for chemical in the workplace)	Occupational Health Division, Michigan Department of Consumer and Industrial Services (517) 373-1410
Burning of waste oil and other discharges to the air	Air Quality Division, DEQ (517) 322-1333 in Lansing, or District Office
Local fire prevention regulations and codes (including chemical storage requirements)	Local fire chief or fire marshal
D. Department of Environmental Quality Hazardous Waste Division Compliance Section District Offices	

Jackson District Office
301 E. Louis Glick Hwy.
Jackson, MI 49201
(517) 780-7690
(517) 780-7855 (fax)

END OF SECTION

SECTION 01 60 00 - GENERAL EQUIPMENT STIPULATIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. These General Equipment Stipulations apply, in general, to all equipment provided under other Specification Sections. They shall supplement the detailed equipment specifications, but in cases of conflict the equipment specifications shall govern.

1.02 OPERATION AND MAINTENANCE

- A. Refer to Section 01 78 10

1.03 QUALITY ASSURANCE

- A. Compliance with OSHA: All equipment provided under this Contract shall meet all the requirements of the Federal and/or State Occupational Safety and Health Acts. Each equipment supplier shall submit to ENGINEER certification that the equipment furnished is in compliance with OSHA.
- B. Electrical Codes, Ordinances, and Industrial Standards: The design, testing, assembly, and methods of installation of the wiring materials, electrical equipment and accessories proposed under this Contract shall conform to the National Electrical Code and to applicable State and local requirements. UL listing and labeling shall be adhered to under this Contract. Any equipment that does not have a UL, FM, CSA, or other listed testing laboratory label shall be furnished with a notarized letter signed by the supplier stating that the equipment furnished has been manufactured in accordance with the National Electrical Code and OSHA requirements. Any additional cost resulting from any deviation from codes or local requirements shall be borne by CONTRACTOR.

1.04 SHIPPING AND HANDLING EQUIPMENT

- A. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment and handling.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Anchor Bolts: Anchor bolts, nuts, and washers shall be stainless steel and be supplied with sleeves.
- B. Shop Painting:
 - 1. Non-submerged Applications: Tnemec Series 37H, Chem-Prime.
 - 2. Submerged, Non-potable Applications: Tnemec Series 66, Hi-Build Epoxoline.
 - 3. Submerged, Potable Applications: Tnemec Series 139, Pota-Pox II.
 - 4. Rust preventive compound shall be:
 - a. Dearborn Chemical, No-Ox-ID2W.
 - b. Houghton, Rust Veto 344.
 - c. Rust-Oleum R-9.

2.02 MANUFACTURED UNITS

- A. Wall and Slab Sleeves and Castings: Where water- or gas-tightness is essential and at other locations where indicated, wall castings and sleeves shall be provided with an intermediate flange located approximately at the center of the wall or slab.
 - 1. All sleeves and casting shall be flush with walls and underside of slabs but shall extend 2 inches above finished floors.

2.03 COMPONENTS

- A. Lubrication: Equipment shall be adequately lubricated by systems which require attention no more often than weekly during continuous operation. Lubrication system shall not require attention during start-up or shutdown and shall not waste lubricants.
 - 1. Lubrication point shall be easily accessible with all points of application provided with standard fittings for greasing or placing oil.
 - 2. Lubricants of the type recommended by the equipment manufacturer shall be provided in sufficient quantity for all consumption prior to completion of required testing and acceptance of equipment by OWNER.
- B. Safety Guards: All belt or chain drives, fan blades, couplings, vertical or horizontal drive shafts, and other moving or rotating parts shall be covered on all sides by a safety guard. Safety guards shall be fabricated from 16 gauge or heavier galvanized or aluminum-clad sheet steel or 1/2-inch mesh galvanized expanded metal. Each guard shall be designed for easy installation and removal and painted safety yellow.
 - 1. All necessary supports and accessories shall be provided for each guard. Supports and accessories, including bolts, shall be hot-dipped galvanized.
 - 2. All safety guards in outdoor locations shall be designed to prevent the entrance of rain and dripping water.
- C. Anchor Bolts: All necessary anchor bolts shall be provided as per the manufacturer's recommendations for size, strength, and location and shall meet the requirements of Standard Details on Drawings. Substantial templates and working drawings for installation shall be provided. Two nuts shall be furnished.
 - 1. Unless otherwise shown or specified, anchor bolts for items of equipment mounted on baseplates shall be long enough to permit 1-1/2 inches of grout beneath the baseplate and to provide adequate anchorage into structural concrete.
- D. Seals: Mercury seals will not be acceptable.
- E. Bearings: All antifriction bearings shall be designed per the Anti-Friction Bearing Manufacturers Association (AFBMA) recommendations with a rating life of B-10, 30,000 hours.
- F. Equipment Bases: A cast iron or welded steel baseplate shall be provided for all equipment and motor assemblies. Each baseplate shall support the unit and its drive assembly, shall be of a neat design with pads for anchoring the units, shall have a raised lip all around, and shall have a threaded drain connection. Bases shall be fully braced to withstand shock loads and resist buckling. Necessary safety guard mounting shall be provided as part of the equipment base.

- G. Motor Starters and Control Panels: Motor starters 480 volt or less shall be size one or larger and have 120 volt AC contactor coils. All control circuits and indicating lights associated with the starter shall be 120 volt. The control transformer shall be sized to have 100 VA minimum spare capacity for future use. A terminal strip shall be provided for all control wires entering the starter with spare terminals for future use. The terminal strip and wires shall be identified. One spare normally open auxiliary starter contact, wired to the terminal strip, shall be provided for future use. Indicating lights shall be 120 volt, oiltight, push-to-test type. Explosion-proof units shall meet NEC Class I, Division I, Group D requirements.
 - 1. Provide equipment enclosures appropriate for areas in which they are installed. Each area will be designated on Drawings with a type of construction, such as NEMA 4, 4X, 7, or 9 if it is other than NEMA 12. An area designated by a name and elevation includes space bounded by floor, ceiling, and enclosing walls.

2.04 FABRICATION

- A. Shop Painting: All iron and steel surfaces shall be protected by suitable paint or coatings applied in the shop or at point of fabrication. Surfaces which will be inaccessible after assembly shall be protected for the life of the equipment.
 - 1. All iron and steel surfaces which will be totally or partially submerged or located in a continuously or intermittently moist atmosphere during normal operation shall be shop blast cleaned to a near-white finish, removing all dirt, rust-scale, and foreign matter by any of the recommended methods outlined in the Steel Structures Painting Council Specification SP-10.
 - 2. The cleaned surfaces shall be shop primed before any rust bloom forms. All other exposed surface shall be properly filed, scraped, sanded, etched, brushed, sandblasted, and/or cleaned to provide surfaces free from dirt, loose crystals, rust, scale, oil, and grease and shop primed.
 - 3. Shop primed surfaces shall be painted with one or more coats of a primer which meets the requirements of this Section and is compatible with the finish painting system specified in Section 09 90 00. Minimum shop coat thickness shall be 1.5 dry mills.
- B. Electric motors, speed reducers, starters, pumps, motor control centers, control panels, and other self-contained or enclosed components shall be shop finished with 2 coats of an enamel paint as per manufacturer's recommendations.
- C. Where specified, steel and iron surfaces shall be hot-dipped galvanized in conformity with ASTM A 153 and A 385.
- D. Machined, polished, and nonferrous surfaces which are not to be painted or galvanized shall be coated with rust preventive compound.

PART 3 - EXECUTION

3.01 EQUIPMENT BASES

- A. The baseplate shall be installed on a concrete base. Baseplates shall be anchored to the concrete base with suitable anchor bolts and grouted in place.

3.02 WALL AND SLAB SLEEVES AND CASTINGS

- A. Unless otherwise shown on Drawings or specified, at all points where pipes or conduit pass through walls, slabs or roofs, suitable sleeves or castings shall be furnished and installed. Sleeves and castings shall not be painted in areas to be embedded in the concrete. All loose rust, scale, grease, or oil shall be removed prior to pouring the concrete.
- B. Unless otherwise shown or approved by ENGINEER, the space between the pipe and the sleeve shall be caulked. All ground buried and water or gas retaining wall or slab sleeves or castings shall be mechanical joint.

3.03 EQUIPMENT INSTALLATION CHECK

- A. Refer to Section 01 81 00.
- B. Manufacturer's representative shall provide all necessary tools and testing equipment required including noise level and vibration sensing equipment.

3.04 OPERATION AND MAINTENANCE TRAINING

- A. Refer to Section 01 82 00.

