

Laguna Madre Water District
105 Port Road ~ Port Isabel, TX 78578

REQUEST FOR PROPOSAL

Lift Station # 15 Rehabilitation

Bid#: LS-09 -11 - 01

September 11, 2016

Laguna Madre Water District
105 Port Road Port Isabel, TX 78578

I. INVITATION TO BID

Laguna Madre Water District is accepting sealed bids for the following:

LS - 09 -11 - 01, Lift Station #15 Basin Rehabilitation

Detail specifications and information may be obtained from Victor Valdez, Director of Operations, by calling 956-943-2626 ext. 120.

The sealed bids will be received at the Office of the General Manager until Tuesday October 4, 2016; at which time bids will be opened.

Bidders are encouraged to attend the bid opening, but it is not mandatory. Envelope for the bid should be addressed as follows:

Bid #: LS - 09 -11 - 01
CARLOS J. GALVAN JR., GENERAL MANAGER
LAGUNA MADRE WATER DISTRICT
105 PORT ROAD
PORT ISABEL, TX 78578

II. INSTRUCTION TO BIDDERS

Notice to Bidders

Sealed bids will be received until the time, at the location, and for the products/services specified on the attached Bid Invitation form and as further specified. These bids will be publicly opened at the Laguna Madre Water District office at 105 Port Road Port Isabel, TX, in the presence of bidders and Administrative Staff. Bidder's attendance is optional. After tabulation and review, bids will be presented to the Board of Directors for award of contract. The District reserves the right to review all bids submitted for a period of sixty (60) days after the date of bid opening.

How to Submit a Proposal

All bids shall be submitted in *sealed envelopes*, mailed or delivered to: Laguna Madre Water District, Attention: Carlos J. Galvan Jr. 105 Port Road, Port Isabel, TX 78578, and plainly marked on the outside with **bid number**: It will be the sole responsibility of the bidder to ensure that the proposal reaches the location where bids are to be sent before the closing hour and date shown on the enclosed PROPOSAL-CONTRACT form.

Purpose of Bid

The Laguna Madre Water District intends to secure a source of supply for the product(s) and service(s) at the lowest price; satisfactory manufacture; and prompt and convenient shipment and service by the supplier to the District. Any failure on the part of the supplier to comply with the ensuing conditions and specifications shall be reason for termination of contract.

Rejection of Bids

The District reserves the right to reject any and all bids or to accept the bid or any part thereof which it determines to best serve the needs of the District and to waive any informalities or irregularities in the bids. While cost is a factor in any bid award, it is not the only factor and may not be the determining factor.

Quantities

The quantities or usage shown are estimated only unless otherwise stated. No guarantee or warranty is given or implied by the District as to the total amount that may be or may not be purchased from any resulting contracts. These quantities are for bidders information only and will be used for tabulation and presentation of bid and the District reserves the right to increase or decrease quantities as required.

Bidding on Equivalent Products

If and wherever in the specifications a brand name, make, name of manufacturer, trade name, or vendor catalog number is mentioned, it is the purpose of establishing a grade, quality or other specification of material only. Since the District does not wish to rule out other competition and equal brands or makes, the phrase or approved equal is added. However, if a product other than those specified is bid, it is the bidder's responsibility to name such a product within the bid, and to prove to the District that said product is equal to that specified and to submit brochures, samples, and/or other specification in detail on the item(s) bid. The District shall be the sole judge concerning the merits of bids submitted.

Trade Discounts and Price Variances

Bids on individual items must include unit prices, as well as total price. Where a variance exists on the bid form between the unit price and the extension or whenever other discrepancies are noted between prices on the bid form and prices quoted elsewhere in the bid package, the unit price quoted on the bid form shall prevail.

The District will consider trade discounts and other pricing features in each individual bid prior to determining the successful bidder.

The District intends to evaluate any and all cooperative purchasing options available. When preparing your bid, please include alternates for cooperative purchasing programs offered by your firm or the manufacturer's that you represent that the District would be eligible to purchase through such as HGAC, and Buyboard, etc. where available.

