REQUEST FOR PROPOSALS

Canadian River Municipal Water Authority

RFP No. 001-2020
RELEASE DATE: July 22nd, 2020

Roof Installation & Repairs

SUBMITTAL DEADLINE: August 6th, 2020 at 5:00 P.M. (CT)

A. BACKGROUND

The Canadian River Municipal Water Authority ("Authority") owns and operates an aqueduct system that serves 11 Member Cities and a half-million people. The Authority is planning to replace and/or repair roofs on 3 structures. The Authority is therefore requesting that qualified providers submit proposals per the attached specifications.

B. SCOPE OF SERVICES

- Replace Chlorine Building roof with TPO membrane roof system per Appendix A specifications.
- Replace Pumping Plant 1 roof with TPO membrane roof system per Appendix A specifications.
- Replace Headquarters roof with metal shingles per Appendix A specifications.

NOTE: Proposers should own or have access to all equipment and tools necessary to complete the project.

C. SELECTION AND AWARD PROCESS

The Authority will use a three-step process for the final selection of one or more qualified providers:

Step 1 - Proposals submitted by vendors interested in being considered as a provider

For specifications for the roof installation and repair, see Appendix A (attached).

Step 2 – Ranking of Proposals received. The Authority may request additional information or other clarification of the terms of a Proposal with a specific Proposer, or conduct interviews with the Proposers to assist in the ranking process. The Authority will evaluate Proposals received, and select up to three (3) candidate Proposals.

Step 3 – Negotiation. The Authority will negotiate with the highest-ranked Proposer candidate first, regarding price, delivery times, fabrication standards, warranty, and other contract terms, and seek to reach agreement on a contract at a fair and reasonable price and other terms deemed favorable to the Authority. If negotiations with that Proposer are unsuccessful, the Authority will negotiate with the next highest-ranked Proposer, and so on, until a satisfactory contract is achieved. All contracts are subject to approval by the Authority's Board of Directors. More than one contract may be awarded.

Ranking of Proposals and, ultimately, selection of providers will be made on the basis of

a. Price / price schedule;

b. Delivery times; responsiveness; lead time required for orders;

d. Proposer's location relative to the Authority's job site;

e. Proposer's experience with the similar roof materials and construction;

f. Ability to meet stated specifications;

g. Quality of the Proposer's goods, including conformance with specifications, performance, performance reliability, and warranty.

h. The extent to which the goods or services meet the Authority's needs;

i. Reputation of the Proposer and of the Proposer's goods and services; the Proposer's past relationship with and provision of goods and/or services to the Authority;

j The impact on the ability of the Authority to comply with laws and rules relating to contracting with historically under-utilized businesses and non-profit organizations employing persons with disabilities;

k. The total long-term cost to the Authority to acquire the Proposer's goods and/or services; and

l. The demonstrated competence and qualifications of the Proposer as determined by the Authority based on information provided in response to the RFP, prior experience of the Authority with the Proposer or any of its principals, and in any interviews the Authority may hold.

Any contract awarded will be based on the Authority's determination of which Proposal(s) by responsible Proposers are the most advantageous to the Authority considering the factors described above.

NO INDIVIDUAL BOARD MEMBER OR STAFF MEMBER OF THE AUTHORITY HAS THE POWER TO LEGALLY OR FINANCIALLY COMMIT THE AUTHORITY TO ANY CONTRACT, AGREEMENT OR PURCHASE ORDER FOR GOODS OR SERVICES UNLESS SPECIFICALLY AUTHORIZED TO DO SO BY THE AUTHORITY'S BOARD OF DIRECTORS OR A PERSON TO WHOM THE BOARD HAS EXPRESSLY DELEGATED SUCH AUTHORITY.

D. SUBMISSION PROCESS, DUE DATE, AND REQUIRED DOCUMENTS

Proposers may submit Proposals (a) in hardcopy form by mail or courier; (b) by fax; or (c) electronic submission (e-mail). Regardless of the form of submittal, the required submittal format standards stated below must be used and all required forms and pages included. Electronic submittals must be in pdf format.

Hardcopy submittals:

Two (2) copies of the Proposal, including all required forms and applicable supporting documentation, are required. ***Failure to submit the required number of copies may result in the response being declared unresponsive and not be considered.*** Hardcopy Proposals must be submitted in a sealed envelope or container.

Fax or email submittals:

Only one copy is required to be submitted if submission is by fax or email. Proposer assumes the risk that a faxed copy is not received by the Authority, or if received is not legible in whole or part; illegible or otherwise unreadable faxed Proposals may be disqualified. Electronic (email) submittals must be in pdf format, and signature pages must be signed, dated, scanned and included in the pdf submittal.

Responses not timely received, complete, and legible, will not be considered. Proposals must be received by the Authority at the stated location for submission of responses not later than **5:00 pm Central time on August 6th , 2020**. **The Authority is not responsible for late submissions on account of failed or late mail or courier delivery, failure of legible faxing, or otherwise; it is solely the Proposer's responsibility to ensure the Authority receives the Proposer's submission on time.** Proposals received later than stated deadline will be rejected and returned unopened.

Proposals must be addressed and delivered to:

Canadian River Municipal Water Authority
Chad Pernell, P.E
9875 Water Authority Rd, Sanford, Texas 79078 (for hardcopies)
806-865-3314 (for faxes)
pernell@crmwa.com (for emails)

The outside of the envelope or container (for hardcopies), the cover page (for faxes), and the cover page and email header (for electronic/email submission) must state: **RFP No. 001-2020 PROPOSAL.**

E. CONTENTS OF PROPOSAL

These are the required contents of the responder's Proposal; each element is required:

- The completed, signed and dated **Statement of Qualifications**;
- The completed, signed and dated **Proposal Form**, including all price and delivery terms, shipping charges and other fees, descriptions of applicable warranties, and statement of any conditions or exceptions to the terms of this RFP; and
- Completed, signed and dated **Suspension and Debarment Certification**.

Page Format. Pages shall be 8.5 inches by 11 inches except as otherwise specified in this RFP. Respondents are encouraged to use their own format within the guidelines described in the RFP.

- Maximum page size for graphics: 11 inches by 17 inches.
- Maximum page size for text: 8.5 inches by 11 inches.
- Minimum line spacing: 1.5

- Minimum font size: 11 point (except for documents prepared by others; e.g., Professional Liability Insurance Certificate).
- Minimum margins: 1 inch on all sides.

F. WITHDRAWAL OF PROPOSALS; PRESUMED ACCURACY

Prior to the proposal deadline, an offeror may withdraw its Proposal, and may, if it chooses, submit a new Proposal, if the new Proposal is submitted before the proposal deadline. A request for withdrawal of a Proposal must be submitted in writing to the Contact Person for RFP inquiries identified below, signed by an authorized representative of the offeror, and received by the Contact Person before the proposal deadline.

After the proposal deadline, an offeror may NOT withdraw its Proposal for a period of sixty (60) days after proposal opening, unless withdrawal is required by applicable law or permitted by the Authority for sufficient cause shown. *Offeror's proposal will be a FIRM OFFER to provide the subject goods and services according to the stated prices and terms, held open for this minimum period.*

Each Proposal received will be presumed to be accurate and free from error, unless clear and convincing evidence to the contrary is presented. In the case of disagreement between words and numbers, the words shall control.

G. TIME AND PLACE OF OPENING PROPOSALS

Proposals that have been timely received will be publicly opened at the place for submitting proposals immediately after the deadline for submission, and the names of the proposers will be read aloud.

H. SCHEDULE FOR SELECTION PROCESS

- Authority begins RFP process on **July 23rd, 2020**.
- Questions must be directed in writing to Chad Pernell P.E. (pernell@crmwa.com). Questions and responses will be shared with all identified potential proposers.

- Questions relating to definitions or interpretations of the RFQ must be submitted in writing on or before **5:00 p.m. Central time on July 31st, 2020**.

- Submittals are due **no later than 5:00 p.m. Central time on August 6th , 2020**.
- The Authority anticipates an award will be made within two (2) weeks after the due date.

I. RIGHT OF AUTHORITY TO CANCEL REQUEST FOR PROPOSALS, TO ELECT NOT TO AWARD, TO REJECT PROPOSALS, AND TO WAIVE INFORMALITIES OR IRREGULARITIES

The Authority expressly reserves the right to cancel this RFP at any time, or to elect not to award contracts cited in the RFP, without penalty or obligation to any Proposers; to reject any or all Proposals; to waive any informality or irregularity in any Proposal received; and to be the sole judge of the merits of the Proposals received. Proposers are solely responsible for all costs related to making a response to this RFP; the Authority will not be responsible for any costs to a proposer or would-be proposer even if the RFQ is canceled or the Proposer's response is disqualified for any reason.

By submitting a Proposal, you agree that you are solely responsible for any and all costs involved or incurred by you or on your behalf by any third party in or related to the preparation and submission of your Proposal and any additional information required by the Authority, regardless of whether your Proposal is considered (or not) or is rejected for any reason, or whether you are selected to be one of the candidates or not.