END OF SECTION

SECTION 01 63 00 - SUBSTITUTION REQUEST APPLICATION

CONTRACTOR: _____ Request Number: _____

_____ Date: _____
_____ Project: _____
_____ Contract: _____
To: ENGINEER - Tetra Tech, Inc.

Proposed Substitution: _____
Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____
Reason for not providing specified item: _____

SUBSTITUTION IMPACT

Will proposed Substitution affect other portions of the Work: No Yes
If yes, provide brief explanation: _____

Will proposed Substitution affect Contract Price: No Yes
If yes, provide
Deduct Price: \$ _____
Add Price: \$ _____

Will proposed Substitution affect Contract Times: No Yes
If yes, provide number of calendar days: _____

CONTACT INFORMATION

Manufacturer: _____
Address: _____
Contact Person: _____ Phone: _____ Fax: _____

Supplier: _____
Address: _____
Contact Person: _____ Phone: _____ Fax: _____

Installer/Subcontractor: _____
Address: _____
Contact Person: _____ Phone: _____ Fax: _____

Similar Installations; attach additional information, if required:

Project: _____ Owner: _____

City: _____ State: _____

Contact Person: _____ Phone: _____ Fax: _____

Date Installed: _____ ENGINEER: _____

Contact Person: _____ Phone: _____ Fax: _____

Address Installed: _____

Project: _____ Owner: _____

City: _____ State: _____

Contact Person: _____ Phone: _____ Fax: _____

Date Installed: _____ ENGINEER: _____

Contact Person: _____ Phone: _____ Fax: _____

Address Installed: _____

Project: _____ Owner: _____

City: _____ State: _____

Contact Person: _____ Phone: _____ Fax: _____

Date Installed: _____ ENGINEER: _____

Contact Person: _____ Phone: _____ Fax: _____

Address Installed: _____

PRODUCT INFORMATION

Brief description of differences between proposed substitution and specified product: _____

Copy of project specification with exceptions noted attached: Yes No

History: New Product 2-5 years old 5-10 years old More than 10 years old

Warranty same as specified product: Yes No

If no, provide proposed warranty period: _____

Closest maintenance service and replacement parts location: _____

Supporting Data Attached: Drawings Product Data Samples Tests Other _____

CONTRACTOR CERTIFICATIONS

The Undersigned Certifies:

1. Proposed substitution has been fully investigated and determined by CONTRACTOR to be equal or superior in all respects to specified product.
2. Cost data provided in this request includes all manufacturer’s, supplier’s, subcontractor’s and CONTRACTOR’s costs. CONTRACTOR shall not make further claims for additional Contract Times or Contract Price related to this request if OWNER accepts this substitution.
3. Proposed substitution does not affect dimensions and functional clearances.
4. Changes necessary to building design including, but not limited to, ENGINEER’s design, detailing, and construction costs caused by the substitution will be borne by CONTRACTOR.
5. Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

CONTRACTOR: _____

Submitted by: _____ Date _____

Signed by: _____

Title: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone: _____ Facsimile: _____

ENGINEER’S REVIEW AND RECOMMENDATIONS

- Substitution reviewed and recommended for OWNER acceptance.
- Substitution reviewed with comments and recommended for OWNER acceptance. See review comments below.
- In ENGINEER’s opinion, substitution appears not to adequately function and achieve the results of the originally specified product.
- ENGINEER recommends CONTRACTOR provide a special performance guarantee as a condition of OWNER acceptance. See review comments below.
- Substitution request too late. Use specified products.
- CONTRACTOR to make submittals in accordance with Specification Section 01330.

ENGINEER’s review comments: _____

Additional review comments attached: Yes No

ENGINEER: _____

Recommended by: _____

Title: _____

Date _____

OWNER's REVIEW AND ACTION

- Substitution reviewed and accepted by OWNER. CONTRACTOR to make submittals in accordance with Specification Section 01330.
- Substitution reviewed with comments and accepted by OWNER. See review comments below. CONTRACTOR to make submittals in accordance with Specification Section 01 33 00.
- In accordance with ENGINEER's recommendations, substitution rejected by OWNER.
- Substitution rejected by OWNER.
- ENGINEER to prepare a Contract Change Order for execution by CONTRACTOR and OWNER to incorporate changes to the Contract Documents.

OWNER's review comments: _____

Additional review comments attached: Yes No

OWNER: _____

Accepted by: _____

Title: _____

Date _____

Copy: OWNER CONTRACTOR RPR CPM Shop Dwg. File

END OF SECTION

SECTION 01 77 00 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for Contract closeout including, but not limited to:
 - 1. Warranties and Bonds.
 - 2. Requirements for Substantial Completion.
 - 3. Project record document submittal.
 - 4. Final cleaning.
- B. Certifications and other commitments and agreements for continuing services to OWNER are specified elsewhere in the Contract Documents.

1.02 WARRANTY REQUIREMENTS

- A. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve CONTRACTOR of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with CONTRACTOR.
- B. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- C. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- D. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether OWNER has benefited from use of the Work through a portion of its anticipated useful service life.
- E. OWNER's Recourse: Written warranties made to OWNER are in addition to implied warranties, and shall not limit the duties, obligations, rights, and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which OWNER can enforce such other duties, obligations, rights, or remedies.
- F. Rejection of Warranties: OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
- G. OWNER reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.03 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. All wearable items should be supplied to provide at least two years of operation and maintenance.

1.04 SUBSTANTIAL COMPLETION

- A. Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Price.
 - 2. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 3. Advise OWNER of pending insurance changeover requirements.
 - 4. Submit specific warranties, workmanship bonds, maintenance agreements, O&M Manuals, final certifications, and similar documents.
 - 5. Obtain and submit releases enabling OWNER unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates, and similar releases.
 - 6. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, ENGINEER will either proceed with inspection or advise CONTRACTOR of unfilled requirements.
 - 1. ENGINEER will prepare the Certificate of Substantial Completion following inspection, or advise CONTRACTOR of construction that must be completed or corrected before the certificate will be issued.
 - 2. ENGINEER will repeat inspection when requested and assured that the Work has been substantially completed.
 - 3. Results of the completed inspection will form the basis of requirements for final acceptance.
- C. The warranty period for specific portions of the Work will begin on the date established on Component Acceptance Form or at such other date as agreed by OWNER, ENGINEER, and CONTRACTOR.

1.05 FINAL ACCEPTANCE

- A. Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
 - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - 2. Submit an updated final statement, accounting for final additional changes to the Contract Price.
 - 3. Submit a copy of ENGINEER's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by ENGINEER.
 - 4. Submit consent of surety to final payment.

5. Submit a final liquidated damages settlement statement.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 7. Submit record drawings, maintenance manuals, final Project photographs, damage or settlement survey, property survey, and similar final record information.
 8. Deliver tools, spare parts, extra stock, and similar items.
 9. Make final changeover of permanent locks and transmit keys to OWNER. Advise OWNER's personnel of changeover in security provisions.
 10. Complete start-up testing of systems, and instruction of OWNER's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 11. Meet all other conditions of the contract.
- B. Reinspection Procedure: ENGINEER will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to ENGINEER.
1. Upon completion of reinspection, ENGINEER will prepare a certificate of final acceptance as shown in the end of this Section, or advise CONTRACTOR of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 2. If necessary, reinspection will be repeated.

1.06 SUBMITTALS

- A. Submit written warranties to ENGINEER prior to the date certified for Substantial Completion. If ENGINEER's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of ENGINEER.
- B. Refer to individual Sections for specific content requirements, and particular requirements for submittal of special warranties.

1.07 RECORD DOCUMENT SUBMITTALS

- A. Record Drawings:
1. Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown.
 2. Mark whichever Drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 3. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
 4. Mark new information that is important to OWNER, but was not shown on Contract Drawings or Shop Drawings.
 5. Note related Change Order numbers where applicable.
 6. Organize Record Drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on the cover of each set.
- B. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work.

1. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to ENGINEER for OWNER's records.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 FINAL CLEANING

- A. General cleaning during construction is required by the General Conditions and included in Section 01 31 00 and 01 50 00.
- B. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a municipal water treatment plant.
- C. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion as shown at the end of this Section.
 1. Remove labels that are not permanent labels.
 2. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances.
 3. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition.
 4. Clean Site, including landscape development areas, of rubbish, litter, accumulated debris, surplus materials of any kind which result from its operation, including construction equipment, tools, sheds, sanitary enclosures, etc., and foreign substances.
 5. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth even-textured surface.
 6. The site of the work shall be rehabilitated or developed in accordance with other sections of the Specifications. In the absence of any portion of these requirements, the CONTRACTOR shall completely rehabilitate the site to a condition and appearance equal or superior to that which existed just prior to construction, except for those items whose permanent removal or relocation was required in the Contract Documents or ordered by the OWNER.
- D. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- E. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
 1. Do not burn waste materials. Do not bury debris or excess materials on OWNER's property.
 2. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
 3. Remove waste materials from Site and dispose of in a lawful manner.
- F. Where extra materials of value remaining after completion of associated Work have become OWNER's property, arrange for disposition of these materials as directed.

END OF SECTION

CERTIFICATE OF SUBSTANTIAL COMPLETION

Contract _____
Contract No. _____
Date Issued: _____
OWNER _____
CONTRACTOR _____

This Certificate of Substantial Completion applies to all Work under the Contract.

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative punch list of items to be completed or corrected is attached hereto as Attachment No. A. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR by _____, _____.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees pending final payment shall be as follows:

OWNER: Shall perform and/or maintain insurances, if any, in accordance with Article 5 of the General Conditions, and allow CONTRACTOR reasonable access to complete or correct items on the tentative list. Additional responsibilities are:

CONTRACTOR: Shall perform and/or maintain Site security, temporary facilities, Bonds and insurances in accordance with Article 5 of the General Conditions, and protect the Work. Additional responsibilities are:

The following documents are attached to and made a part of this Certificate:

Attachment A: Tentative Punch List of Items to be completed prior to Final Payment (Pages 1 to 2, inclusive).

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on _____
Date

ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____
Date

CONTRACTOR

By: _____
(Authorized Signature)

CERTIFICATE OF FINAL COMPLETION

Contract _____
Contract No. _____
Date Issued: _____
OWNER _____
CONTRACTOR _____

This Certificate of Final Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, in accordance with Paragraph 14.06 of the General Conditions, and that Work is hereby declared to be finally complete in accordance with the Contract Documents on

DATE OF FINAL COMPLETION

CONTRACTOR's general warranty and guarantee period commences on ____ __ and terminates on ____ ____.

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to correct defective Work in accordance with the General Conditions of the Contract Documents.

Executed by ENGINEER on _____
Date

ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Final Completion on _____
Date

CONTRACTOR

By: _____
(Authorized Signature)

END OF SECTION

SECTION 01 78 00 - CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project record documents.
- B. Spare parts and maintenance products.
- C. Preventative maintenance instructions
- D. Warranties and bonds

1.02 PROJECT RECORD DOCUMENTS

- A. Maintain on site one clean, undamaged set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by OWNER.
- C. Store record documents separate from documents used for construction.
- D. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of all underground and exposed utilities and appurtenances, including thrust blocks, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
 - 4. Measured horizontal and vertical locations of all concealed and exposed electrical conduits. Conduits shall be shown in plain view on the record drawings with their size and contents indicated.
 - 5. Field changes of dimension and detail.
 - 6. Details not on original Contract drawings.
- F. Indicate the date of revisions to the plans in the appropriate box on the plans.
- G. Submit documents to ENGINEER prior to Final Application for Payment.