Submissions

Bidders must submit two (2) copies of PROPOSAL-CONTRACT forms.

A. Unless otherwise specified, bidders must use PROPOSAL-CONTRACT forms furnished by the District. Failure to do so may cause a bid to be rejected. Removal of any part of the bid proposal may invalidate the bid.

B. Proposals having any erasures or corrections must be initialed by bidder in ink. Bids shall be signed in longhand, hi ink, by the principal authorized to make contracts. All quotations shall be typewritten or filled in with pen and ink.

Descriptive Data

Bidders must enclose with their bid forms two copies of data sheets, specifications, catalogs or literature completely describing the equipment, product or service to be furnished.

Identification of Bidder

State the full name and address of the organization and any local branches that will be used in the project. Indicate whether you operate as an individual, partnership or corporation. If a joint venture or sub-contractor relationship is contemplated, name the firms and principals involved and give all pertinent information about the organization, similar to the information you supply.

Assignment of Contract

The successful bidder shall not assign, transfer, convey, sublet or otherwise dispose of said contract, or his/her right, title or interest in or to same, or any part thereof, without previous consent in writing from the District Administrator, endorsed on or attached to the Contract.

Service and Parts

Bidders must be prepared to submit evidence to the District, in addition to that required in the attached specifications that qualified personnel and adequate parts inventory are available to maintain all bid equipment in effective operation.

Guarantees/Warranties

Bidders must indicate the full guarantees and/or warranties prevailing on all equipment, parts and labor.

Delivery and/or Completion

Bidders shall indicate delivery or completion date of product(s) or service(s). These dates may be taken into consideration in making the award. Penalties imposed upon the District for late performance, shall be the responsibility of the vendor.

Bid Bond

The bidders shall provide with the proposal a cashier's or certified check or a bid bond in the amount equal to five percent (5%) of the total project price.

All bid securities will be returned to respective bidders within ten days after bids are opened except those which the District elects to hold until the successful bidder has executed the Contract and furnished performance and payment bonds. The successful bidder will receive his bid bond within ten days after execution of the contract and Owner's acceptance of required performance and payment bonds.

Contract Performance and Payment Bond

When a construction contract that exceeds \$50,000 is awarded, the following bonds or security may be required and shall become binding on the parties upon the execution of the contract:

A. A performance bond satisfactory to the District, executed by a surety company authorized to do business in the State of Texas or otherwise secured in a manner satisfactory to the District, in an amount equal to 100% of the price specified in the contract; and

B. A payment bond satisfactory to the District, executed by a surety company authorized to do business in the State of Texas or otherwise secured in a manner satisfactory to the District, for the protection of all persons supplying labor and material to the contractor or its subcontractors for the performance of the work provided for in the contract. The bonds shall be an amount equal to 100% of the price specified in the contract.

Nothing herein shall prevent the requirement of such bonds on construction contracts under \$50,000 when the circumstances warrant.

Manuals, Instructions, Etc.

Successful bidder must deliver with the product two (2) copies each of operation, shop and parts manual; instructions and schematics pertaining to the equipment or product to be furnished to the District.

Samples and/or Demonstrations

Evidence in the form of samples may be requested if brand is other than specified. Such samples are to be furnished after the date of bid opening only upon request of the District unless otherwise stated in the Bid Documents. If samples should be requested, such samples are to be provided at the expense of the bidder and become the property of Laguna Madre Water District unless other agreement is accepted by the District.

Quality

All materials used for the manufacture or construction of any item(s) covered by this bid shall be new. The items bid must be new, the latest model, of the best quality and highest grade of workmanship, unless the option to include supplemental proposals for pre-owned, or demonstrator equipment or materials has been specified by the District.

Default Provision

In case of default by the bidder or contractor, the Laguna Madre Water District may procure the products or services from other sources and hold the bidder or contractor responsible for any excess costs occasioned or incurred thereby.