J. EQUAL OPPORTUNITY IN AUTHORITY BUSINESS CONTRACTING

Race, religion, sex, color, ethnicity, and national origin are not used as criteria in the Authority's business contracting practices. Every effort is made to ensure that all persons regardless of race, religion, sex, color, ethnicity and national origin have equal opportunity to compete or make proposals for contracts and other business opportunities with the Authority.

K. INQUIRIES AND INTERPRETATIONS

Responses to inquiries that directly affect an interpretation or change to the RFP are issued in writing by the Authority as an addendum to the RFP. All such addenda issued before the time that responses are due will be considered part of this RFP.

Only responses to those inquiries to which the Authority formally replies by issuing addenda will be binding. Oral and other interpretations or clarifications will not be considered to be part of this RFP and will be without legal effect.

The Authority is aware of the time and effort you expend in preparing and submitting your Proposal. Please let us know if any requirement causes you undue difficulty in responding to this RFP. We want to facilitate your participation so that all potential proposers can compete for the Authority's business. If you have any questions, please contact Chad Pernell (pernell@crmwa.com).

L. THE AUTHORITY'S RIGHT TO AUDIT

At any time during the term of any contract that is awarded based on this RFP, or thereafter, the Authority reserves the right to audit Contractor's records and books relevant to all services provided to the Authority under the contract, or to have a duly authorized audit representative of the Authority conduct an audit, at the Authority's expense and at reasonable times. In the

event such an audit reveals any errors or overpayments by the Authority, Contractor shall refund to the Authority the full amount of such overpayments within thirty (30) days of such audit findings. The Authority, at its option, reserves the right to deduct and set off any amounts owing to the Authority by the Contractor from any payments due the Contractor under a contract let in relation to this RFQ, or based on any other contract or claim by the Authority.

M. ANTI-LOBBYING PROVISION

DURING THE PERIOD BETWEEN THE PROPOSAL SUBMISSION DATE AND THE CONTRACT AWARD, IF ANY, A PROPOSER OR PROSPECTIVE PROPOSER, INCLUDING ITS PRINCIPALS OR OTHER OWNERS, OFFICERS, EMPLOYEES, CONTRACTORS, AGENTS AND REPRESENTATIVES, SHALL NOT DISCUSS OR PROMOTE ITS PROPOSAL OR WOULD-BE PROPOSAL WITH ANY MEMBER OF THE AUTHORTY'S BOARD OF DIRECTORS OR STAFF EXCEPT UPON THE REQUEST OF THE AUTHORITY IN THE COURSE OF AUTHORITY-SPONSORED INQUIRIES, BRIEFINGS, INTERVIEWS, OR PRESENTATIONS.

This provision is not meant to preclude Proposers or prospective Proposers from discussing other matters with Authority Board members or Authority staff. The policy is intended to create a level playing field for all potential Proposers, assure that contract decisions are made in public, and to protect the integrity of the RFP process. Its purpose is to stimulate competition, prevent favoritism and secure the best work and materials at the lowest practicable price, for the best interests and benefit of the Authority and its customers. Violation of this provision may result in disqualification of the Proposer.

N. NO ARBITRATION

The Authority reserves the right to exercise any right or remedy available to it by law, contract, equity, or otherwise, including without limitation, the right to seek any and all forms of relief in a court of competent jurisdiction. The Authority shall not be subject to any arbitration process prior to exercising its unrestricted right to seek a judicial remedy, or without the Authority's written consent to arbitration. The remedies set forth herein or in any contract awarded are cumulative and not exclusive, and may be exercised concurrently. To the extent of any conflict between this provision and another provision in, or related to, this document, this provision shall control.

O. CONTRACT TERM

A contract awarded as a result of this RFP will have an Initial Term of two (2) years, commencing on or about **August 12th, 2020, and ending on or about August 12th, 2022**, with the possibility of up to two (2) Renewal Terms of two (2) years each.

P. CONTRACT DOCUMENTS

The "Contract Documents" will include a Main Agreement negotiated by the parties including the specifications accompanying this RFP, the RFP itself and any addenda, and the successful Proposal. In the event of any ambiguity, contradiction or other conflict between and among

these Contract Documents, the documents will be given priority in this order: (1) the Main Agreement including any specifications; (2) the RFP as modified by any addenda; and (3) the Proposal.

Q. WAIVER OF CLAIMS BASED ON PROPOSAL

EACH OFFEROR BY SUBMISSION OF A PROPOSAL TO THIS REQUEST FOR PROPOSALS WAIVES ANY CLAIMS IT HAS OR MAY HAVE AGAINST THE AUTHORITY, ITS ELECTED OFFICIALS**,** EMPLOYEES, OFFICERS, AGENTS, AND REPRESENTATIVES, ENGINEERS, AND OTHER CONSULTANTS, CONNECTED WITH, RELATED TO, OR ARISING FROM THIS REQUEST FOR PROPOSALS, INCLUDING, WITHOUT LIMITATION, THE ADMINISTRATION OF THE REQUEST FOR PROPOSALS, THE PROPOSAL EVALUATIONS, AND THE SELECTION OR NON-SELECTION OF THE OFFEROR. SUBMISSION OF A PROPOSAL INDICATES OFFEROR'S ACCEPTANCE THAT SOME SUBJECTIVE JUDGMENTS MUST BE MADE BY THE AUTHORITY DURING THE SELECTION PROCESS. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, EACH OFFEROR ACKNOWLEDGES THAT THE AUTHORITY WILL DOCUMENT THE BASIS OF ITS SELECTION AND WILL MAKE THE EVALUATIONS PUBLIC NOT LATER THAN THE 7TH DAY AFTER THE DATE THE CONTRACT OR CONTRACTS HAVE BEEN AWARDED, AND THE OFFEROR WAIVES ANY CLAIM IT HAS OR MAY HAVE AGAINST THE ABOVE-NAMED PERSONS AND ENTITIES BASED ON INFORMATION, OPINIONS OR JUDGMENTS CONTAINED IN SUCH EVALUATIONS.

R. CONFLICT OF INTEREST DISCLOSURES

1. Chapter 176 (Form CIQ)

Offerors must determine if they are required under Chapter 176 of the Texas Local Government Code (as amended by H.B. 1491, 80th Legislature, Regular Session) to file a completed conflict of interest disclosure with the Authority; if so, the Conflict of Interest Questionnaire (Form CIQ, available on the website of the Texas Ethics Commission) MUST be completed and submitted with Offeror's Proposal. *NOTE: If the factors regarding an Offeror's obligation to file exist, the Offeror is required to file the Form CIQ disclosure for merely seeking a contract with the Authority, i.e., by merely submitting a Proposal.*

2. HGB 1295 (Form 1295)

Successful Proposers are required to provide an HB 1295 disclosure of "interested parties" (as defined in the Act; *see* Tex. Gov't Code § 2252.908) along with the executed copy of the contract. *The Act specifically provides that no governmental entity may have a contract unless the required disclosure has been provided; failure to provide it may mean the contract is void.* Form 1295 and instructions regarding how to fill it out and to submit it to the Authority are available on the website of the Texas Ethics Commission (TEC).

S. CHOICE OF LAW; VENUE

Any claim or dispute concerning, related to, or arising under this RFP or any contract awarded under it shall be subject to the law of the State of Texas, without giving effect to its choice of law provisions. Venue for any such claim or dispute shall be and lie exclusively in the state and county courts of Hutchinson County, Texas; and by submitting a Proposal, the Offeror agrees to submit to the personal jurisdiction of such courts.

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PRIVACY NOTIFICATION

The principal purpose for requesting this information is for use in the selection process for professionals commissioned by the Canadian River Municipal Water Authority.

Furnishing all information requested on the form is mandatory. Failure to provide such information will delay or may even prevent completion of the action for which the form is being completed. Information on the form is used by the Authority in the consideration of commissions to professionals.

If you consider any portion of your response to be privileged or confidential by statute or judicial decision, including trade secrets and commercial or financial information, clearly identify those portions. Remember that documents submitted to the Authority may be subject to disclosure under the Texas Public Information Act, chapter 552 of the Texas Government Code.

Responses are opened in a manner that avoids disclosure of the contents to competing responders and keeps the responses confidential during negotiations. All responses are open for public inspection after the contract is awarded, although trade secrets and confidential information in the responses may be protected from public disclosure to the extent permitted by the Public Information Act.

The Authority will honor your notations of trade secrets and confidential information and decline to release such information initially, but once a contract is awarded the final determination of whether a particular portion of your response is a trade secret or commercial or financial information that may be withheld from public inspection may be made by the Texas Attorney General or a court. In the event an open records request is received for a portion of your response that you have marked as being confidential, you will be notified of the request and have an opportunity to justify your legal position in writing to the Texas Attorney General under section 552.305 of the Texas Government Code. In the event the Texas Attorney General or a court determines that the information is not privileged under section 552.110, or another section, of the Texas Government Code or section 252.049 of the Texas Local Government Code, that information will be made available to the requester.