1.03 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra products in quantities specified in individual specification sections. This may include, but is not limited to the topics in Table 01 78 00-A.
- B. All wearable items should be supplied to provide at least two years of operation and maintenance.
- C. Deliver to project site and place in location as directed; obtain signed receipt from the City prior to final payment.
- D. Cover and protect parts from moisture.
- E. Crate in containers designed for prolonged storage suitable for handling with hoisting equipment containers: wooded, cardboard, or palletized.
- F. Stencil on containers:
 - 1. Manufacturer/supplier name.
 - 2. Unit name.
 - 3. Spare part name.
 - 4. Manufacturer catalogue number.
 - 5. Other identifying information.
 - 6. Precautionary information.

1.04 PREVENTATIVE MAINTENANCE SCHEDULE

- A. Submit, in addition to the operation and maintenance data, an equipment maintenance schedule for each piece of equipment. Include the following:
 - 1. Identity of Equipment.
 - 2. Routine manufacturer recommended preventative maintenance
 - a. Daily
 - b. Weekly
 - c. Monthly
 - d. Quarterly
 - e. Semi-Annually
 - f. Annually
- B. Equipment maintenance schedule shall be in a clear, tabular format and the same format for all equipment. Four (4) copies of each shall be provided.

1.05 WARRANTIES AND BONDS

- A. Warranties and bond requirements are covered in the General Conditions except where modified in the technical specifications.
- B. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers. All warranties shall begin at the Date of Final Payment, or at the date of acceptance by the OWNER, whichever is later. Table 01 78 00-B is a guide for warranties in this contract but is not intended to replace any warranty requirements listed in individual sections of this project manual.

01 78 00 - Warranty Table

Equipment	Specification Section	Warranty Length
Plumbing and Drains	22 13 00	1 year
Sump Pump	24 14 29.16	5 years

- C. Execute and assemble all transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers into one binder.
- D. Verify that documents are in proper form, contain full information, and are notarized. Manufacturer’s warranties shall be in the name of the Owner.
- E. Provide Table of Contents and assemble in three-ring binders with durable plastic cover.
- F. Submit prior to Final Application for Payment.
- G. Time of submittals:
 - 1. Make warranty submittal within ten days after Date of Substantial Completion, prior to Final Application for Payment.
 - 2. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty or bond period.
- H. Rejection of Warranties: OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 78 10 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Operation and maintenance data/manuals.

1.02 SUBMITTALS

- A. Submit operations and maintenance data for all equipment. Submittals shall be in separate binders. One binder will cover all O&M procedures and a second binder will cover preventative maintenance procedures.
- B. Quantity Required and Timing of Submittals:
 - 1. Preliminary Submittal:
 - a. Printed Copies: 4 copies, exclusive of copies required by CONTRACTOR.
 - b. Electronic Copies: 1 copy.
 - c. Submit to ENGINEER by the earlier of: ninety days following approval of Shop Drawings and product data submittals, or thirty days prior to starting training of operations and maintenance personnel, or ten days prior to field quality control testing at the Site.
 - d. Furnish preliminary operation and maintenance data submittal in acceptable form and content, as determined by ENGINEER, before associated materials and equipment will be eligible for payment.
 - 2. Final Submittal: Provide final submittal prior to Substantial Completion, unless submittal is specified as required prior to an interim Milestone.
 - a. Printed Copies: 4 copies.
 - b. Electronic Copies (Searchable PDF): 2 copies

1.03 OPERATION AND MAINTENANCE DATA/MANUALS

- A. Binding and Cover:
 - 1. Bind each operation and maintenance manual in durable, permanent, stiff-cover binder(s), comprising one or more volumes per copy as required. Binders shall be minimum one-inch wide and maximum of three-inch wide. Binders for each copy of each volume shall be identical.
 - 2. Binders shall be locking three-ring/"D"-ring type, or three-post type. Three-ring binders shall be riveted to back cover and include plastic sheet lifter (page guard) at front of each volume.
 - 3. Do not overfill binders.
 - 4. Covers shall be oil-, moisture-, and wear-resistant, including identifying information on cover and spine of each volume.
 - 5. Provide the following information on cover of each volume:
 - a. Title: "OPERATING AND MAINTENANCE INSTRUCTIONS".
 - b. Name or type of material or equipment covered in the manual.
 - c. Volume number, if more than one volume is required, listed as "Volume ___ of ___", with appropriate volume-designating numbers filled in.
 - d. Name of Project and, if applicable, Contract name and number.
 - e. Name of building or structure, as applicable.
 - f. Names and contact information of Engineer, General Contractor and Major Subcontractors.

6. Provide the following information on spine of each volume:
 - a. Title: "OPERATING AND MAINTENANCE INSTRUCTIONS".
 - b. Name or type of material or equipment covered in the manual.
 - c. Volume number, if more than one volume is required, listed as "Volume __ of __", with appropriate volume-designating numbers filled in.
 - d. Project name and building or structure name.
 7. The manuals' cover sheets and spines shall all be matching. The CONTRACTOR shall prepare a template for use by the various subcontractors.
- B. Pages:
1. Print pages in manual on 30-pound (minimum) paper, 8.5 inches by 11 inches in size.
 2. Provide each page with binding margin at least one inch wide. Punch each page with holes suitable for the associated binding.
- C. Drawings:
1. Bind into the manual drawings, diagrams, and illustrations up to and including 11 inches by 17 inches in size, with reinforcing specified for pages.
 2. Documents larger than 11 inches by 17 inches shall be folded and inserted into clear plastic pockets bound into the manual. Mark pockets with printed text indicating content and drawing numbers. Include no more than three drawing sheets per pocket.
- D. Copy Quality and Document Clarity:
1. Contents shall be original-quality copies. Documents in the manual shall be either original manufacturer-printed documents or first-generation photocopies indistinguishable from originals. If original is in color, copies shall be in color. Manuals that contain copies that are unclear, not completely legible, off-center, skewed, or where text or drawings are cut by binding holes, are unacceptable. Pages that contain approval or date stamps, comments, or other markings that cover text or drawing are unacceptable. Faxed copies are unacceptable.
 2. Clearly mark in ink to indicate all components of materials and equipment on catalog pages for ease of identification. In standard or pre-printed documents, indicate options furnished or cross out inapplicable content. Using highlighters to so indicate options furnished is unacceptable.
- E. Organization:
1. Table of Contents:
 - a. Provide table of contents in each volume of each operations and maintenance manual.
 - b. In table of contents and at least once in each chapter or section, identify materials and equipment by their functional names. Thereafter, abbreviations and acronyms may be used if their meaning is clearly indicated in a table bound at or near beginning of each volume. Using material or equipment model or catalog designations for identification is unacceptable.
 2. Use dividers and labeled index tabs between equipment items and between major categories of information, such as operating instructions, preventive maintenance instructions, and other major subdivisions of data in each manual.
 3. Each equipment item shall have an individual cover sheet with the following information:
 - a. Name or type of material or equipment.
 - b. Manufacturer's name, address, telephone number, fax number, and Internet website address.
 - c. Manufacturer's local service representative's or local parts supplier's name, address, telephone number, fax number, Internet website address, and e-mail addresses, when applicable.

- d. Manufacturer's shop order and serial number(s) for materials, equipment or assembly furnished.
- e. City Equipment Number if applicable.

1.04 ELECTRONIC REQUIREMENTS

- A. Electronic Copies of Operation and Maintenance Manuals:
 - 1. Each electronic copy shall include all information included in printed copy.
 - 2. Submit each electronic copy on a separate compact disc (CD), unless another electronic data transfer method or format is acceptable to ENGINEER.
 - 3. File Format:
 - a. The O&M Manuals will be placed into the OWNER's Content Management System. All electronic files shall be compatible with this system.
 - b. Files shall be in "portable document format (PDF)". Files shall be entirely electronically searchable and created from the original document. Scanned/Image PDF's will not be accepted.
 - c. Submit separate file for each separate document in the printed copy.
 - d. Within each file, provide bookmarks for the following:
 - 1) Each chapter and subsection listed in the printed copy document's table of contents.
 - 2) Each figure.
 - 3) Each table.
 - 4) Each appendix.
 - 4. Also provide drawings and figures in one of the following formats: ".bmp", ".tif", ".jpg", or ".gif". Submit files in a separate directory on the CD.
 - 5. Technical drawings will be provided in both AutoDesk DWG format and PDF format.

1.05 CONTENT

- A. Submit complete, detailed written operating instructions for each material or equipment item including: function; operating characteristics; limiting conditions; operating instructions for start-up, normal and emergency conditions; regulation and control; operational troubleshooting; and shutdown. Also include, as applicable, written descriptions of alarms generated by equipment and proper responses to such alarm conditions.
- B. Submit written explanations of all safety considerations relating to operation and maintenance procedures.
- C. Submit complete, detailed, written preventive maintenance instructions including all information and instructions to keep materials, equipment, and systems properly lubricated, adjusted, and maintained so that materials, equipment, and systems function economically throughout their expected service life. Instructions shall include:
 - 1. Written explanations with illustrations for each preventive maintenance task such as inspection, adjustment, lubrication, calibration, and cleaning. Include pre-startup checklists for each equipment item and maintenance requirements for long-term shutdowns.
 - 2. Recommended schedule for each preventive maintenance task.
 - 3. Lubrication charts indicating recommended types of lubricants, frequency of application or change, and where each lubricant is to be used or applied.
 - 4. Table of alternative lubricants.
 - 5. Troubleshooting instructions.
 - 6. List of required maintenance tools and equipment.