Compliance with Law

All goods or equipment bid shall comply with all applicable Federal, State, and local laws relative thereto including all safety related items as required by the Federal Occupational Safety and Health Act (OSHA). The successful bidder shall defend actions or claims brought and hold harmless the District from loss, cost or damage by reason of actual or alleged violations of Federal, State or local law in the design or manufacturing of equipment and/or material.

Liability Insurance

The successful bidder must carry Public Liability Insurance with limits of at least \$500,000 to \$1,000,000 to protect the Laguna Madre Water District. Said bidder shall comply with the requirements of all Federal and State Laws and Regulations relating to Social Security, Unemployment Insurance and Workmen's Compensation so that the Laguna Madre Water District will not be liable in any way for any claim evolving from said work in carrying out the contract.

Delivery Provisions

Bid price is to be based upon the delivery terms of Free on Board to each of the Laguna Madre Water District facilities listed on the specifications sheet. Title to the purchased goods does not pass until the item(s) is received by the District.

Withdrawal of Bids

A written request for the withdrawal of a bid or any part thereof will be granted if the request is received by the District Administrator prior to the specified time of opening. Formal bids, amendments thereto, or requests for withdrawal of bids received by the District Budget and Finance Director after time specified for bid opening will not be considered.

Taxes

The Laguna Madre Water District is exempt from Federal Excise Tax and Texas Sales Tax and same shall not be charged to the District.

Hold Harmless Agreement

The successful bidder shall agree to save and hold harmless and defend the Laguna Madre Water District from and against any or all claims, demands, suits and liability for death or injury to any person or damage to or loss of property, which injury, loss or damage is caused by or arises out of the execution of this contract of agreement.

Proposal Costs

All proposal costs are the responsibility of the bidder. Laguna Madre Water District will not be liable for any costs incurred in proposal preparation, presentation or contract negotiation.

Further Information or Clarification

Before submitting a proposal, bidder should carefully examine the entire Contract Document, including the specifications, and by the submission of a bid, the bidder will be understood to have read and be fully informed as to the contents of all of the bidding documents. Bidder should especially note any state or federal regulations and/or requirements in bids involving funds from respective agencies and be prepared to adhere to those requirements.

Should a bidder find any discrepancies, omissions, ambiguities, or conflicts among the contract documents, or be in doubt about their meaning, they should bring such questions to the attention of the Laguna Madre Water District Finance Director no later than five (5) business days prior to the date of the receipt of bids. The Laguna Madre Water District Finance Director will review the questions and, where information sought is not already indicated or specified, there will be a clarifying "Notice to Bidders," which will become part of the Bid Documents. Neither the District nor the Finance Director will be responsible for any oral instructions.

Laguna Madre Water District reserves the right to request any additional information that it may deem necessary before or after the proposal has been received. Should you wish to request any additional information or clarification on this bid; you must do so in writing via email or other delivery method that shall be your sole responsibility prior to the opening of the bids. The District shall be the sole determiner of the appropriateness of your request and whether it shall issue a response.

Should the District deem it appropriate to respond to your request for additional information; both your request and the District's response will be provided to the other bidders.

Your request is to be submitted to:

Victor Valdez

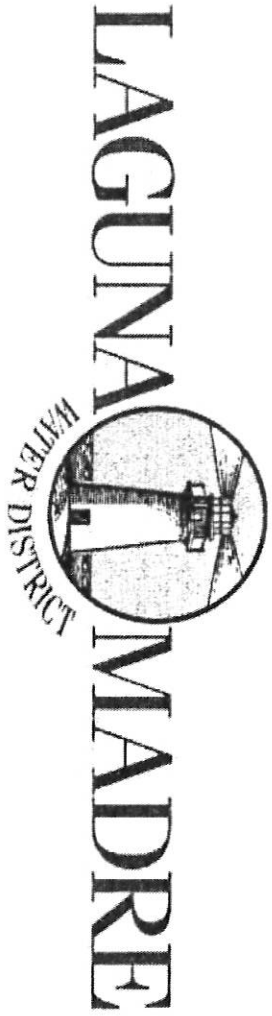
Director of Operations

956-943-2626 Ext. 120/ v-valdez@lmwd.org

Laguna Madre Water District

105 Port Road

Port Isabel, TX 78578



ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION	1	LS	\$	\$
2	BYPASS SETUP W/24HR WATCH AT LS.#15	1	LS	\$	\$
3	INSTALL NEW CONCRETE TOP W/30" COMPOSITE MANHOLE COVER ON LS.#15	1	LS	\$	\$
4	INSTALL 1-4" OF STRUCTURAL REPAIR MOTAR @LS.#15	400	SF	\$	\$
5	TOP COAT W/100% SOLIDS EPOXY @ 125MILLS @LS.#15	400	SF	\$	\$
6	TOTAL AMOUNT OF BID				

Laguna Madre Water District
GENERAL CONDITIONS

Protection against accident to employees and the public. The **Contractor** shall at all times exercise reasonable precautions for the safety of employees and others on or near the work shall comply with all applicable provisions of Federal, State and Municipal safety laws. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention Construction" of the Associated General Contractors of America except where incompatible with Federal, State, or Municipal laws or regulations. The **Contractor** shall provide such machinery guards, safe, ladders, and other safety devices. The safety precautions actually taken and their adequacy shall be the sole responsibility of the contractor, acting as his discretion as an independent contractor.

Indemnification. The **Contractor** shall defend, indemnify and hold harmless the OWNER and its officers, agents and employees, from and against all damages, claims, losses, demands, suits, judgments and costs, including reasonable attorneys' fees and expenses, arising out of or resulting from the performance of the work, provided that any such damages, claim, loss demand, suit judgment, cost or expense:

- (1) Is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting there from; and,
- (2) Is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

The obligation of the **Contractor** under this paragraph shall not extend to the liability of the **OWNER**, his agents or employees arising out of the preparation or approval of maps, drawings, reports, surveys, change order, designs or specifications, or the giving of or the failure to give directions or instructions by the **OWNER**, his agents or employees, provided such giving or failure to give is the primary cause of the injury or damage.

Insurance: The **Contractor** at his own expense shall purchase, maintain and keep in force such insurance as will protect him from claims set forth below which may arise out of or result from the **Contractor's** operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- (1) Workmen's compensation claims, disability benefits and other similar employees benefit acts;
- (2) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees, and claims insured by usual bodily injury liability coverage;
- (3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, and claims insured by usual bodily injury liability coverage's; and
- (4) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting there from.

CERTIFICATE OF INSURANCE: Before commencing any of the work, **Contractor** shall file with the **OWNER** valid Certificates of Insurance acceptable to the **OWNER**. Such Certificates shall contain a provision that coverage afforded under the policies will not be cancelled until at least fifteen days' prior written notice has been given to the **OWNER**.

Safety Provisions

Bidder shall provide barricades, flares, warning signs and/or flagmen so that danger and inconvenience to the public, and job site working personnel will be eliminated. In addition to any other requirements of the contract documents, the bidder shall be responsible for familiarity and compliance with all Federal (OSHA), State, and local safety rules laws and requirements and must be familiar with color code of chemical products to prevent accidents.

Differing Site Conditions:

If, in the performance of the contract, subsurface, latent or concealed conditions at the site are found to be materially different from the information included in the bid documents, or if unknown conditions of an unusual nature are discovered differing materially from the conditions usually inherit in work of the character shown and specified, the Owner shall be notified in writing of such conditions before proceeding with the work. If necessary, the solutions prompt changes to the Contract Amount and/or Time, the Contractor shall be adjusted under the changes clause.

Protection of Adjoining Property

The said contractor shall take proper means to protect the adjacent or adjoining property or properties in any way encountered, which might be injured or seriously affected by any process of ground maintenance to be undertaken under this agreement, from any damage or injury by reason of said process of construction; and he shall be liable for any and all claims for such damage on account of his failure to fully protect all adjoining property. The contractor agrees to indemnify, save and hold harmless the owner against any claim or claims for damages due to injury to adjacent or adjoining property, arising or growing out of the performance of the contract, but any such indemnity shall not apply to any claim of any kind arising out of the existence or character of the work.