Marking your entire submittal CONFIDENTIAL/PROPRIETARY <u>is not</u> in conformance with the Texas Public Information Act and will not be effective except as otherwise recognized by the Public Information Act.

CANADIAN RIVER MUNICIPAL WATER AUTHORITY

Roof Installation and Repair – RFP No. 001-2020

PROPOSER'S STATEMENT OF QUALIFICATIONS

Proposers must complete each of the following items in order to be considered.

1. INDIVIDUAL OR FIRM NAME:

   _____

2. BUSINESS ADDRESS:

   _____

   _____

   _____

3. TELEPHONE, WITH AREA CODE:

   _____

   FAX, WITH AREA CODE:

   _____

   E MAIL ADDRESS:

   _____

   INTERNET URL ADDRESS:

   _____

4. TYPE OF ORGANIZATION: (CHECK ONE)

   a. SOLE PROPRIETORSHIP

   b. PARTNERSHIP

   c. CORPORATION

   d. JOINT VENTURE

5. PRINCIPALS (P) AND ASSOCIATES (A) (WRITE "P" OR "A" FOR EACH), or alternatively, officers and directors (use a separate sheet if additional space is required):

	NAME	P/A	DEGREE/CERTIFICATE	INSTITUTION
a.				
b.				
c.				

6. IDENTIFY FIVE CUSTOMERS TO WHOM YOU HAVE PROVIDED REQUESTED NEW EQUIPMENT OR GOODS, OR REQUESTED SERVICES, WITHIN THE PAST THREE YEARS; ["VALUE" means approximate value of the goods or services provided during the identified period.]:

	Goods or Services	Provided To	YEAR(S)	VALUE
a.				
b.				
c.				
d.				
e.				

7. REFERENCES. (INCLUDE AT LEAST THREE (3) REFERENCES, OTHER THAN THE AUTHORITY, TO WHOM YOU HAVE SUPPLIED THE REQUESTED GOODS (OR SUBSTANTIALLY SIMILAR GOODS) WITHIN THE LAST FIVE (5) YEARS; IF THERE ARE FEWER THAN THREE TO WHOM YOU HAVE PROVIDED THE REQUESTED GOODS OR SUBSTANTIALLY SIMILAR GOODS, BUT TO WHOM YOU HAVE SUPPLIED OTHER SPECIALIZED OR FABRICATED GOODS, YOU MAY INCLUDE THEM.

	ENTITY NAME	CONTACT NAME	PHONE NUMBER
a.			
b.			
c.			
d.			
e.			

Proposer agrees that the Authority may contact the References for information concerning any work performed for or goods or services provided or to the Reference by Proposer, and Proposer consents to the provision of such information by the Reference.

SUBMITTED BY:

Signature:_____ Date:_____

Printed Name:_____ Title:_____

Firm Name:_____ Tel :_____

Address:_____ State:_____ Zip:_____

IFADDITIONAL PAGES ARE ATTACHED *to this Statement of Qualifications, indicate here the total number of additional pages:* _____.

CANADIAN RIVER MUNICIPAL WATER AUTHORITY
Roof Installation & Repairs - RFP No. 001-2020

PROPOSAL

By submitting this Proposal, you agree to the terms and conditions stated in the RFP, and that, if awarded a contract, you will negotiate the terms of the contract in good faith.

PROPOSAL TERMS

a. **Price terms**. Clearly identify all price terms proposed, including all shipping, handling, delivery, set-up, or other charges and fees that may be applicable. If a contract is awarded to you on the basis of your proposal, you agree by the submission of the proposal to provide the goods or services at the stated prices, fees and other charges. The Authority will not be responsible for payment of any unstated costs, fees or other charges;

b. **Lead and response times**. State estimated times for delivery following firm orders placed by the Authority; include separate estimates for lead time if materials required for fabrication must be obtained from third parties, and for fabrication and delivery times once necessary materials are in hand.

c. **Access to fabrication materials**. Describe your ability to obtain needed raw materials and other supplies from third parties; or, if you stock them, indicated that.

d. **Description of warranties** provided (including manufacturer warranties on new or refurbished equipment as applicable, and/or your warranties), and of applicable service standards (the Authority expects all repairs and other service to be compliant with applicable manufacturers' standards); and

e. **Any conditions** that may apply, and/or any **exceptions** you take to the RFP requirements.

f. **Additional information** regarding other of the RFP section C factors you believe is responsive and you wish the Authority to consider.

Indicate here the total number of pages attached to this Proposal Form: _____.

PROPOSAL SUBMITTED BY:

Signature:_____ Date:_____

Printed Name:_____ Title:_____

Firm Name:_____ Tel :_____

Address:_____ State:_____ Zip:_____

SUSPENSION AND DEBARMENT CERTIFICATION

Federal law (A-102 Common Rule and OMB Circular A-110) prohibits non-federal entities from contracting with or making sub-awards under covered transactions to parties that are suspended or debarred or whose principals are suspended or debarred. Covered transactions include procurement contracts for goods or services equal to or in excess of $25,000 and all non-procurement transactions (e.g., sub-awards to sub-recipients).

Contractors receiving individual awards of $25,000 or more and all sub-recipients must certify that their organization and its principals are not suspended or debarred by a federal agency.

Before an award of $25,000 or more can be made to your firm, you must certify that your organization and its principals are not suspended or debarred by a federal agency.

I, the undersigned agent for the firm named below, certify that neither the firm nor its principals are suspended or debarred by a federal agency.

COMPANY NAME:_____

Firm's Federal Tax ID Number:_____

Signature of Company Official:_____

Printed name of company official signing above:_____

Date Signed:_____

CANADIAN RIVER MUNICIPAL WATER AUTHORITY
Roof Replacements – RFP No. 001-2020

APPENDIX A

SPECIFICATIONS

THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Adhered Thermoplastic Polyolefin Roofing Membrane
   2. Thermoplastic Polyolefin Flashings
   3. Thermoplastic Polyolefin Accessories
   4. Roof Insulation
   5. Cover board

1.2 INSTALLER QUALIFICATIONS

A. Roofing installer must:
   1. Meet the qualification requirements set forth by the Authority.
   2. Be in good standing with the membrane manufacturer.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Minimum of twenty (20) years' experience manufacturing membrane roofing systems as specified for this project.
   2. Provide Thermoplastic Fleece-Backed Roofing Membrane with a minimum with the following approvals:
      a. Underwriters Laboratories Class A Rating
      b. Factory Mutual I-90
      c. Miami/Dade County Florida NOA
      d. ICC-ES
      e. Energy Star Partner
      f. TDI – Texas Department of Insurance Product Evaluation

B. Applicator/Installer:
   1. Five (5) years successful experience on projects similar in size and scope.
   2. Accepted by the roof material manufacturer to comply the manufacturer's warranty requirements.
   3. Successfully completed previous projects warranted by the manufacturer.

C. Testing Laboratory Services: Test results shall meet or exceed established standards.

D. Comply with governing local, state, and federal regulations, safety standards, and codes.

1.4 REFERENCES

A. American Society for Testing and Materials (ASTM) - *Annual Book of ASTM Standards*
   1. ASTM D 1079 – Standard Terminology Relating to Roofing and Waterproofing
   2. ASTM D 751 – Standard Test Methods for Coated Fabrics

3. ASTM D 2137 – Standard Test Methods for Rubber Property—Brittleness Point of Flexible Polymers and Coated Fabrics
4. ASTM E 96 – Standard Test Methods for Water Vapor Transmission of Materials
5. ASTM D 1204 – Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
6. ASTM D 471 - Standard Test Method for Rubber Property—Effect of Liquids
7. ASTM D 1149 - Standard Test Methods for Rubber Deterioration—Cracking in an Ozone Controlled Environment
8. ASTM C 1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer
9. ASTM C 1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
10. ASTM EE903 – Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres ***ENERGYSTAR rated only***

B. Industry Standards:
1. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) – Architectural Sheet Metal Manual
2. National Roofing Contractors Association (NRCA) – Roofing and Waterproofing Manual
3. Single-ply Roofing Institute (SPRI) - A Professional Guide to Specifications Manual
4. American Society of Civil Engineers (ASCE) – ASCE 7

1.5 SUBMITTALS

A. Product Data: Provide Manufacturer’s product data sheets for each type of product specified including accessories.

B. Shop Drawings: Provide Manufacturer’s standard details and approved shop drawings for the roof system specified.

C. Samples: Provide samples of insulations, fasteners, membrane materials and accessories for verification of quality.

D. Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

E. Maintenance: Upon completion of project, deliver to the Authority four (4) printed copies of the manufacturer's instructions for care and maintenance of the roof.

F. Submit Manufacturer’s proposed warranty for the warranty requirements as specified.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver all roofing materials to the site in original containers, with factory seals intact.

B. Deliver materials in quantities that allow for continuity of work.

C. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range. Reference data sheets for product storage requirements.