- D. Complete bills of material or parts lists for materials and equipment furnished. Lists or bills of material may be furnished on a per-drawing or per-equipment assembly basis. Bills of material shall indicate:
1. Manufacturer's name, address, telephone number, fax number, and Internet website address.
 2. Manufacturer's local service representative's or local parts supplier's name, address, telephone number, fax number, Internet website address, and e-mail addresses, when applicable.
 3. Manufacturer's shop order and serial number(s) for materials, equipment or assembly furnished.
 4. For each part or piece include the following information:
 - a. Parts cross-reference number. Cross-reference number shall be used to identify the part on assembly drawings, Shop Drawings, or other type of graphic illustration where the part is clearly shown or indicated.
 - b. Part name or description.
 - c. Manufacturer's part number.
 - d. Quantity of each part used in each assembly.
 - e. Current unit price of the part at the time the operations and maintenance manual is submitted. Price list shall be dated.
- E. Complete instructions for ordering replaceable parts, including reference numbers (such as shop order number or serial number) that will expedite the ordering process.
- F. Manufacturer's recommended inventory levels for spare parts, extra stock materials, and consumable supplies for the initial two years of operation. Consumable supplies are items consumed or worn by operation of materials or equipment, and items used in maintaining the operation of material or equipment, including items such as lubricants, seals, reagents, and testing chemicals used for calibrating or operating the equipment. Include estimated delivery times, shelf life limitations, and special storage requirements.
- G. Submit manufacturer's installation and operation bulletins, diagrams, schematics, and equipment cutaways. Avoid submitting catalog excerpts unless they are the only document available showing identification or description of particular component of the equipment. Where materials pertain to multiple models or types, mark the literature to indicate specific material or equipment supplied. Marking may be in the form of checking, arrows, or underlining to indicate pertinent information, or by crossing out or other means of obliterating information that does not apply to the materials and equipment furnished.
- H. Submit original-quality copies of each approved and accepted Shop Drawing, product data, and other submittal, updated to indicate as-installed condition. Reduced drawings are acceptable only if reduction is to not less than one-half original size and all lines, dimensions, lettering, and text are completely legible on the reduction.
- I. Submit complete electrical schematics and wiring diagrams, including complete point-to-point wiring and wiring numbers or colors between all terminal points.
- J. Copy of warranty bond and service contract as applicable.
- K. When copyrighted material is used in operations and maintenance manuals, obtain copyright holder's written permission to use such material in the operation and maintenance manual.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 81 00 - COMMISSIONING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Commissioning Plan
- B. Functional Completion Testing
- C. Startup
- D. Commissioning
- E. Performance Testing
- F. Operational Demonstration

1.02 DEFINITIONS

- A. Commissioning: Commissioning is the series of activities or processes necessary to ensure that equipment and systems are designed, installed, functionally tested, started up and capable of being operated and maintained to perform in conformity with the design intent for the facility improvements. Commissioning includes, but is not limited to factory testing, field testing, dry testing, performance testing, Manufacturer's checkout, and operational demonstration.
- B. Contractor: Contractor in this section shall mean a mechanical subcontractor or other contractor who has installed the system to be commissioned and is an expert in its operation.
- C. Factory Testing: Factory testing is performance testing, operation testing, or documentation verification conducted in the production facility, specialized test facility, or by the equipment manufacturer or supplier. Such testing shall conform to the requirements of the individual sections of the Contract Documents. "Witnessed" factory testing shall mean that the testing is witnessed by the OWNER or his designated representative.
- D. Field Testing: Field testing is performance testing, operation testing, or documentation verification conducted in the field after installation, to provide comparison with the results obtained in the factory testing.
- E. Dry Testing: Dry testing is performed by the CONTRACTOR without introducing either process material or other test material into the component, system, or unit process.
- F. Performance Testing: Performance Testing is testing performed by the CONTRACTOR to demonstrate the specified throughput of the equipment and unit process systems while maintaining regulatory compliance with Federal, State, and Local government regulations and minimum compliance with the equipment or unit process systems performance requirements and guarantees.

- G. **Manufacturer’s Checkout:** Manufacturer’s checkout shall be performed directly by the manufacturer. Checkout by the local equipment representative or salesman is not permitted. Checkout shall include, but not be limited to, wiring and power supply, installation, tolerances, clearances, rotation, etc.
- H. **Startup:** Startup shall be defined as the operation of equipment or unit process systems using clean water, air, or other fluids and gases as necessary to demonstrate the cooling and heating operation of the equipment or systems with other equipment that is a part of the Facility. Startup shall be performed by the CONTRACTOR, manufacturer, and local equipment representative.
- I. **System:** A “system” includes all required items of equipment, devices, and appurtenances connected so that their operation or function compliments, protects, or controls the operation or function of the others.
- J. **Operational Demonstration:** A commissioning activity performed by the CONTRACTOR wherein the CONTRACTOR operates and maintains a fully functional component system, unit process for a period of time after stable operation has been achieved. For purposes of this project, the period of time shall be 14 days, unless noted otherwise for specific pieces of equipment.
- K. **Commissioning Plan:** The Commissioning Plan incorporates all aspects of functional completion testing, startup, commissioning, performance testing, training, and reliability tests to ensure the facility operates properly and meets design intent and performance.

1.03 QUALITY ASSURANCE

- A. **CONTRACTOR shall appoint a Performance Testing Manager who shall:**
 - 1. Manage, coordinate, and supervise CONTRACTOR’s start-up, testing, and commissioning activities including but not limited to field testing, dry testing, performance testing with process liquids and solids, manufacturer’s checkout and the Operational Demonstration.
 - 2. Assist in coordinating and documenting Site quality control Work specified in individual Specification Sections.
 - 3. Prepare, or review and approve, all submittals for the Work under this Section and related Work contained within the Contract Documents.
 - 4. Coordinate activities of subcontractors, manufacturers and suppliers relative to the start-up, testing, and commissioning activities.
- B. **Performance Testing Manager shall be at the Site a minimum of eight hours per day during all testing and be available at all times, 24 hours per day, seven days per week to perform these duties.**
- C. **Performance Testing Manager shall supervise the CONTRACTOR’s Operations ENGINEER and Operations Specialists who shall be dedicated to the start-up, testing, and commissioning Work.**

1.04 SUBMITTALS

- A. **Field Installation Reports – Submit reports by Manufacturer’s Representative in accordance with the Contract Documents.**

- B. Detailed Commissioning Plan – Submit detailed commissioning plan in accordance with the Contract Documents 90 days in advance of starting, testing and placing equipment into operation.
- C. Start up and Testing Documentation: CONTRACTOR shall prepare and submit all documentation for review and approval. The documentation shall include, but not be limited to, the following:
 - 1. Develop blank testing forms specific to each item of equipment or system to be filled out during start-up and testing.
 - a. All forms must be approved by ENGINEER and OWNER prior to use.
 - b. Pump testing form shall at a minimum include VFD speed, flow, suction pressure, discharge pressure, amperage, voltage, and kW.
 - 2. Field testing plans, dry testing plans and that describe in detail the proposed testing procedures that will show the equipment and systems performance is in accordance with the requirements of the Contract Documents.
 - 3. Field testing, dry testing reports including recorded test data, performance tolerances, observations, measurements taken, problems and modifications or corrective action taken for the equipment and systems to perform in accordance with the Contract Documents.
 - 4. Certification by the preparer that he/she is the person responsible for the data, and that the data is authentic and accurate.
 - 5. Certification by the CONTRACTOR or equipment or unit process systems supplier that the equipment or the unit process systems were operated continuously for the specified period and that the equipment or unit process systems operated in compliance with the specified operating conditions, parameters and performance, and that the equipment or unit process systems are suitable for Operational Demonstration.
- D. Develop performance testing plans and operational demonstration plans describing in detail, coordinated, sequential testing and demonstration of each system to be tested. Performance testing plan and operational demonstration plan shall be specific to the system or equipment item to be tested, and shall identify by specific equipment or tag number each device or control station to be manipulated or observed during testing, and specific results to be observed or obtained. Subcontractors and suppliers shall be present during testing, and for the planned testing duration. Performance testing plans and operational demonstration plans shall include:
 - 1. Summary of results of field testing and dry testing.
 - 2. Calibration of all field instruments and control devices.
 - 3. Description of and information on temporary systems, equipment, and devices proposed for performance Testing and Operational Demonstrations, including calibration data for temporary instrumentation and controls.
 - 4. Description of data reduction required, if any, and proposed time between collection of data and submittal of results to ENGINEER.
 - 5. Summary of criteria for acceptance of test results. Summary shall include performance tolerances (if any) included in the Contract Documents. Where performance tolerances are not included in the Contract Documents, testing plans shall include proposed performance tolerances for approval by OWNER and ENGINEER.

6. Following ENGINEER's approval of performance testing plans and operational demonstration plans, CONTRACTOR shall reproduce performance testing and operational demonstration plans in sufficient quantity for CONTRACTOR'S purposes plus five copies to ENGINEER and five copies to OWNER. Do not start performance testing or operational demonstrations until required quantity of approved plans are provided.
- E. Testing Schedule: Provide a testing schedule that sets forth the planned sequence for performance testing and operational demonstration work. Testing schedule shall be part of the Progress Schedule and shall conform to requirements for Progress Schedule.
1. Detail the equipment and systems to be tested.
 2. Show planned start date, duration, and completion of each test.
 3. Testing schedule shall submitted no later than eight weeks in advance of the date performance testing and operational demonstrations are to begin. ENGINEER will not witness performance testing and operational demonstration work until test schedule is accepted by ENGINEER.
 4. Testing schedule shall be updated weekly and resubmitted to ENGINEER. Updates shall indicate actual dates of performance testing and operational demonstration Work, indicating equipment, systems and treatment train for which testing is in progress, and that are satisfactorily completed in accordance with the Contract Documents.
- F. Following a successful Operational Demonstration, a summary report containing the following, at a minimum, shall be provided by the CONTRACTOR:
1. Equipment, systems and plant treatment trains started-up and commissioned.
 2. Start-up and commissioning dates.
 3. Equipment, systems and performance criteria tested, clearly showing requirements and field data that verifies requirements were met.
 4. Names of witnesses for start-up and commissioning.
 5. Any repairs, corrections, or modifications required for the equipment or unit process systems to successfully complete start-up and commissioning.
 6. Loop diagrams accurately depicting the installed condition of instrumentation and controls.
 7. Any other important Operational Demonstration information.
 8. Report Appendix containing the following, as a minimum:
 - a. a. A summary of all testing data used and calculations, including source, formulas with all terms defined.
 - b. b. Copies of all raw field data sheets, including those indicating sampling point locations, and notes.
 - c. c. Production and operational data.
 - d. d. Calibration sheets for equipment.
 - e. e. Copies of calibration records for instrumentation.