Protecting Existing Structures and Facilities

Where excavation or demolishing endangers adjacent structures and utilities, the Contractor shall at his own expense carefully support and protect all such structures and/or utilities so that there will be no failure or settlement. Where it is necessary to remove services, poles, guy wires, pipelines or other obstructions, the Contractors shall notify and cooperate with the utility owner. In case damage to an existing structure or utility occurs, whether failure or settlement, the Contractor shall restore the structure or utility to its original condition and position without compensation from the owner.

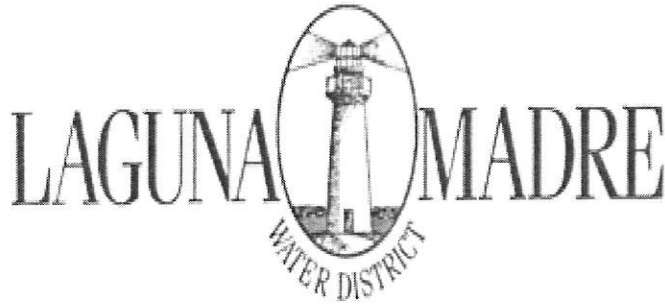
Inspection of Site

Each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and shall fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The contractor, by execution of the contract, shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing and the owner will be justified in rejecting any claim for extra time, or compensation or both based on facts regarding which contractor should have been on notice as a result thereof. Visits to the site shall be arranged by calling Victor Valdez at (956)943-2626 ext. 120.

Addenda and Interpretations

No oral interpretations by owner and its representatives shall be binding upon owner as to the meaning of the plans, specifications, or contract documents.

Every request for such interpretation should be made in writing, addressed to the Purchasing Department of the Laguna Madre Water District 105 Port Road, Port Isabel, TX 78578 and must be received prior to the opening of bids in order to be considered. It will be the bidder's responsibility to inquire as to any addenda issued and failure of any bidder to receive any such addenda or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.



LIFT STATION AND BASIN REHABILITATION

PART 1- GENERAL

1.1 SUMMARY

A. Section includes:

1. Rehabilitation of deteriorated or structurally un sound lift station basins and treatment basins.
 - A. Lining and sealing of concrete and /or masonry walls, ceiling floor, pipe, inlets, to include removal of unsound materials, preparation, chemical grouting, structural grouting, patching, plugging and sealing compounds.
 - B. Surface preparation, and installing of structural linings, corrosion protection coating, and /or flexible corrosion protection lining, to include protection of surfaces not to be treated, touch-up, clean-up and appurtenant work all in accordance with the requirements of the contract documents and this specification.

1.2 Measurement and Payment

A. Unit Price.

1. Measurement and payment for the installation of liner as per specifications is on a square foot basis as indicated in the proposal form.
2. Incidental items include cleaning, preparation, testing, all safety procedures plugs, diversion pumping to complete lining and associated testing, sealing of active leaks, drilling of weep holes if necessary, repair of cracks, holes or any other deterioration, disposal of debris, grouting the existing pipes and surface restoration.

1.3 Performance requirements

- A. Perform work needed to make lift station or treatment basin structurally sound, prevent entrance of inflow or groundwater, prevent entrance of soil or debris, and provide protection against hydrogen sulfide gas attack.

LIFT STATION AND BASIN REHABILITATION

- B. Manufacturer's Product Support - Provide a representative employed by the manufacturer having technical training in admixture and liner to ensure that the work is performed per manufacturer's recommendations. This includes visual examination of the structure after hydroblasting and prior to placement of any liner. The manufacturer's representative will notify the Contractor and the Owner's representative immediately if additional preparatory (hydro blasting, sealing) work is necessary prior to providing concurrence with the lining operations. The manufacturer's representative shall submit a written report within one week of each site visit summarizing observations, recommendations with special notes about corrective actions, and photo(s).
- C. All Contractor personnel performing the lining work shall have confined space entry certification that is up to date. Such certification must be provided as a submittal to the Owner.
- D. Field verification shall be completed by the contractor prior to commencement of work.
- E. Contractor shall verify the finished thickness of each rehabilitation method prior to starting the next layer and upon completion of the work. The Owner may obtain core samples at his discretion.