D. Do not expose materials to moisture in any form before, during or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.

E. Use “breathable” type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.

F. Handle and store material and equipment to avoid damage. Rolled goods should be handled as to prevent damage to edge or ends.

G. Products susceptible degradation by freezing shall be maintained above 40° F in heated storage.

H. Material storage shall not be permitted on roof areas other than materials to be installed the same day.

1.7 PERFORMANCE REQUIREMENTS

A. Provide an installed roofing membrane and base flashing system that does not permit the passage of water and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.

B. Manufacturer shall provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.8 PROJECT CONDITIONS

A. Job Condition Requirements:
   1. Proceed with roofing only when existing and forecasted weather conditions permit.
   2. Ambient temperatures must be above 45°F (7.2°C) when applying hot asphalt or water-based adhesives.
   3. Proceed with roofing work when weather conditions comply with manufacturer's recommended limitations, and when conditions permit the work in accordance with specifications.
   4. Coordinate work as to leave the building watertight at the end of each day. Do not remove more roofing material than can be reinstalled in any working day.
   5. The contractor shall take all necessary precautions Contractor to place measures to protect the roof mat and deck from damage. The contractor shall be responsible for repairing all new areas of damage caused by the negligence.
   6. Follow local, state, and federal regulations, safety standards, and codes for the removal, handling, and disposal of asbestos containing materials, if present.
   7. The contractor shall furnish and maintain temporary sanitary facilities for employees use during this project and removed upon project completion.

B. Protection of Work and Property:

1. Maintain adequate protection of all work from damage and protect the Authority's and adjacent property from injury or loss arising from this contract.
2. Provide OSHA required danger signs, guards, and/or obstructions necessary to protect the public and employees from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his proposal.
3. Maintain the Authority’s existing site security.
4. Contractor shall have personnel on call and must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact.

C. Measurements:
1. Contractor is responsible for verification of any necessary dimensions by a job site visit.

D. Use of Premises:
1. Coordinate work as to not interfere with the normal operation of the Pump Stations.
2. Contractor is responsible for protection and safekeeping of products stored on premises.
3. Will not hold the Owner accountable in any and all liability which may be suffered through bodily injuries, including death of any persons by reason of negligence of the contractor, agents, employees, or subcontractors.

E. Cleaning and Disposal of Materials:
1. Contractor shall keep the job clean. Take necessary precautions to keep pumping plant walls clean and not allow roofing materials to remain in contact with walls.
2. Waste materials shall be removed from the Authority's premises as accumulated. At completion, all work areas shall be left clean and contractor's equipment and materials removed from the site.
3. All bituminous or roofing related materials shall be removed from walls or other parts of the pumping plants.
4. Contractor shall dispose of debris shall be deposited at an approved disposal site.

1.9 WARRANTY/GUARANTEE

A. Twenty (20) Year NDL. There shall be no exclusion for 2" hail occurrence. Roofing Membrane Materials manufacturer to guarantee entire system for a period of 20 years from installation. Contractor shall submit documentation of Manufacturer’s proposed warranty per the requirements of SUBMITTALS.

B. The Manufacturer's warranty shall include a 72 mph Wind Rider for roof field and perimeter.

C. Roofing Contractor shall guarantee the entire roofing system for a period of two (2) years from completion.

D. Roofing system shall have watertight guarantee and guarantee against any failures in workmanship and materials. Repair of the system, including materials and labor, shall be performed at no cost to the Authority.

E. Warranty repairs shall be performed by a certified installer. The repairs shall be performed in accordance with the manufacturer's written instructions and recommended procedures so as to not void the warranty.

PART 2 PRODUCTS

2.1 GENERAL

A. The manufacturer shall have 15 years UL listing for the membrane to be used on the project. Membrane manufacturer shall have a minimum of 15 years FM approval, and 15 years manufacturing experience with the roofing membrane specified for this project.

B. Compatibility: Provide manufacturers recommended materials that are fully compatible with indicated substrates. Eliminate contact between incompatible materials with separation materials as necessary.

C. All roofing and accessories shall be installed in compliance with manufacturer's current specifications and details.

2.2 TERMOPLASTIC POLYOLEFIN ROOFING MEMBRANE – TPO

A. Fabric-Reinforced Thermoplastic Polyolefin Sheet: Meets or exceeds the minimum requirements of ASTM D-6878, uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced.
   1. Membrane Thickness: 80 mils, nominal
   2. Fabric Fleece Backed Membrane Thickness: 80 mils
   3. Exposed Face Color: White
   4. Self-Adhered Membrane Thickness: 80 mils, nominal
   5. Exposed Face Color: White
   6. Minimum Roll Width: 10 feet
   7. Serviceable Installation Temperature: 20°F (-7°C) and above.

2.3 FLASHING MEMBRANE

A. A smooth type, polyester scrim reinforced thermoplastic polyolefin membrane with a nominal 80 mil thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-6878.

B. Sheet Flashing (Self-Adhered): 80 mil (1.5 mm) thick, manufacturer's internally reinforced or scrim reinforced with weldable selvage edges on each side of roll, one encapsulated edge and self-adhering capabilities in a wide installation temperature range.

2.4 ROOF INSULATION

A. Rigid polyisocyanurate board roof insulation shall be manufactured or approved by TPO roofing Manufacturer and comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Rigid polyisocyanurate board, with a strong white or black fibrous glass facer conforming to or exceeding the requirements of ASTM C1289 / FS HH-I-1972. Polyisocyanurate board shall be Type II, Class 1, Grade 2.

C. Board Thickness: 2-inch

2.5 ROOF COVER BOARD

A. Fiber-reinforced gypsum panel with an integral water-resistant core.
   1. Board Thickness: 1/2”
   2. Thermal Resistance (R value) of: 0.20

2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain
C. Fasteners:
   1. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide and be as recommended by the fastener manufacturer for the specific application.
D. Polymer Auger Fasteners: Glass-reinforced nylon fasteners with ¼" square drive and 1” head with Galvalume®*-coated 2” metal stress plates, designed to lock into the fastener head. Fasteners designed for fastening roof insulation to substrate and furnished by roofing system manufacturer.
E. Urethane Adhesive: Manufacturer’s two component polyurethane adhesive formulated to adhere insulation to substrate.

2.7 BITUMEN

A. ASTM D 312 Type IV steep asphalt.

2.8 CAULKS

A. Sealant for use at coping joints, reglet joints, etc., shall be a one-component urethane non-sag, gun grade sealant designed for use in active exterior joints, and shall meet or exceed Federal Specification No. 1 TT-S-00230C, Type II, Class A, ASTM C 920. Where joint surfaces are contained or are contaminated with bituminous materials, provide manufacturer's modified-type sealant (modified with coal-tar or asphalt as required), or approved equal.

PART 3 EXECUTION

3.1 REFERENCE

A. The Manufacturer's Technical Specifications shall be considered a part of this specification and should be referred to for more specific application procedures and recommendations.

B. Material application shall be in strict accordance with the manufacturer's recommendations. If more stringent requirements are shown or specified. If a conflict

occurs between these specifications and those of the manufacturer, the more stringent specifications shall be followed.

C. General Installation:
   1. Protect facility walls and adjacent areas with heavy tarps or other durable materials.
   2. Contractor shall be responsible for sealing, as required, all openings that may allow bitumen migration.
   3. Prepare surfaces according to manufacturer's or applicator's published instructions. All metal that is to receive bitumen, or come in contact with bitumen or adhesive, shall be first primed with appropriate primer. Any prefinished sheet steel that is to receive bitumen, or come in contact with bitumen or adhesive, shall be scored, scuffed or abraded prior to receiving primer.
   4. Use cleaning materials or primers necessary to render an acceptable surface/substrate.
   5. All surfaces/substrates shall be clean and dry prior to application of materials.
   6. Prior to application of felts and membrane, all foreign material, gravel and debris shall be removed from the insulation and/or substrate. Gravel or debris between the insulation/substrate and plies is not acceptable.
   7. Ambient temperature shall be 45° F and rising.
   8. The presence of wrinkles, buckles, kinks, and fishmouths are not acceptable when laying membrane.

3.2 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with the requirements affecting performance of roofing system.

   1. General:
      a. Verify that the surfaces are dry and site conditions are ready to receive work.
      b. Verify that roof openings and penetrations are in place, set and braced, roof drains are securely clamped in place and all flashings are tapered.
      c. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations. Verify that nailers match thicknesses of insulation.

   2. Steel Decks:
      a. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.

   3. Ensure general rigidity and proper slope for drainage.
   4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units more than 1/16 inch (1.6 mm) out of plane relative to adjoining deck.

B. Unacceptable panels should be brought to the attention of the General Contractor and Project Owner’s Representative and must be corrected prior to installation of roofing system.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RE-ROOF PREPARATION

A. Remove all roofing membrane, surfacing, coverboards, insulation, fasteners, asphalt, pitch, adhesives, etc.
   1. Remove an area no larger than can be re-roofed in one day.