1.05 COMMISSIONING PLAN

- A. The CONTRACTOR shall be responsible for preparing, coordinating, and executing the Plan.
1. The CONTRACTOR shall use the resources of the equipment and unit process systems suppliers in this work, particularly for specific equipment and unit process systems.

2. An initial draft Plan for the Facility shall be completed and submitted by the CONTRACTOR to the ENGINEER for review at least 90 days prior to the expected commencement of commissioning. The ENGINEER will require 45 days to review the submittal and return with any exceptions noted. The CONTRACTOR shall incorporate the ENGINEER's comments into the revised Plan within 30 days of receiving comments, and reissue the Plan to the ENGINEER and OWNER.
- B. The CONTRACTOR shall provide a dedicated field staff to support the Plan activities. A full-time Startup Manager shall be responsible for day to day activities and shall be the primary contact with the ENGINEER regarding Plan activities. Support staff shall include but not be limited to designated mechanical, electrical and instrumentation and control ENGINEERs and technicians, and operating staff.
1. The CONTRACTOR may require assistance from the OWNER's operating and maintenance staff in commissioning and performance testing activities specified herein. Activities requiring OWNER's staff shall be specifically noted in the Plan.
- C. The Plan shall define:
1. A chronological schedule of all testing and inspection activities.
 2. A checklist of all inspection and testing activities broken down by location, discipline, system, and device or item.
 3. All blank forms proposed by the CONTRACTOR for verification or recording of the functional completion testing, startup, commissioning and performance testing.
 4. An index which cross references the forms to their intended application(s).
 5. A list of all supplier certifications, including those required by the applicable technical specifications. Provisions shall also be included for retesting, in the event it is required.
 6. A list of participants in functional completion testing, startup, commissioning, and performance testing.
 7. A list of special test equipment required for functional completion testing, startup, commissioning, and performance testing.
 8. Sources of the test media (water, power, air.) for functional completion testing.
 9. The proposed method of delivery of the media to the equipment to be tested during functional completion testing, startup, commissioning, and performance testing.
 10. Temporary or interim connections for the sequencing of multiple units during functional completion testing, startup, commissioning, and performance testing.
- D. The CONTRACTOR shall designate, in the Plan, a Testing and Checkout Coordinator, to coordinate and manage the activities defined in the Plan.

1.06 ROLES AND RESPONSIBILITIES

- A. CONTRACTOR shall provide competent, qualified representatives of material, equipment, and system manufacturers to provide services specified, including supervising installation, adjusting, starting-up, and testing of materials and equipment.
- B. The CONTRACTOR shall provide all outside services, materials, labor, supplies, test equipment and other items necessary to perform the Plant Testing, Startup and Commissioning specified herein. In addition, the CONTRACTOR shall arrange for and provide the participation or assistance of survey crews, quality control technicians, Supplier's representative(s), and required governmental agency representatives.

- C. The CONTRACTOR shall provide the services of the Supplier's representative(s) as follows:
 - 1. Assistance during installation as specified in Divisions 1 through 16 and as specified herein.
 - 2. Field Testing as specified in Divisions 1 through 16 and as specified herein.
 - 3. Startup as specified in Divisions 1 through 16 and as specified herein.
 - 4. Commissioning as specified in Divisions 1 through 16 and as specified herein.
- D. The Supplier's representative's activities required by this Section are in addition to the requirements for vendor training and other services specified elsewhere in the Contract Documents. Timing for the performance of these services is to be defined in the CONTRACTORS Checkout Plan, specified herein, and shall not be concurrent.
- E. The ENGINEER will review and comment on the CONTRACTOR's deliverables, participate in the physical inspection activities, witness the shop and field testing, witness functional testing, maintain the permanent record of all testing results, and provide verification of conformance to the specifications. The ENGINEER's right to perform inspections, witness tests or monitor or assess the Work and activities does not relieve the CONTRACTOR of its obligation to comply with the requirements of the Contract Documents nor does it imply completion of the Work.

1.07 FUNCTIONAL COMPLETION TESTING

- A. Functional Completion Testing shall be completed as construction and installation of equipment is completed to demonstrate that the equipment is ready for equipment and systems startup.
- B. Functional Completion Testing shall be done in a coordinated manner based on the Plan prepared by the CONTRACTOR.
- C. The OWNER's operating and maintenance staff shall be allowed to observe for the purposes of familiarization and training.
- D. Functional Completion Testing procedures and documentation forms shall be developed by the CONTRACTOR. The procedures shall include a listing of items inspected for Functional Completion Testing.
- E. If any equipment or unit process systems do not meet Functional Completion Testing requirements, it shall be the responsibility of the CONTRACTOR and/or equipment suppliers to make the necessary corrections or replacements and repeat the test.
- F. The equipment and unit process systems shall not be started up or put into service until the Functional Completion Testing is completed as evidenced by a completed Functional Completion Testing certificate for the equipment or subsystem.
- G. Modifications to the equipment and unit process systems required to meet Functional Completion Testing requirements shall be provided, and all retesting shall be performed at no additional cost to the OWNER.
- H. A Functional Completion Testing Certificate shall be prepared by the CONTRACTOR for each piece of equipment or system and submitted to the ENGINEER and OWNER for review.

1.08 COMMISSIONING

- A. All equipment shall be commissioned.
- B. Commissioning activities for the project shall not be initiated until the requirements of Startup are completed for the equipment or unit process systems.
- C. The requirements of this section shall be satisfactorily completed prior to beginning Performance Testing for equipment and unit process systems.
- D. Commissioning shall be used by the CONTRACTOR and equipment or unit process suppliers to adjust, fine tune, modify and prepare the equipment or system for continuous operation and Performance Testing.
- E. Equipment shall not be operated without the guidance of qualified personnel having the knowledge and experience necessary to conduct proper operation thereof and obtain valid results.
- F. All required adjustments, tests, operation checks, and Startup and Commissioning activities shall be provided by qualified personnel.
- G. CONTRACTOR shall be responsible for planning, supervising, and executing the Startup and Commissioning of the equipment and unit process systems with the assistance of equipment or unit process systems suppliers in accordance with the Plan.
- H. The CONTRACTOR shall be responsible for commissioning under the direction of its Startup Manager.
- I. The OWNER's operating and maintenance staff shall be allowed to observe for the purposes of familiarization and training.
- J. For equipment or unit process systems that do not meet Commissioning requirements, it shall be the responsibility of the CONTRACTOR and/or equipment or unit process systems suppliers to make the necessary corrections or replacements and repeat Commissioning at no additional cost to the OWNER.
- K. The equipment or unit process systems shall not be Performance Tested or otherwise placed into service until Commissioning is completed as evidenced by a completed Commissioning certificate for the equipment or unit process systems.
- L. Commissioning Certificates for each piece of equipment or unit process shall be completed and submitted by the CONTRACTOR to the ENGINEER and OWNER for review.

1.09 PERFORMANCE TESTING AND OPERATIONAL DEMONSTRATION

- A. CONTRACTOR shall demonstrate the operation of all equipment and systems. CONTRACTOR shall provide all labor, materials, services, equipment, and incidentals required for Performance Testing and Operational Demonstrations as indicated in the Contract Documents. This Performance Testing and Operational Demonstrations shall be conducted, coordinated and recorded by the CONTRACTOR in accordance with the requirements specified herein and in cooperation with the OWNER and ENGINEER. The pump station will

not be considered Substantially Complete until the completion of the performance testing and operational demonstration.

- B. This Work is additional to any other installation, shop and factory testing, field testing, dry testing, performance testing, balancing or adjustments required elsewhere in the Contract Documents.
- C. Conduct Performance Testing and Operational Demonstration testing for each item of process, mechanical, instrumentation and controls, plumbing, heating, ventilating, and air conditioning (HVAC); electrical systems and equipment, and other systems and equipment, to demonstrate compliance with the performance requirements of the Contract Documents.
- D. Objectives of Performance Testing and Operational Demonstrations are to:
 - 1. Demonstrate to the satisfaction of the OWNER and ENGINEER that structures, equipment and systems tested comply with all functional and performance requirements in the Contract Documents.
 - 2. Establish baseline operating conditions for OWNER's use in establishing standard operating procedures and preventative maintenance programs.
 - 3. The Performance Testing shall maintain conformance with performance tolerances for a period of not less than 7 days. If a testing failure occurs (whether process, mechanical, electrical, instrumentation) during the 7-day testing period, the malfunction shall be repaired, and the 7 day testing period shall restart.
 - 4. The Operational Demonstrations shall maintain conformance with the performance tolerances for a period of not less than 14 days. If a testing failure occurs (whether process, mechanical, electrical, instrumentation) during the 14-day testing period, the malfunction shall be repaired, and the 14-day testing period shall restart.
- E. Utilities and Consumables:
 - 1. CONTRACTOR shall provide the following: fuel, compressed air, temporary conduit, cable and wire, piping and appurtenances, and all other items and Work required for completing Performance Testing and Operational Demonstrations.
 - 2. OWNER will provide the electricity, chemicals, and plant water for the initial Performance Testing and Operational Demonstrations. CONTRACTOR shall provide all temporary electrical equipment, including but not limited to conduit and cable, piping and appurtenances required to convey electricity, chemicals, and plant water to the required testing location. If re-testing is required, cost of utilities and consumables furnished by OWNER for initial testing shall be paid by CONTRACTOR at OWNER's cost or standard rates, as applicable.
- F. Sequence: The following general sequence applies to Performance Testing and Operational Demonstrations:
 - 1. Furnish submittals required prior to Performance Testing, in accordance with the Contract Documents.
 - 2. Furnish acceptable operations and maintenance manuals in accordance with the Contract Documents.
 - 3. Complete the Work associated with starting and placing equipment and systems in operation in accordance with the Contract Documents.
 - 4. Training of operations and maintenance personnel in accordance with Section 01820, Demonstration and Training. Training must occur prior to the Operational Demonstration.