1.4 QUALITY ASSURANCE

- A. Obtain all chemical grouting materials from a single manufacturer.
- B. Installation shall be completed by firms and individuals trained in methods of installation by the manufacturer with at least five years of experience.
- C. Field verification shall be completed by the contractor prior to commencement of work.
- D. Applicator must provide ACI Shotcrete Nozzleman Certification.
- E. Applicator must provide a minimum of 6 references of successful applications completed.
- F. Applicator must have a minimum of 100,000 SF of successful liner installed.

1.5 SUBMITTALS

- A. Product Data: Submit product data, including surface preparation instructions and application instructions, from manufacturer of wall repair materials, hydraulic cements, quickset mortars, specialized sealants, and grouts.
- B. Contractor is responsible for performing a PH Level Determination test for each basin and submitting the results to the Owner prior to commencing any work.

LIFT STATION AND BASIN REHABILITATION

1.6 MATERIAL HANDLING, DELIVERY AND STORAGE

- A. Materials shall be delivered in the original unopened containers. Each container shall be clearly labeled with the following:
 - 1. Product name
 - 2. Manufacturer's name
 - 3. Component designation
 - 4. Product mix ratio
 - 5. Health and safety information
- B. Provide equipment and personnel to handle the materials which prevent damage. The contractor shall promptly inspect delivered materials for damage.
- C. Store materials in accordance with manufacturer's recommendations.

1.7 WARRANTY

- A. Coating manufacturer shall provide written ten (10) year warranty from date of completion covering defects in material. Warranty that coating material furnished is:
 - 1. Merchantable
 - 2. Fit for purpose specified
- B. Applicator shall provide written ten (10) year installation warranty from date of completion covering defects in workmanship. Warranty coating against:
 - 1. Delamination from substrate
 - 2. Degradation of finish
 - 3. Cracking and spalling of finish
 - 4. Corrosion of substrate due to defects in finish.

PART 2 - PRODUCTS

2.1 WALL CLEANING MATERIAL

- A. High Pressure Water: 5000-psi minimum force.
- B. Cleaners: Detergent or muriatic acid capable of removing dirt, grease, oil and other matter which would prevent a good bond of sealing material to wall. Refer to sealing material manufacturer's recommendations.

LIFT STATION AND BASIN REHABILITATION

- C. Clean the basin walls thoroughly. Use a high-pressure washer to clean the substrate with a sprayer tip. Keep the tip between 6 and 12 inches from the surface and hold at a 45° to 90° angle to the surface. The operator may control and direct the movement of the spray tip across the surface of the basin wall at a speed equal to no more than one foot per second (or 0.3 meters per second). A special cleaning agent, detergent and/ or acid chemical wash may be added to the water for extra dirty, greasy and tough surfaces. The cleaning water may also be heated to 210° for extra tough removal of grease contamination. Take extra special care to remove all debris from the basin. Begin the cleaning process and move down along the wall to the bottom. Use a rotating turbo nozzle that super boost the required pressure to strip away the foreign matter and deleterious materials from the surface. Continue the cleaning procedure to remove loose and protruding aggregate, concrete pieces, and cement mortar; and use a mason's hammer or scraper if necessary.

2.2 WALL REPAIR MATERIALS

- A. Hydraulic Cements: Use a blend of cement powders or hydraulic cement to stop active leaks in the structure that meet the following:
 - 1. Compressive strength of 5500 psi in 28-days
 - 2. Tensile strength of 570 to 650 psi in 28-days
 - 3. Bond strength of 800 to 880 psi in 28 days
- B. Quickset Mortar: Use a quickset mortar to repair wide cracks, holes or disintegrated mortar.