B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.

C. Steel Deck
   1. Metal decks must be a minimum uncoated thickness of 22 gauge (0.8 mm) and shall have a G-90 galvanized finish on all panels. FM requirements may supersede those set forth in this section. Consult the current FM Guide for more information.
   2. Decks must comply with the gauge and span requirements in the current Factory Mutual FM Approval Guide and be installed in accordance with Loss Prevention Data Sheet 1-28 or specific FM approval.
   3. When re-roofing over steel decks, surface corrosion shall be removed, and repairs to severely corroded areas made. Loose or inadequately secured decking shall be fastened, and irreparable or otherwise defective decking shall be replaced.

D. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSTALLATION - GENERAL

A. Install TPO roofing system in accordance with all current manufacturer’s application requirements in addition to those listed in this section.

B. Start the application of membrane plies at the low point of the roof, so that the flow of water is over or parallel to, but never against the laps.

C. Coordinate installation of roofing system so insulation and other components of the roofing membrane system are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.
   1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning work on adjoining roofing.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 BITUMEN HANDLING

A. Do not mix different types of asphalt.

B. Use only ASTM D 312, Type IV Steep Asphalt. Type IV asphalt must be used on all slopes greater than ½” per foot.

C. Application with hot asphalt requires continuous, uniform mopping rates of 25 pounds (+/- 20%) per 100 square feet of roof area. Rates up to 60 pounds per 100 square feet may be required if the substrate surface is rough or porous.

D. Application temperature of the asphalt must be at the Equiviscous Temperature (EVT) with a tolerance of +/- 25°F, at which a viscosity of 125 centipoise is attained. When using mechanical asphalt applicators, the target viscosity should be 75 centipoise.

E. For all SBS modified asphalt flashings; the minimum application temperature of the asphalt must be at the EVT temperature, typically between 425°F and 475ºF, whichever is greater, with a rolling bank of mopping asphalt across the full width of the roll.

F. Do not heat the asphalt to or above its flash point or hold the asphalt at temperatures above the finished blowing temperature for more than 4 hours.

G. Do not keep heated tankers above 325°F overnight.

3.6 INSULATION

A. GENERAL

1. Coordinate installation of roof system components so insulation and cover board are not exposed to precipitation or left exposed at the end of the workday. Do not install any more insulation than will be completely waterproofed each day.
2. Do not install wet, damaged or warped insulation boards.
3. Install insulation boards with staggered board joints in one direction.
4. Install insulation boards with long joints in a continuous straight line. Joints should be staggered between rows, abutting edges and ends per manufacturer's written instructions. Fill gaps exceeding 1/4 inch (6 mm) with like material.
5. Install insulation boards snug. Gaps between board joints must not exceed ¼".
6. Wood nailers must be 3-1/2" (89 mm) minimum width or 1" wider than metal flange. They shall be of equal thickness as the insulation and be treated for rot resistance. All nailers must be securely fastened to the deck.
7. Do not kick insulation boards into place.
8. Miter and fill the edges of the insulation boards at ridges. Avoid breaking or crushing of the insulation at the corners.
9. Insulation should not be installed over new lightweight insulating concrete.
10. Roof tape, if required over insulation joints, must be laid evenly, smoothly and embedded in a uniform coating of hot steep asphalt with 4" (102 mm) end laps. Care must be taken to assure smooth application of tape, and full embedment of the tape in the asphalt.

B. INSULATION – BASE LAYER APPLICATION

1. The insulation must be securely attached to the roof deck. A minimum FMRC 1-60 attachment is recommended. Refer to FMRC Approval Guide for FM fastening patterns.
2. Factory Mutual requires fastener density increased in corner areas for FM 1-60 as well as perimeter and corner area fastener density increase for FM 1-90 or greater. Refer to FM Loss Prevention Data Sheets 1-7, 1-28, and 1-49.
4. Use only fasteners with a minimum 3-inch stress plate when mechanically attaching insulation. Do not attach insulation with nails.

3.7 COVER BOARD INSTALLATION

A. Coordinate installing membrane roofing system components so cover board is not exposed to precipitation or left exposed at the end of the workday.
B. Comply with membrane roofing system manufacturer's written instructions for installing roof cover board.
C. Install cover board with long joints in a continuous straight line. Joints should be staggered between rows, abutting edges and ends per manufacturer’s written instructions. Fill gaps exceeding 1/4 inch (6 mm) with cover board.
   1. Cut and fit cover board within 1/4 inch (6 mm) of nailers, projections, and penetrations.
D. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water.
   1. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
E. Preliminarily Fastened Insulation for Mechanically Fastened Systems: Install cover board with fasteners at rate required by roofing system manufacturer or applicable authority, whichever is more stringent.
F. Mechanically Fastened Cover Board: Install cover board and secure to deck using mechanical fasteners designed and sized for fastening specified cover board to deck type.
   1. Fasten to resist uplift pressure at corners, perimeter, and field of roof.
G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 MEMBRANE APPLICATION

A. BALLAST APPLIED
   1. Place membrane so that wrinkles and buckles are not formed. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment. Roof membrane shall be mechanically fastened immediately after it is rolled out, followed by welding to adjacent sheets.
   2. Overlap roof membrane a minimum of 3” (76 mm) for side laps and 3” (76 mm) for end laps.
   3. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
   4. All exposed sheet corners shall be rounded a minimum of 1” (25.4 mm).
   5. Use full width rolls in the field of roof and perimeter of the roof.
   6. Membrane laps shall be heat-welded together. All welds shall be continuous, without voids or partial welds. Welds shall be free of burns and scorch marks.
   7. Weld width shall be a minimum of 1-1/2” (39 mm) in width for automatic machine welding. Weld width shall be a minimum 2” (52 mm) in width for hand welding.
   8. All cut edges of reinforced membrane must be sealed Manufacturer’s approved Sealant.
   9. Supplemental membrane attachment is required at the base of all walls and curbs, and where the angle of the substrate changes by more than ten (10) degrees (2” in 12”). Roofing membrane shall be secured to the structural deck with appropriate screws and plates spaced every 12” (610 mm) o.c. The screws and plates must be installed no less than ½” (13 mm)from the membrane edge. Alternatively, the roofing membrane may be turned up the vertical plane a minimum of 3” (76 mm) and secured with screws and termination bar Fastener spacing is the same as is used for in-lap attachment. The termination bar must be installed within 1-1/2” to 2” (13 mm to 52 mm) of the plane of the roof

membrane, with a minimum of 1” (25.4 mm) of membrane extending above the termination bar.

10. Supplemental membrane attachment to the structural deck is required at all penetrations. Roofing membrane shall be secured to the deck with appropriate Drill-Tec™ screws and membrane plates.
11. Fasteners must be installed to achieve the proper embedment depth. Install fasteners without lean or tilt.
12. Install fasteners so that the plate or termination bar is drawn down tightly to the membrane surface. Properly installed fasteners will not allow the plate or termination bar to move (underdriving) but will not cause wrinkling of the membrane (overdriving).

3.03 FLASHINGS

A. GENERAL

1. All penetrations must be at least 24” (610 mm) from curbs, walls, and edges to provide adequate space for proper flashing.
2. Flash all perimeter, curb, and penetration conditions with coated metal, membrane flashing, and flashing accessories as appropriate to the site condition.
3. All coated metal and membrane flashing corners shall be reinforced with preformed corners or non-reinforced membrane.
4. Heat-weld all flashing membranes, accessories, and coated metal. A minimum 2” wide hand weld or minimum 1-1/2" automatic machine weld is required.
5. All cut edges of reinforced membrane must be sealed Manufacturer’s approved Sealant.
6. Consult with membrane Manufacturer for more information on specific construction details, or those not addressed in this section.

B. COATED METAL FLASHINGS

1. Coated metal flashings shall be formed in accordance with current Manufacturer’s construction details and SMACNA guidelines.
2. Coated metal sections used for roof edging, base flashing and coping shall be butted together with a ¼” (7 mm) gap to allow for expansion and contraction. Heat-weld a 6” (152 mm) wide reinforced membrane flashing strip to both sides of the joint, with approximately 1” (25.4 mm) on either side of the joint left un-welded to allow for expansion and contraction. 2” (52 mm)wide aluminum tape can be installed over the joint as a bond-breaker, to prevent welding in this area.
3. Coated metal used for sealant pans, scupper inserts, corners of roof edging, base flashing and coping shall be overlapped or provided with separate metal pieces to create a continuous flange condition, and pop-riveted securely. Heat-weld a 6” (152 mm) wide reinforced membrane flashing strip over all seams that will not be sealed during subsequent flashing installation.
4. Provide a ½” (13 mm) hem for all exposed metal edges to provide corrosion protection and edge reinforcement for improved durability.
5. Provide a ½” (13 mm) hem for all metal flange edges whenever possible to prevent wearing of the roofing and flashing membranes at the flange edge.
6. Coated metal flashings shall be nailed to treated wood nailers or otherwise mechanically attached to the roof deck, wall or curb substrates, in accordance with construction detail requirements.