5. Proceed with Performance Testing in accordance with the Contract Documents, simulating the range of actual operating conditions to the greatest extent possible.
6. Complete site quality control Work specified in the Contract Documents for individual equipment items and systems. Field inspection, testing, and adjustments shall be signed off by approved representative of the Manufacturer, indicating that the equipment, components, systems, or unit processes meets the Manufacturer's requirements.
7. Following acceptance of the Performance Testing by the ENGINEER and OWNER, CONTRACTOR shall initiate a 14-day Operational Demonstrations, as described herein.
8. Successful completion of Operational Demonstration is part of the requirements to achieve Substantial Completion.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 STARTUP

- A. The CONTRACTOR's Performance Testing Manager and Manufacturer's Representative shall inspect equipment and systems prior to each start-up and verify their readiness for start-up. Conditions hazardous to equipment or personnel shall be corrected by the CONTRACTOR's Performance Testing Manager prior to start-up of equipment.
- B. Start-up operations shall not precede using temporary power or temporary instrumentation and control wiring. All electrical and control connections shall be permanent and complete, and all such electrical components and equipment fully functional.
- C. Use of repair parts during start-up operations shall not be permitted, except in such situations where the actual on-site verification of such repair parts' operability is specified.
- D. The CONTRACTOR's Performance Testing Manager shall verify that all initial copies of the maintenance and operating instructions have received, from the ENGINEER, an acceptable disposition as defined in Section 01 33 00, Submittal Procedures, and the only outstanding item is the field verification of the maintenance and operating instructions.
- E. CONTRACTOR's Performance Testing Manager shall compare, and make adjustments to conform to; the Manufacturer's recommendations for the following minimum start up requirements:
 1. Motor Bearings and Shafting:
 - a. Inspect for cleanliness, and clean and remove foreign matter.
 - b. Verify alignment.
 - c. Replace defective bearings and those that operate rough or noisy.
 - d. Grease as necessary, in accordance with Manufacturer's recommendations.
 2. Motors:
 - a. Check each motor for comparison to amperage nameplate value.
 - b. Correct conditions that produce excessive current flow and conditions that exist due to equipment malfunction.

3. Pipe System:
 - a. Check glands and seals for cleanliness and adjustment before running pump.
 - d. Verify that piping system is free of dirt and scale before circulating liquid through system.
4. Valves:
 - a. Inspect manual and automatic control valves, and clean bonnets and stems.
 - b. Tighten packing glands to ensure no leakage, but allow valve stems to operate without galling.
 - c. Replace packing in valves to retain maximum adjustment after system is determined to be complete.
 - d. Replace packing on valves that continue to leak.
 - e. Remove and repair bonnets that leak.
 - f. After cleaning, coat packing gland threads and valve stems with surface preparation of "Molycote" or "Fel-Pro".
 - g. Verify that control valve seats are free from foreign matter and are properly positioned for intended service.
5. Tighten flanges and other pipe joints after system has been placed in operation.
 - a. Replace gaskets that show signs of leakage after tightening.
6. Inspect all joints for leakage:
 - a. Promptly remake each joint that appears to be faulty; do not wait for rust or other corrosion to form.
 - b. Clean threads on both parts, and apply compound and remake joints.
7. After system has been placed in operation, clean strainers, drives, pockets, orifices, valve seats, and headers in fluid system to ensure freedom from foreign matter.
8. Remove rust, scale, and foreign matter from equipment and renew defaced surfaces.
9. Inspect fan wheels for clearance and balance.
10. Check each electrical control circuit to ensure that operation complies with the Contract Documents.
11. Inspect each pressure gauge, thermometer, and other instruments for calibration.
 - a. Replace items that are defaced, broken, or that read incorrectly.
12. Repair damaged insulation.
13. Vent gasses trapped in systems.
14. Verify that liquids are drained from all parts of gas or air systems.

A checklist showing the completed steps shall be submitted to OWNER upon successful start-up.

3.02 COMMISSIONING

- A. On successful completion of startup, the CONTRACTOR shall begin commissioning of the equipment and systems, wherein the equipment and systems are subjected to full operation. Adjustments shall be made as necessary and the equipment and system shall be optimized and brought into compliance with design criteria in preparation for performance testing and the Operational Demonstration specified within the Contract Documents.
- B. The various vendors, equipment suppliers and manufacturers shall provide on-site supervision and assistance for Commissioning services for the new facility.
- C. The CONTRACTOR shall coordinate all Commissioning activities for equipment and systems in accordance with the accepted commissioning plan.

- D. Commissioning shall show that the equipment and unit process systems are capable of continuous operation using process liquids and solids, chemicals, and utilities; and that the flows, operating parameters and performance requirements have been demonstrated for a minimum of seven days of continuous operation, or the period required in the equipment specifications, whichever is longer.
- E. If the commissioning fails, the CONTRACTOR will be responsible for redoing the commissioning at no additional costs to the OWNER.
- F. Shutdowns that occur because of power outages, acts of God, or failure of support systems not part of this contract will not be a cause of failure of continuous operation during the Operational Demonstration.

3.03 PERFORMANCE TESTING AND OPERATIONAL DEMONSTRATION

- A. CONTRACTOR shall perform Operational Demonstration of the work. Unless otherwise specified, the Operational Demonstration shall be a continuous 14-day (336 hours) period during which the work is operated and maintained in a continuously on-line, fully functional process status.
- B. The Operational Demonstrations shall encompass the entire work, or the portion thereof designated for Substantial Completion. The Operational Demonstrations shall include all the equipment and systems.
- C. Filling, draining, cleaning, stabilizing, adjusting, or other start-up activity time shall not be counted as Operational Demonstration time.
- D. During the entire 14-day Operational Demonstration period, the operation of equipment will be assumed by the OWNER's personnel, under the direction of the CONTRACTOR. The CONTRACTOR shall provide labor and sufficient material to fully operate and maintain the work 24 hours per day, 7 days per week for the entire duration of the Operational Demonstrations.
- E. Prior to the Operational Demonstrations, all parts of the work designated for the operational demonstration shall have passed all required tests as specified. No testing shall be allowed during the Operational Demonstrations.
- F. During the Operational Demonstration period, CONTRACTOR shall obtain baseline operating data on equipment with motors greater than one horsepower. Baseline data shall include amperage, bearing temperatures, and vibration data obtained at intervals in the approved testing plan. Methods of measurement shall be in accordance with industry standards applicable for the motors being tested.
- G. All required maintenance and servicing prior to the date of Substantial Completion shall be performed by the CONTRACTOR at the specified interval and as necessary. All maintenance and servicing shall be noted in the Operational Demonstration Log.
- H. All outages of equipment or system(s) should be noted in the Operational Demonstration Log. Plant outages are considered a part of normal plant operation and will not invalidate the Operational Demonstration. The CONTRACTOR is responsible for the safe and orderly shutdown and restart of equipment as necessary in the event of an outage.

- I. CONTRACTOR and Performance Testing Manager shall attend Operational Demonstration coordination meetings as called by the ENGINEER to review operating conditions of equipment and systems.
- J. If during the Operational Demonstration, any part of the work fails to fully conform to the requirements of the Contract Documents, the Operational Demonstration shall be considered to have failed, and the work shall not be considered to be Substantially Complete, and the ENGINEER shall so notify the CONTRACTOR in writing. If, during the Operation Demonstration, the provisions of the General Conditions are evoked to stop the work, the Operational Demonstration will also be considered to have failed.
- K. Re-testing Because of Disputed Testing Results or Procedures: In the case of an otherwise satisfactory Operational Demonstration, when there is doubt, dispute, or difference between ENGINEER and CONTRACTOR regarding testing results, methods, or equipment used in the Operational Demonstration testing, ENGINEER may order CONTRACTOR to repeat the testing. If repeat testing using such modified methods or equipment required by ENGINEER confirms the previous test, all costs of repeat test will be paid by OWNER. Otherwise all costs, including costs of the ENGINEER, labor, testing agencies, and inspections, shall be paid by CONTRACTOR.
- L. Post-test Inspection: After completing Operational Demonstration testing, check equipment for proper alignment and realign, as required. Check equipment for loose connections, unusual movement, and other indication of improper operating characteristics. Disassemble and inspect equipment and devices that exhibit unusual or unacceptable operating characteristics. Repair or replace defective Work to conform to the Contract Documents at no additional cost to OWNER.
- M. Upon failure of the Operational Demonstration, the CONTRACTOR shall promptly remedy any defects in the work and shall promptly reschedule and re-start the complete 14-day, (336 hours) Operational Demonstration time period. No Operational Demonstration time will be considered to have accrued to any part of the work by reason of a failed Operational Demonstration.
- N. During the Operational Demonstration, the OWNER may require or permit the Operational Demonstration to be suspended:
 - 1. As provided in the General Conditions.
 - 2. Upon the written request of the CONTRACTOR, to correct or adjust the work, when in the judgment of the ENGINEER such required correction or adjustment is insufficient to deem the Operational Demonstration to have failed.
 - 3. If the Operational Demonstration is suspended for any reason except failure, Operational Demonstration time shall accrue to the work from the time of the beginning of the Operational Demonstration to the time of the suspension.
 - 4. If the Operational Demonstration is suspended at the request of the CONTRACTOR, the CONTRACTOR shall continue operation and maintenance of the work without additional charges to the OWNER, according to the extent required by the Contract Documents and the OWNER. No Operational Demonstration time shall accrue to the Work during the period of suspension.