2.3 CORROSION RESISTANT BARRIER (100 SOLIDS EPOXY)

- A. The materials to be utilized in the lining of structures shall be designed and manufactured to withstand the severe effects of hydrogen sulfide in a wastewater environment. Manufacturers of corrosion protection products shall have long proven experience in the production of the lining products utilized and shall have a satisfactory installation record.
- B. The materials shall be applied by an approved manufacturer's certified applicator and must meet the manufacturer's recommendations. Equipment for installation of lining materials shall be high quality grade and be as recommended by the manufacturer.
- C. Acceptable 100 Solids Epoxy products are:
 - D. Warren Epoxy
 - E. Neo Epoxy
 - F. Carboline 4500
- O. If requested by the Owner, the Contractor shall have a manufacturer's representative present on site during the installation of Corrosion Resistant Barrier.

LIFT STATION AND BASIN REHABILITATION

2.4 STRUCTURAL REPAIR LINER

- A. The materials to be utilized in the lining of structures shall be designed and manufactured to withstand the severe effects of hydrogen sulfide in a wastewater environment. Manufacturer of corrosion protection products shall have long proven experience in the production of the lining products utilized and shall have satisfactory installation record.
- B. The materials shall be applied by an approved manufacturer's certified applicator and must have undergone training by the manufacturer. Equipment for installation of lining materials shall be high quality grade and be as recommended by the manufacturer.
- C. This method consists of spray applying a Structural Repair Liner (mortar + aggregate) cementitious mix to the basin walls, ceiling, and floor on the existing basin resulting in a monolithic liner to the thickness as designated on the Proposal Form. The mix(es) shall be batched in accordance with manufacturer's recommendations. Adding water to facilitate application at the nozzle will not be allowed.
- D. Acceptable Structural Repair Liner products are:
 1. Manhole Mortar
 2. MS-2C-Calcium Aluminate Based Liner
 3. Mainstay ML-72

PART 3 - EXECUTION

3.1 DIVERSION PUMPING

- A. Install and operate diversion pumping equipment to maintain sewage flow and to prevent backup or overflow in accordance with requirements of Section 33 32 00.01 - Diversion Pumping. Obtain approval for diversion pumping equipment and procedures from Owner.
- B. Design all piping, joints and accessories to withstand twice the maximum system pressure or 50 psi, whichever is greater.
- C. In the event of accidental spill or overflow, immediately stop the overflow and take action to clean up and disinfect spillage. Promptly notify Owner so that required reporting can be made to the TCEQ and Environmental Protection Agency.

3.2 BASIN CLEANING

- A. The floor, ceiling, piping, pumps, brackets, anchors, and interior walls of the basin shall be thoroughly cleaned and made free of all foreign materials including dirt, grit, roots, oils, grease, sludge, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants which may affect the performance and adhesion of the coating to the substrate.
 1. High pressure water blasting with a minimum of 5000 psi shall be used to clean free all foreign material within the basin.
 2. An approved detergent or muriatic acid shall be used integrally with the high

pressure cleaning water.

3. All materials resulting from the cleaning of the basin shall be removed prior to application of the cement based coating.
 4. All loose or defective concrete aggregate, cement, brick, grout, ledges, steps and protruding ledges shall be removed to provide an even surface prior to application of coating.
- B. Prevent any foreign material from entering the adjoining pipes. Remove droppings of foreign and wall sealant materials before they harden on the bottom of the basin.
- C. Manufacturer's representative shall be available when requested by the Owner on site to answer questions and approve manhole preparation work prior to lining.