C. REINFORCED MEMBRANE FLASHINGS

1. The thickness of the flashing membrane shall be the same as the thickness of the roofing membrane.
2. Membrane flashing may either be installed loose or fully adhered to the substrate surface in accordance with “Construction Detail Requirements”.
3. Where flashings are to be fully adhered, apply bonding adhesive at a rate resulting in 60 square feet/gallon of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 square feet/gallon of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 square feet per gallon (Solvent Based) and 250 square feet per gallon (Water Based). A greater quantity of bonding adhesive may be required based upon the substrate surface condition. The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.
4. Apply the adhesive only when outside temperature is above 40°F. Recommended minimum application temperature is 50°F to allow for easier adhesive application.
5. The membrane flashing shall be carefully positioned prior to application to avoid wrinkles and buckles.

D. UN-REINFORCED MEMBRANE FLASHINGS

1. Un-reinforced membrane is used to field-fabricate penetration or reinforcement flashings in locations where preformed corners and pipe boots cannot be properly installed.
2. Penetration flashings constructed of un-reinforced membrane are typically installed in two sections, a horizontal piece that extends onto the roofing membrane and a vertical piece that extends up the penetration. The two pieces are overlapped and hot-air welded together.
3. The un-reinforced membrane flashing shall be adhered to the penetration surface. Apply bonding adhesive at a rate resulting in 60 square feet/gallon of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 square feet/gallon of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 square feet per gallon (Solvent Based) and 250 square feet per gallon (Water Based). A greater quantity of bonding adhesive may be required based upon the substrate surface condition. The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.

E. ROOF EDGES

1. Roof edge flashings are applicable for gravel stop and drip edge conditions as well as for exterior edges of parapet walls.
2. Flash roof edges with coated metal flanged edging with a minimum 3" (76 mm) wide flange nailed 4" (102 mm) on center to wood nailers, and heat weld roof membrane to metal flanges.
3. When the fascia width exceeds 4” (102 mm), coated metal roof edging must be attached with a continuous cleat to secure the lower fascia edge. The cleat must be secured to the building no less than 12” (305 mm) o.c.
4. Flash roof edge scuppers with a coated metal insert that is mechanically attached to the roof edge and integrated as a part of the metal edging.
5. Alternatively, roof edges may be flashed with a 2-piece snap on fascia system, adhering the roof membrane to a metal cant and face nailing the membrane 8” (152 mm) on center prior to installing a snap-on fascia.

a) Submit design drawings for review and approval to Architect or Specifier before fabrication.
b) Installing contractor shall check as-built conditions and verify the manufacturer's roof edging details for accuracy to fit the wall assembly prior to fabrication. The installer shall comply with the roof edging manufacturer's installation guide when setting edging.

F. PARAPET AND BUILDING WALLS

1. Flash walls with EverGuard® TPO membrane adhered to the substrate with bonding adhesive, loose applied (Less than 24" (610 mm) in height) or with coated metal flashing nailed 4" (102 mm) on center to pressure-treated wood nailers.
2. Secure membrane flashing at the top edge with a termination bar. EverGuard® Water Block shall be applied between the wall surface and membrane flashing underneath all exposed termination bars. Exposed termination bars shall be mechanically fastened 8" on center; termination bars that are counter flashed shall be fastened 12" on center.
3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:
   a) Mechanically Attached Systems Use side lap o.c. spacing, with a 12"(305 mm) maximum
   b) Fully Adhered System 12" (305 mm) on center
   c) Ballast Applied Systems 8" (152 mm) on center
4. All coated metal wall flashings and loose applied membrane flashings must be provided with separate metal counterflashings, or metal copings.
5. Metal counterflashings may be optional with fully adhered flashings depending on guarantee requirements. Exposed termination bars must be sealed with Flexseal™ Roofing Cement or Flexseal™ Caulk Grade.
6. Flash wall scuppers with a coated metal insert that is mechanically attached to the wall and integrated as part of the wall flashing.

G. CURBS AND DUCTS

1. Flash curbs and ducts with EverGuard® TPO membrane adhered to the curb substrate with bonding adhesive, loose applied (Less than 24" (610 mm) in height) or with coated metal flashing nailed 4" on center to pressure-treated wood nailers.
2. Secure membrane flashing at the top edge with a termination bar. Water Block shall be applied between the curb/duct surface and membrane flashing underneath all termination bars. Exposed termination bars shall be mechanically fastened every 8" (203 mm) o.c.; termination bars that are counter flashed shall be fastened 12" (305 mm) on center.
3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:
   a) Mechanically Attached Systems Use side lap o.c. spacing, with a 12"(305 mm) maximum
   b) Fully Adhered System 12" (305 mm)on center
   c) Ballast Applied Systems 8" (152 mm) on center
4. All coated metal curb flashings and loose applied membrane flashings must be provided with separate metal counterflashings, or metal copings.

5. Metal counterflashings may be optional with fully adhered flashings depending on guarantee requirements. Exposed termination bars must be sealed with Flexseal™ Roofing Cement.

H. EXPANSION JOINTS

1. The membrane shall be mechanically fastened (or fully adhered based on system) along edge of expansion joint opening with appropriate Drill-Tec□ fasteners and plates within ¼” to ½” of the membrane edge 12” (305 mm) o.c.
2. When expansion joint is on curbs, the reinforced flashing must be bonded to curb face with EverGuard® Bonding Adhesive and membrane on top of curb face must be nailed 12” (305 mm) o.c. with deformed shank roofing nail with 3/8” wide head..
3. The expansion joint cover bellows shall be at least 1.5 times the expansion joint opening.
4. Alternately, expansion joints may be field fabricated.

3.04 SEPARATION MAT

A. Apply a 3 oz poly separation slip-sheet above the roofing membrane under all ballasted installations where existing stone ballast is reused or where the underside of the paver is smooth and regular, and has integral drainage channels.

B. Apply a 6 oz poly cushioning slip-sheet above the roofing membrane under all paver applications where pavers are used as walkways, work surfaces, or as heavyweight perimeter ballast.

C. Loose-lay separation mat over the membrane so that wrinkles and buckles are not formed. Overlap separation mat a minimum of 6” (152 mm)for side and end laps, and immediately install ballast or pavers over the loose laid separation mat.

3.05 INTERLOCKING PAVERS

A. Install interlocking concrete pavers in accordance with requirements determined by the most current revision of ASCE 7, and the paver manufacturer’s recommendations for stagger and interlock.

B. Utilize perimeter securement of interlocking pavers and/or paver clips in accordance with the paver manufacturer’s requirements.

3.06 NON-INTERLOCKING PAVERS

A. Install non-Interlocking concrete pavers in accordance with requirements determined by the most current revision of ASCE 7 and the paver manufacturer’s requirements.

B. Utilize perimeter securement of non-interlocking pavers in accordance with the paver manufacturer’s requirements.

3.07 STONE BALLAST

A. Install stone ballast in accordance with requirements determined by the most current revision of ANSI RP-4.

1. Minimum ballast application rate for #4 nominal 1-1/2" ballast is 10 lbs. per sq.ft.
2. Minimum ballast application rate for #2 nominal 2-1/2" ballast is 13 lbs. per sq.ft.

3.08 ROOF PROTECTION

A. Protect all partially and fully completed roofing work from other trades until completion.

B. Whenever possible, stage materials in such a manner that foot traffic is minimized over completed roof areas.

C. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms shall be installed in order to protect all completed roof areas from traffic and point loading during the application process.

D. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

3.09 CLEAN-UP

A. All work areas are to be kept clean, clear and free of debris at all times.

B. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.

C. All tools and unused materials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.

D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.

E. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.

F. Clean and restore all damaged surfaces to their original condition.

AGGREGATE COATED METAL ROOF PANELS

PART 1 GENERAL

1.1 DESCRIPTION

A. This section provides specifications on the procedures and materials, to remove existing aggregate coated metal roof panels and associated roof trim on the Authority's headquarters building. The aggregate coated metal roof panels are located on the multi-sloped eave portion of the roof. See highlighted portion on multi-slope eave diagram for clarification. Contractor is responsible for verifying slope(s) prior to bidding. The multi-sloped eave portion of this building will receive a new roof

(approximately 34 squares) consistent with the existing metal roof panels, associated trim and underlayment. The Building is located at 9875 Water Authority Road near Sanford, Texas. Vicinity Maps along with location descriptions and Site Map Aerials are include for reference.

1.2 SUMMARY

A. Section Includes
   1. Sheet metal flashing and trim: Metal flashing
      a) Sheet metal flashing and Trim:
   2. Roof accessories: Roof ventilators
   3. Joint sealants: Field applied sealants

1.3 INSTALLER QUALIFICATIONS

A. Roofing installer must:
   1. Meet the qualification requirements set forth by the Authority.
   2. Be in good standing with the panel manufacturer.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Minimum of ten (10) years' experience manufacturing panels of this nature in a permanent indoor industrial production facility.
   2. Meet UL 580 – class 90
   3. Meet UL 790 (ASTM E108 – A, B & C)

B. Applicator/Installer:
   1. Five (5) years successful experience on projects similar in size and scope.
   2. Acceptable to roof material manufacturer for the manufacturer's warranty requirements.
   3. Successfully completed previous projects warranted by the manufacturer.