- O. Completion of the Operational Demonstration does not relieve the CONTRACTOR of its other requirements for Substantial Completion as required by the Contract Documents.

3.04 SCHEDULE

- A. Not used

END OF SECTION

SECTION 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Nameplates.
 - 2. Tags.
 - 3. Pipe markers.
 - 4. Labels.

1.02 REFERENCES

- A. American Society of Mechanical Engineers:
 - 1. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.03 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit manufacturers catalog literature for each product required.
- C. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.

1.04 QUALITY ASSURANCE

- A. Conform to ASME A13.1 for color scheme for identification of piping systems and accessories.

1.05 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.01 NAMEPLATES

- A. Manufacturers:
 - 1. Craftmark Pipe Markers.
 - 2. Kolbi Pipe Marker Co.
 - 3. Pipemarket.com; Brimar Industries, Inc.
 - 4. Seton Identification Products; a Brady Corporation company.
- B. Product Description: Laminated three-layer plastic with engraved black letters on light contrasting background color.

2.02 TAGS

- A. Metal Tags:
 - 1. Manufacturers:
 - a. Brady ID.
 - b. Craftmark Pipe Markers.
 - c. Kolbi Pipe Marker Co.
 - d. Marking Services, Inc.
 - e. Pipemarket.com; Brimar Industries, Inc.
 - f. R & R Identification Co.
 - g. Seton Identification Products; a Brady Corporation company.
 - 2. Brass with stamped letters; tag size minimum 1-1/2 inches diameter with finished edges.
- B. Information Tags:
 - 1. Manufacturers:
 - a. Brady ID.
 - b. Seton Identification Products; a Brady Corporation company.
 - 2. Clear plastic with printed "Danger," "Caution," or "Warning" and message; size 3-1/4 x 5-5/8 inches with grommet and self-locking nylon ties.

2.03 PIPE MARKERS

- A. Color and Lettering: Conform to ASME A13.1.
- B. Plastic Pipe Markers
 - 1. Manufacturers:
 - a. Brady ID.
 - b. Craftmark Pipe Markers.
 - c. Marking Services, Inc.
 - d. R & R Identification Co.
 - e. Seton Identification Products; a Brady Corporation company.
 - 2. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.

2.04 LABELS

- A. Manufacturers:
 - 1. Brady ID.
 - 2. Seton Identification Products; a Brady Corporation company.
- B. Description: Polyester, size 1.9 x 0.75 inches, adhesive backed with printed identification.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

- A. Install identifying devices after completion of coverings and painting.
- B. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.
- C. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.
- D. Install tags using corrosion resistant chain. Number tags consecutively by location.
- E. Identify pumps with plastic nameplates on or near equipment..
- F. Identify control panels and major control components outside panels with plastic nameplates.
- G. Identify valves in main and branch piping with tags.
- H. Identify piping, concealed or exposed, with plastic pipe markers. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.

3.03 SCHEDULES

- A. Identification:
 - 1. Sanitary Waste and Vent Piping.
 - a. Background Color: Conform to owner standards.
 - b. Lettering Color: Conform to owner standards.

END OF SECTION

SECTION 22 13 00 - FACILITY SANITARY SEWERAGE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Sanitary sewer piping above grade.
 2. Unions and flanges.
 3. Valves.
 4. Pipe hangers and supports.
 5. Mechanical Sleeve Seals.
 6. Floor drains.

1.02 REFERENCES

- A. American Society of Mechanical Engineers:
1. ASME A112.14.1 - Backwater Valves.
 2. ASME A112.14.3 - Grease Interceptors.
 3. ASME A112.14.4 - Grease Removal Devices.
 4. ASME A112.21.1 - Floor Drains.
 5. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
 6. ASME B16.3 - Malleable Iron Threaded Fittings.
 7. ASME B16.4 - Gray Iron Threaded Fittings.
 8. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings (DWV).
 9. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.
 10. ASME B31.9 - Building Services Piping.
- B. ASTM International:
1. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings.
 2. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 3. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
 4. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
 5. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.
 6. ASTM A536 - Standard Specification for Ductile Iron Castings.
 7. ASTM B32 - Standard Specification for Solder Metal.
 8. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes.
 9. ASTM B43 - Standard Specification for Seamless Red Brass Pipe, Standard Sizes.
 10. ASTM B75 - Standard Specification for Seamless Copper Tube.
 11. ASTM B75M - Standard Specification for Seamless Copper Tube (Metric).
 12. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
 13. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric).
 14. ASTM B251 - Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube.

15. ASTM B251M - Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube (Metric).
16. ASTM B302 - Standard Specification for Threadless Copper Pipe, Standard Sizes.
17. ASTM B306 - Standard Specification for Copper Drainage Tube (DWV).
18. ASTM C14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
19. ASTM C14M - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe (Metric).
20. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
21. ASTM C76M - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (Metric).
22. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
23. ASTM C443M - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets (Metric).
24. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
25. ASTM C478M - Standard Specification for Precast Reinforced Concrete Manhole Sections (Metric).
26. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
27. ASTM C1053 - Standard Specification for Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications.
28. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
29. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.
30. ASTM D2241 - Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.
31. ASTM D2464 - Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
32. ASTM D2466 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
33. ASTM D2467 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
34. ASTM D2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
35. ASTM D2661 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings.
36. ASTM D2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
37. ASTM D2729 - Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
38. ASTM D2751 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
39. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
40. ASTM D2996 - Standard Specification for Filament-Wound Fiberglass (Glass-Fiber-Reinforced Thermosetting Resin) Pipe.
41. ASTM D2997 - Standard Specification for Centrifugally Cast Fiberglass (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe.
42. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

43. ASTM D3262 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe.
 44. ASTM D3517 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pressure Pipe.
 45. ASTM D3754 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer and Industrial Pressure Pipe.
 46. ASTM D3840 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Fittings for Nonpressure Applications.
 47. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 48. ASTM F628 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core.
 49. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.
 50. ASTM F1476 - Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications.
- C. Cast Iron Soil Pipe Institute:
1. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.
 2. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.
- D. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
 2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
 3. MSS SP 70 - Cast Iron Gate Valves, Flanged and Threaded Ends.
 4. MSS SP 71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
 5. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
 6. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.
 7. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
- E. Plumbing and Drainage Institute:
1. PDI G101 - Standard - Testing and Rating Procedure for Grease Interceptors.

1.03 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data:
1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturers catalog information.
 2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.
 3. Hangers and Supports: Submit manufacturers catalog information including load capacity.
 4. Sanitary Drainage Specialties: Submit manufacturers catalog information, component sizes, rough-in requirements, service sizes, and finishes.
- C. Manufacturer's Installation Instructions: Submit installation instructions for material and equipment.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.04 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of equipment and clean-outs.
- B. Operation and Maintenance Data: Submit frequency of treatment required for interceptors. Include, spare parts lists, exploded assembly views for pumps and equipment.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 – General Equipment.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.06 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.07 WARRANTY

- A. Section 01 78 00 – Operation and Maintenance Manuals.

PART 2 - PRODUCTS

2.01 SANITARY SEWER PIPING, ABOVE GRADE

- A. PVC Pipe: ASTM D2665, polyvinyl chloride (PVC) material.
 - 1. Fittings: ASTM D2665, PVC.
 - 2. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.
- B. PVC Pipe: ASTM D1785 Schedule 80 or ASTM D2241 SDR-26 for not less than 150 psi pressure rating, polyvinyl chloride (PVC) material.
 - 1. Fittings: ASTM D2467, Schedule 80, PVC.
 - 2. Joints: ASTM D2855, solvent weld with ASTM D2564 Solvent cement.

2.02 UNIONS AND FLANGES

- A. Flanges for Pipe 2-1/2 inches and Larger:
 - 1. PVC Piping: PVC flanges.
 - 2. Gaskets: 1/16 inch thick preformed neoprene gaskets.
- B. PVC Pipe Materials: For connections to equipment and valves with threaded connections, furnish solvent-weld socket to screwed joint adapters and unions, or ASTM D2464, Schedule 80, threaded, PVC pipe.

2.03 GATE VALVES

- A. GA-2 2-1/2 inches and Larger: MSS SP 70, Class 125, cast iron body, bronze trim, bolted bonnet, rising stem, hand-wheel, outside screw and yoke, solid wedge disc with bronze seat rings, flanged ends.

2.04 CHECK VALVES

- A. Spring Loaded Check Valves:
 - 1. CK-7 2-1/2 inches and Larger: MSS SP 71, Class 125, globe style, cast iron body, bronze seat, center guided bronze disc, stainless steel spring and screws, flanged ends.

2.05 PIPE HANGERS AND SUPPORTS

- A. Drain, Waste, and Vent: Conform to MSS SP 89.
- B. Hangers for Pipe Sizes 2 inches and Larger: Stainless steel, adjustable, clevis.
- C. Wall Support for Pipe Sizes 3 inches and Larger: Stainless steel bracket and stainless steel clamp.
- D. Vertical Support: Stainless steel riser clamp.

2.06 MECHANICAL SLEEVE SEALS

- A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.07 FLOOR DRAINS

- A. Manufacturers:
 - 1. Josam
 - 2. Jay R. Smith
 - 3. Zurn.
- B. Floor Drain (FD-2): ASME A112.21.1; lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable round nickel-bronze strainer with removable perforated sediment bucket.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Section 013000 - Administrative Requirements: Coordination and project conditions.
- B. Verify excavations are to required grade, dry, and not over-excavated.
- C. Verify openings are ready to receive sleeves.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

- D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.03 INSTALLATION - HANGERS AND SUPPORTS

A. Inserts:

1. Provide inserts for placement in concrete forms.
2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

B. Pipe Hangers and Supports:

1. Install in accordance with MSS SP 89.
2. Support horizontal piping as scheduled.
3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
4. Place hangers within 12 inches of each horizontal elbow.
5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
6. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
7. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.
8. Provide sheet lead packing between hanger or support and piping.
9. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
10. Install hangers adjacent to motor driven equipment with vibration isolation; refer to Section 210548.