3.3 BASIN SEALING

- A. Seal active leaks in the basin structure by using a blend of cement powder or hydraulic cement.
- B. Remove loose or defective wall material. Wipe or brush surface clean prior to the application of hydraulic cements.
- C. Drill weep holes at bottom of manhole walls to relieve hydrostatic pressure to stop leaks. Plug pressure relief holes after leaks are stopped using hydraulic cement materials. Lead wool may also be used to plug large leaks.
- D. Repair wide cracks, holes, or disintegrated mortar with quickset mortars. Follow manufacturer's application procedures.
- E. After all active leaks have been stopped, clean and prepare walls and ceiling for application of selected liner material.
- F. Properly apply the sealing compound to provide the minimum required uniform coating to the wall surface.
- G. Prevent any foreign material from entering the adjoining pipes. Remove droppings of foreign and wall sealant materials before they harden on the bottom of the basin.
- H. Strictly follow product manufacturer's published technical specifications and recommendations for surface preparation, application and proportioning.

3.4 CORROSION RESISTANT BARRIER (100 EPOXY)

- A. The Corrosion Resistant Barrier shall be spray applied as per the manufacturer's recommendation and shall have an average minimum finished thickness of 125 mils or to the thickness as indicated on the Proposal Form.
- B. The Contractor shall make provisions in his unit price bid for each structure to maintain dry conditions for the Corrosion Resistant Barrier application and subsequent curing as per manufacturer's recommendations.

3.5 STRUCTURAL REPAIR LINER

- A. The Structural Repair Liner shall be spray applied as per the

manufacturer's recommendation and shall have an average minimum finished thickness of 1-inch or to the thickness as indicated on the Proposal Form. Use a steel trowel to provide a smooth, even surface before final set. Finish and cure concrete per manufacturer's requirements.

- B. The Contractor shall make provisions in his unit price bid for each structure to maintain dry conditions for the Structural Repair Liner application and subsequent curing as per manufacturer's recommendations. Minimum moist curing time is 18 hours or per manufacturer's requirements, whichever is longer.

3.7 FIELD QUALITY CONTROL

- A. Inform Owner immediately if materials being used are not producing required results or need modification. Owner has the right to stop use of any material at any time.
- B. Upon completion of the project, the manufacturer shall provide a certification stating the liner was applied in accordance with the manufacturer's procedures and recommendations.

3.8 INSPECTION

- A. After basin wall sealing has been completed, visually inspect the basin in the presence of Owner. Check for cleanliness and for elimination of active leaks.
- B. During application of Corrosion Resistant Liner, a wet film thickness gauge, meeting ASTM 04414, shall be used. Measurements shall be taken, documented and attested by the Contractor for submission to the Owner.
- C. At completion of basin rehabilitation assist Owner in verifying installation of minimum coating thickness of 100 Calcium Aluminate Liner. Test several points on the basin surfaces. Repair verification points.
- D. The applicator shall use a digital camera, and or a pole camera system video recorder device, to inspect, verify and report the product system application meets the specification requirements.

3.9 TESTING

- A. After the coating product(s) have set in accordance with manufacturer instructions, all surfaces coated with epoxy liner shall be inspected for holidays with high-voltage holiday detection equipment. The applicator shall use a (holiday) porosity detector to test the epoxy coating system's thickness to verify the work is within the manufacturer's guidelines, or the applicator may employ an approved third party inspector, a NACE accredited inspector or the manufacturer to check the work for defects or holidays using the described porosity detection devices.

LIFT STATION AND BASIN REHABILITATION

1. A precision (Holiday) Porosity Detector such as the Compact High Voltage DC 30 by PCWI: after the epoxy coating has set to the touch, it can be inspected with a high-voltage holiday detector. An induced holiday should be made onto the coated surface and also serve to determine the minimum or maximum voltage to be used to test the epoxy coating at that particular area. The holiday detector shall be set at the required voltage setting as recommended by the manufacturer. All defects should be marked and repaired according to the manufacturer's recommendation.
 2. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional coating can be hand applied to the repair area. All touch-up/repair procedures shall follow the coating manufacturer's recommendations. Documentation on areas tested, results and repairs made shall be provided to Owner by Contractor.
- B. Any deficiencies in the finished coating shall be marked and repaired by the Contractor according to the procedures set forth herein.

END OF SECTION