C. Testing Laboratory Services: Test results shall meet or exceed established standards.

D. Comply with governing local, state, and federal regulations, safety standards, and codes.

1.5 REFERENCES

A. American Society of Mechanical Engineers (ASME) (www.asme.org):
   1. ANSI/ASME B18.6.1 – Wood Screws (Inch Series).
   2. ANSI/ASME B18.6.4 – Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws, Inch Series.

B. ASTM International (ASTM) (www.astm.org):
   1. ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM A 792/A 792M – Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   3. ASTM C 920 – Standard Specification for Elastomeric Joint Sealants.

4. ASTM D 226/D 226M – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
5. ASTM D 1970/D 1970M – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
6. ASTM E 108 – Standard Test Methods for Fire Tests of Roof Coverings.

C. UL (www.ul.com):
1. UL 790 – Standard for Standard Test Methods for Fire Tests of Roof Coverings.
2. UL 2218 – Standard for Impact Resistance of Prepared Roof Covering Materials.

1.6 SUBMITTALS

A. Shop Drawings:
1. Submit complete shop drawings and erection details to Authority for review.
2. Shop drawings show methods of erection, elevations, and plans of roof panels, sections and details, anticipated loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied and proposed identification of component parts and their finishes.

B. Samples:
1. Submit samples and color strips for all proposed finishes.
   a. Submit one (1) Minimum 12 inches by 12 inches.

C. Warranty – Manufacturer:
1. Manufacturer agrees to repair or replace metal singles and accessories that fail within specified warranty period.
   a) Failures include, but are not limited to, the following:
      i) Structural failures including uplift
      ii) Water penetration and hail perforation
      iii) Deterioration of metals, metal finishes and other materials beyond normal weathering.
2. Metal shingle warranty period: 20 years from the date of substantial completion

D. Warranty – Roofing Installer
1. Installer agrees to repair or replace components metal shingles and metal shingle components that fail in material or workmanship within the first two (2) years of substantial completion.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery:
1. Deliver materials to job site properly packaged to provide protection against damage.

B. Handling:
1. Exercise extreme care in unloading, storing, and installing materials to prevent bending, warping, twisting, end and surface damage.

C. Storage:
1. Store all materials and accessories above ground on well skidded platforms.

2. Store under waterproof covering. Provide proper ventilation to prevent condensation buildup between panels.

1.8 FIELD CONDITIONS

A. Environmental Limitations:
Proceed with installation only when existing and forecasted weather conditions permit product installation and related work to be performed in accordance with manufacturer's written instructions and warranty requirements.

PART 2 PRODUCTS

2.1 MATERIALS

A. Steel shingle panels:
1. Factory-formed, interlocking stamped panels resembling multiple shakes
2. Aluminum-zinc alloy coated steel sheet, 26-gauge minimum thickness
3. Fastened in accordance with manufacturer's recommendations
4. Color to match or similar to existing metal shingle panels

B. Aluminum single panels:
1. Factory-formed, interlocking stamped panels resembling multiple shakes
2. 0.040 inch thickness
3. Fastened in accordance with manufacturer's recommendations
4. Color to match or similar to existing metal shingle panels

C. Sheet metal flashing and trim:
1. Metal single manufacturer's flashing and trim components matching shingle material, color and finish. Fabricate to sizes and configurations required for the weathertight installation
2. Valley flashing; Fabricate to extend not less than 8 inches from the centerline of the valley with a splash-diverter rib not less than 3/4" inch high at the flowline formed as part of the flashing

D. Underlayment:
1. Asphalt-Saturated Felt: Organic felt, nonperforated (ASTM D 4869/D 4869M, Type IV)
   a) one layer for slopes equal to or greater than 4:12
   b) two layers for slopes between 3:12 and 4:12

E. Accessories
1. Sealants
   a) ASTM C920, Type S, Grade NS, one-part, non-sag elastomeric polymer joint sealant as recommended in writing by metal shingle manufacturer for installation indicated; of class and use classification required to seal joints and remain watertight. Where sealant is exposed, provide in color matching shingle.
2. Fasteners
   a) Sheet metal fasteners to be noncorrosive screws, nails, and anchors designed to withstand loads and recommended in writing by shingle manufacturer.
      i) Exposed fasteners head color shall match metal shingles using plastic caps or factory-applied coating. Provide metal backed EPDM

or PVC washers under heads of exposed fasteners on weather side of shingles.

ii) Fasteners for flashing and trim shall be blind fasteners or self-drilling screws, gasketed, with hex-washer head.

iii) Blind fasteners shall be high-strength aluminum or stainless-steel rivets suitable for metal being fastened.

iv) Fasteners for aluminum sheeting shall be aluminum or 300 stainless steel.

b) Underlayment fasteners shall be aluminum, stainless steel or hot-dip galvanized-steel wire nails with low-profile metal or plastic caps, 1-inch minimum diameter.

i) Provide with minimum 0.0132-inch thick metal cap, 0.010-inch thick power-driven metal cap or 0.035-inch thick plastic cap; and minimum 0.083-inch thick ring shank or 0.091-inch roof sheathing or to penetrate through roof sheathing less than 3/4 inch thick.

ii) Where nails are in contact with metal shingles or flashing, use nails made from same metal as metal shingles.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:
1. Inspect existing structure and verify sound structural condition for roof panel installation.
2. Verify that installation may be made in accordance with manufacturer's instructions.

B. Discrepancies:
1. In event of discrepancy, notify the Authority.
2. Do not proceed with installation until discrepancies have been resolved.

3.2 INSTALLATION

A. Comply with metal shingle and underlayment manufacturer's written installation instructions.

B. Asphalt-Saturated Felt: Install on roof deck parallel with and starting at eaves and fasten with underlayment nails.
1. Double Layer Installation:
a) Install a 19 inch wide starter course at eaves and completely cover with a 36 inch wide second course.
b) Install succeeding 36 inch wide courses overlapping previous courses 19 inches in shingle fashion.
c) Lap ends a minimum of 4 inches
d) Stagger end laps between succeeding courses at least 72 inches.
2. Install fasteners in a grid patter of 12 inches between side laps with 6 inch spacing at side of end laps.

C. Install panels to be weathertight and without waves, warps, buckles, stresses or distortion.

D. Install panels in accordance with manufacturer's installation instructions

E. Install panels plumb, level, and straight with seams and ribs/battens parallel.

F. Install metal flashings and trim in accordance with manufacturer's written instructions and recommendations.

3.3 CLEANUP AND PROTECTION

A. Sweep panels and flashing clean at the end of each work day and upon project completion.

B. Do not allow fasteners, cuttings, filings or scrapes to accumulate on finished surfaces.

C. Dispose of excess materials and remove debris from site.

D. Clean work in accordance with manufacturer's recommendations.

E. Take precautions to protect against damage until final acceptance. Replace or repair to the satisfaction of the Authority, any work damaged prior to final acceptance.

F. Touch up minor scratches and abrasions.

Below are locations for Pumping Plant 1 and the Chlorine Building with TPO Membrane Roof Systems per the Proposal and Specifications:

Pumping Plant 1
Latitude: 35.710554° ; Longitude: -101.546450°
Description: 1.2 Miles northwest of Sanford, TX

Chlorine Building
Latitude: 35.710554° ; Longitude: -101.546450°
Description: 1.2 Miles northwest of Sanford, TX

Below is the location for the Headquarters Building with Metal Shingles per the Proposal and Specifications:

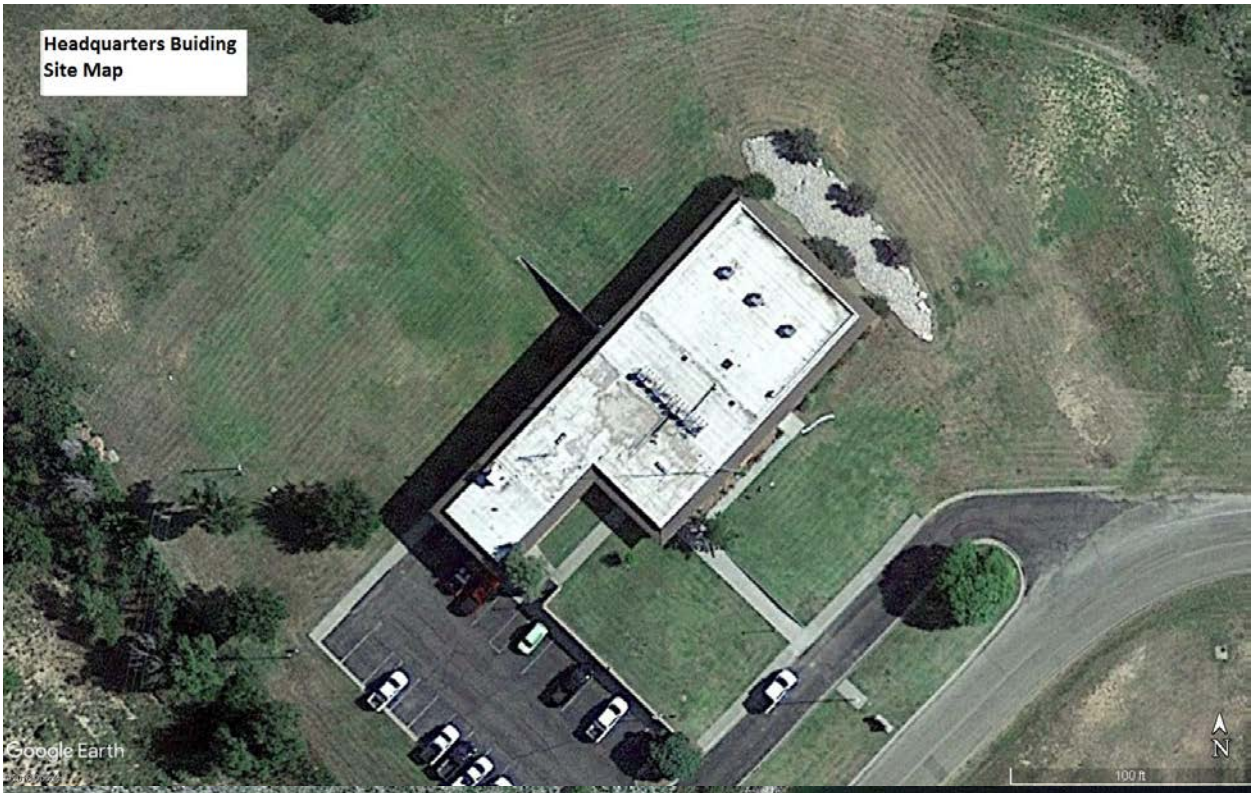
CRMWA Headquarters Building
9875 Water Authority Rd
Sanford, TX 79078

See attached Location Map

See attached Site Maps

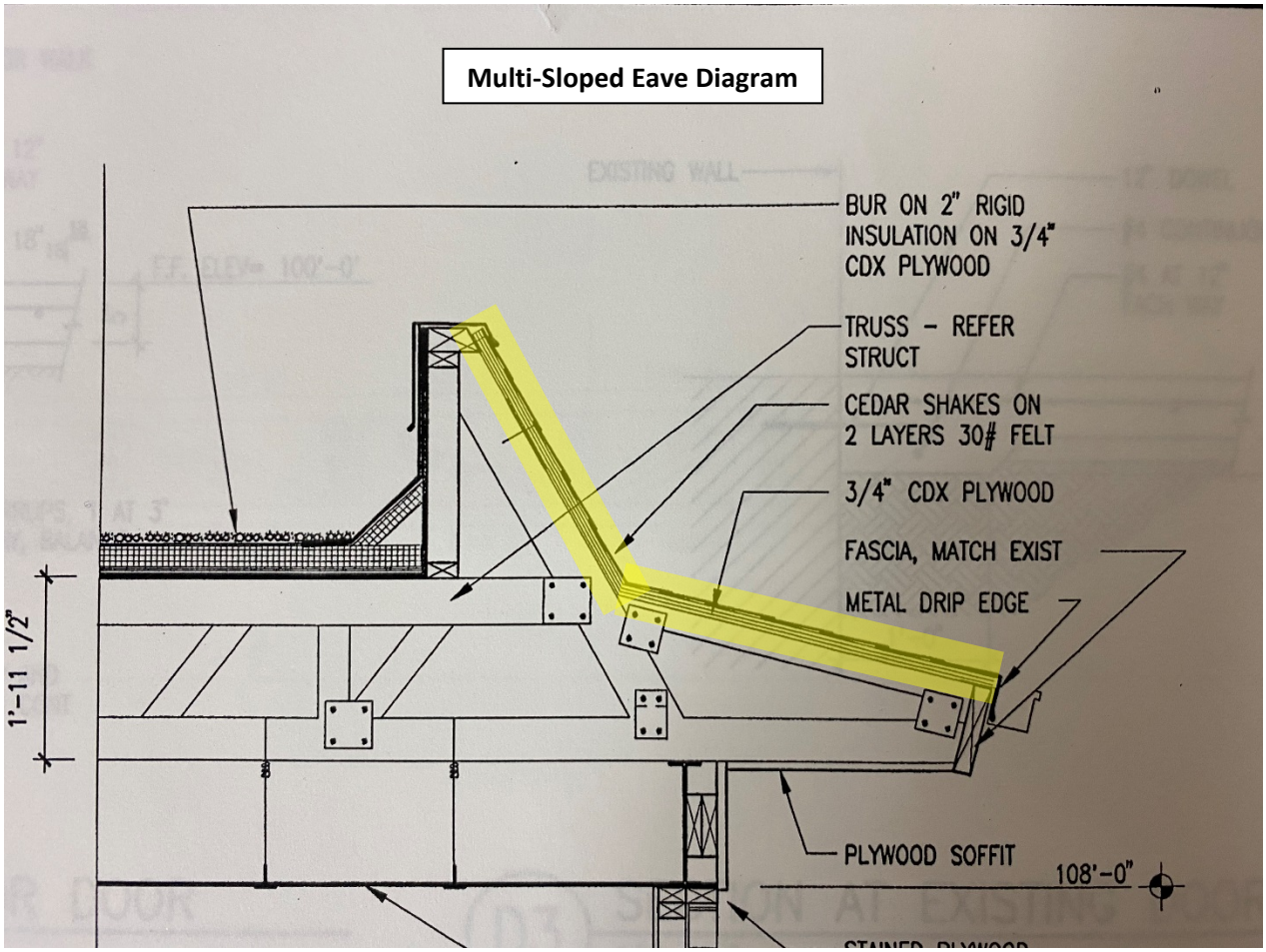
See attached Multi-Sloped Eave Diagram

Location Map
Pumping Plant 1 &
Chlorine Building
Headquarters
Building
Untitled Placemark
Google Earth
687
Main St
Sanford


Headquarters Buiding
Site Map
Google Earth
N
100 ft

Pumping Plant 1 and
Chlorine Bulding Site Map
Google Earth
N
100 ft

Multi-Sloped Eave Diagram



Item	Description	Quantity	Unit	Bid Unit Price
1	Mobilization and demobilization	1	LS	$
	Pumping Plant #1 (Roof Dimensions 150'-10" by 42'-4")			
2	Tear off and disposal of existing PVC roofing membrane, including the removal of fascia bar and steel flashing as necessary, complete	1	LS	$
3	Removal and disposal of existing roof insulation, complete	65	SQ	$
4	Installation of new 2-inch rigid polyisocyanurate board roof installation, including accessories and fasteners as specified, complete and in place	65	SQ	$
5	Replace structurally compromised steel deck with new 22 gauge, 1-1/2" steel deck, including accessories and fasteners as specified, complete and in place	100	SF	$
6	Install ½-inch mechanically attached coverboard, including accessories and fasteners as specified, complete and in place	65	SQ	$
7	Install specified fully adhered membrane system, including accessories, penetrations, flashings, facia bar to terminate the system as specified and required by manufacturer, complete and in place	1	LS	$
	Chlorination Station - Pumping Plant #1 (Roof Dimensions 52'-6" by 26'-6")			
8	Tear off and disposal of existing PVC roofing membrane, including the removal of fascia bar and steel flashing as necessary, complete	1	LS	$
9	Removal and disposal of existing roof insulation, complete	15	SQ	$
10	Installation of new 2-inch rigid polyisocyanurate board roof installation, including accessories and fasteners as specified, complete and in place	15	SQ	$
11	Replace structurally compromised steel deck with new 22 gauge, 1-1/2" steel deck, including accessories and fasteners as specified, complete and in place	100	SF	$
12	Install ½-inch mechanically attached coverboard, including accessories and fasteners as specified, complete and in place	15	SQ	$
13	Install specified fully adhered membrane system, including all accessories, penetrations, flashings, facia bar to terminate the system as specified and required by manufacturer, complete and in place	1	LS	$
	Headquarters Building (7'-9" by 520'-0")			
14	Tear off and disposal of existing preformed steel roof panel, closure strips, ridge cap, eave trim and gutters, complete	1	LS	$
15	Install Asphalt-Saturated Felt: Organic felt, nonperforated , as specified, complete and in place	34	SQ	$
16	Installation of new aggregate coated metal panels with sealant and fasteners, as specifed, complete and in place	34	SQ	$
17	Installation of new gutters with down spouts and all associated hardware, as specified, complete and in place.	520	LF	$

Total Base Bid (Line Items 1-17) $