3.04 INSTALLATION – SLEEVES

- A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- B. Install chrome plated steel escutcheons at finished surfaces.

3.05 INSTALLATION - ABOVE GROUND PIPING

- A. Establish invert elevations, slopes for drainage to 1/8 inch per foot minimum. Maintain gradients.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom. Do not spread piping, conserve space.
- E. Group piping whenever practical at common elevations.

- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 210516.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation.
- H. Provide access where valves and fittings are not accessible.
- I. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- J. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting.
- K. Install bell and spigot pipe with bell end upstream.
- L. Sleeve pipes passing through partitions, walls and floors.

3.06 FIELD QUALITY CONTROL

- A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Test sanitary waste and vent piping system in accordance with applicable code.

3.07 SCHEDULES

- A. Valve Service:
 - 1. Pumped Sanitary Sewer: GA-2.
- B. Pipe Hanger Spacing:
 - 1. Pipe Material: PVC.
 - a. Maximum Hanger Spacing: 4 feet
 - b. 3/8 inch

END OF SECTION

SECTION 22 14 29.16 - SUBMERSIBLE SUMP PUMPS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Non-submersible sump pumps, controls, and accessories.
 - 2. Submersible sump pumps, controls, and accessories.

1.02 DEFINITIONS

- A. Alternator: A device that changes the starting order of pumps in a multiple-pump system.
- B. Lag Pump: The second pump to be energized in a multiple-pump system.
- C. Lead Pump: The first pump to be energized in a multiple-pump system.

1.03 COORDINATION

- A. Section 01 30 00 - Coordination.
- B. Coordinate Work of this Section with plant operations.

1.04 REFERENCE STANDARDS

- A. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.05 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 - 1. Submit pump type and capacity.
 - 2. Submit certified pump curves showing pump performance characteristics with pump and system operating point plotted, including NPSH curve when applicable.
 - 3. Submit electrical characteristics and connection requirements.
- C. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- D. Manufacturer Reports: Certify that pumps have been installed according to manufacturer's instructions.
- E. Qualifications Statement:
 - 1. Submit qualifications for manufacturer.

1.06 WARRANTY

- A. Section 01 78 00 – Contract Closeout.
- B. Furnish five-year manufacturer's warranty for sump pumps.

PART 2 - PRODUCTS

2.01 SUBMERSIBLE SUMP PUMPS

- A. Manufacturers:
 - 1. Liberty Pumps.
 - 2. RIDGID; Emerson Electric Co., Commercial and Residential Solutions.
 - 3. Goulds Pumps.
 - 4. Zoeller
- B. Description: Completely submersible, vertical, centrifugal.
- C. Casing:
 - 1. Pump Body: Cast iron.
 - 2. Motor Chamber: Oil filled.
- D. Impeller:
 - 1. Type: Open, non-clog, fully recessed.
 - 2. Material: Bronze.
- E. Shaft Material: Stainless steel.
- F. Bearings: Ball type.
- G. Mounting: Slide-away coupling consisting of discharge elbow secured to sump floor, movable bracket, guide pipe system, lifting chain, and chain hooks.
- H. Operation:
 - 1. Electrical Characteristics: Refer to drawings.
 - 2. Controls:
 - a. Duplex:
 - 1) Description: Float-operated mechanical alternator with float rod, stops, and corrosion-resistant float to alternate operation of pumps.
 - 2) Lag pump energized upon rising liquid level or lead pump failure.
 - 3) Lead and lag pumps both energized upon high level float triggered.
 - 3. Disconnect Switch: Mounted in control panel.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Provide line-sized gate valve, line-sized soft seated check valve on pump discharge.
- B. Decrease from line size with long-radius reducing elbows or reducers.
- C. Support piping adjacent to pump independently of pump casings.

3.02 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements.
- B. Check, align, and certify alignment of pumps prior to startup.
- C. Startup and Performance Testing:
 - 1. Operate pump using clear water for continuous period of 10 minutes in presence of Architect/Engineer.
 - 2. Verify pump performance by performing time-drawdown test or time-fill test.
 - 3. Check pump and motor for high temperature and excessive vibration.
 - 4. Check for motor overload by taking ampere readings.
- D. Equipment Acceptance:
 - 1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

3.03 DEMONSTRATION

- A. Section 01 81 00 - Commissioning.
- B. Demonstrate pump startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION

APPENDIX

ATTACHMENT B
GENERAL DECLARATIONS

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, General Information, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered _____, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS _____ DAY OF _____, 202_.

Bidder's Name

Authorized Signature of Bidder

Official Address

(Print Name of Signer Above)

Telephone Number

Email Address for Award Notice

ATTACHMENT C
LEGAL STATUS OF BIDDER

(The bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of _____, for whom _____, bearing the office title of _____, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

• A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

* An individual, whose signature with address, is affixed to this Bid: _____ (initial here)

Authorized Official

_____ **Date** _____, 202__

(Print) Name _____ Title _____

Company:

Address:

Contact Phone () _____ Fax () _____

Email _____

ATTACHMENT D
PREVAILING WAGE DECLARATION OF COMPLIANCE

The "wage and employment requirements" of Section 1:320 of Chapter 14 of Title I of the Ann Arbor City Code mandates that the city not enter any contract, understanding or other arrangement for a public improvement for or on behalf of the city unless the contract provides that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. Where the contract and the Ann Arbor City Code are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used. Further, to the extent that any employees of the contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with section 1:320 of Chapter 14 of Title I of the Code of the City of Ann Arbor, employees shall be paid a prescribed minimum level of compensation (i.e. Living Wage) for the time those employees perform work on the contract in conformance with section 1:815 of Chapter 23 of Title I of the Code of the City of Ann Arbor.

At the request of the city, any contractor or subcontractor shall provide satisfactory proof of compliance with this provision.

The Contractor agrees:

- (a) To pay each of its employees whose wage level is required to comply with federal, state or local prevailing wage law, for work covered or funded by this contract with the City,
- (b) To require each subcontractor performing work covered or funded by this contract with the City to pay each of its employees the applicable prescribed wage level under the conditions stated in subsection (a) or (b) above.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the wage and employment provisions of the Chapter 14 of the Ann Arbor City Code. The undersigned certifies that he/she has read and is familiar with the terms of Section 1:320 of Chapter 14 of the Ann Arbor City Code and by executing this Declaration of Compliance obligates his/her employer and any subcontractor employed by it to perform work on the contract to the wage and employment requirements stated herein. The undersigned further acknowledges and agrees that if it is found to be in violation of the wage and employment requirements of Section 1:320 of the Chapter 14 of the Ann Arbor City Code it shall be deemed a material breach of the terms of the contract and grounds for termination of same by the City.

Company Name

Signature of Authorized Representative

Date

Print Name and Title

Address, City, State, Zip

Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

ATTACHMENT E
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here No. of employees _____

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$14.82/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$16.52/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce

- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Company Name

Street Address

Signature of Authorized Representative

Date

City, State, Zip

Print Name and Title

Phone/Email address

Attachment F

CITY OF ANN ARBOR LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2022 - ENDING APRIL 29, 2023

\$14.82 per hour

If the employer provides health care benefits*

\$16.52 per hour

If the employer does **NOT** provide health care benefits*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

**For Additional Information or to File a Complaint contact
Colin Spencer at 734/794-6500 or cspencer@a2gov.org**



ATTACHEMENT G

Vendor Conflict of Interest Disclosure Form
--

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor’s conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee’s immediate family member has an ownership interest in vendor’s company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor’s Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr style="border: 0; border-top: 1px solid black;"/> <input type="checkbox"/> Interest in vendor’s company <input type="checkbox"/> Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
Vendor Name	Vendor Phone Number	
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

ATTACHMENT H

DECLARATION OF COMPLIANCE

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

Company Name

Signature of Authorized Representative

Date

Print Name and Title

Address, City, State, Zip

Phone/Email Address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

ATTACHMENT I

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.
You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

MICHIGAN DEPARTMENT OF TRANSPORTATION CERTIFIED PAYROLL

COMPLETION OF CERTIFIED PAYROLL FORM FULFILLS THE MINIMUM MDOT PREVAILING WAGE REQUIREMENTS

(1) NAME OF CONTRACTOR / SUBCONTRACTOR (CIRCLE ONE) (2) ADDRESS

(3) PAYROLL NO. (4) FOR WEEK ENDING (5) PROJECT AND LOCATION (6) CONTRACT ID

(a)	(b)	(c)	(d) DAY AND DATE							(e)	(f)	(g)	(h)	(i)	(j) DEDUCTIONS					(k)	
															TOTAL HOURS ON PROJECT	PROJECT RATE OF PAY	PROJECT RATE OF FRINGE PAY	GROSS PROJECT EARNED	GROSS WEEKLY EARNED		TOTAL WEEKLY HOURS WORKED ALL JOBS
EMPLOYEE INFORMATION	WORK CLASSIFICATION	Hour Type	HOURS WORKED ON PROJECT							TOTAL HOURS ON PROJECT	PROJECT RATE OF PAY	PROJECT RATE OF FRINGE PAY	GROSS PROJECT EARNED	GROSS WEEKLY EARNED	TOTAL WEEKLY HOURS WORKED ALL JOBS	FICA	FEDERAL	STATE	OTHER	TOTAL DEDUCT	TOTAL WEEKLY WAGES PAID FOR ALL JOBS
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S							0											\$0.00	\$0.00
NAME:									0				\$0.00							\$0.00	\$0.00

Date _____

I, _____ (Name of Signatory Party) _____ (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the _____ (Contractor or Subcontractor)
 _____; that during the payroll period commencing on the _____ (Building or Work)
 _____ day of _____, _____, and ending the _____ day of _____, _____,
 all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full _____ (Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION
REMARKS:	
NAME AND TITLE	SIGNATURE
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.	