

ADDENDUM NO. 1

Bid Forms, Specifications and Contract Documents
For
MIDLAND WASTEWATER TREATMENT PLANT IMPROVEMENTS

CONTRACT 2024-1: GENERAL CONSTRUCTION
CONTRACT 2024-2: ELECTRICAL CONSTRUCTION

All Bidders submitting proposals for the above referenced project shall review the following modifications, additions, corrections, and interpretations of the BID DOCUMENTS and SPECIFICATIONS. The items discussed in this ADDENDUM shall be considered and included in all proposals and shall become a part of the CONTRACT DOCUMENTS. Receipt of this ADDENDUM shall be acknowledged in the space provided in the BID FORM. Failure to acknowledge receipt of this ADDENDUM on the space provided may be sufficient cause for rejection of the bid.

Instructions:

1. Refer to the attached questions and answers received from potential bidders and suppliers for informational purposes.
2. Refer to question and answer 7 regarding supplying water to the screen/auger. As an option, the Contractor may connect to the 2" non-potable water line in the yard (the waterline is running out of Administration Building in the direction of the garage) to supply the screen/auger system with water. If this option is used, a curb stop must be supplied and placed on the 1" copper line near the connection point.
3. Refer to question and answer 8 regarding screen/auger freeze protection. Add to specifications Section 11330 part 2.04.B.7: Provide heat tracing for the waterline where it exits the ground and provide heat tracing and insulation blanket to inhibit freezing for the screen and auger system. The auger setup must be supplied by the manufacturer of the equipment specifically for the purpose of protection against freezing.
4. Refer to question and answer 12 regarding primary clarifier concrete elevation. The top of concrete elevation for plan sheets 5 and 11 of 12 is 730.00'. The Contractor shall verify project dimensions in the field prior to ordering gates and stands.
5. Refer to question and answer 13. To clarify, three (3) identical 12" x 12" gates are required for this project matching specifications in the gate schedule.

6. Refer to question and answer 14 regarding Oxidation Tower exterior wall rehab. Revise the notes on plan sheet 8 of 12 as follows: The “non-structural concrete face repairs” and associated SF totals shall be deleted and replaced with re-sealing of the entire exterior wall surface of the oxidation tower from the foundation up.
The concrete block and brick oxidation tower has been previously coated with Sika ThoroSeal concrete and masonry sealant product and presently exhibits hairline cracks throughout. The oxidation tower shall be recoated with two coats of Sika ThoroSeal-581 or approved equal (Contractor to fill cracks per manufacturer’s directions before coating).
7. Refer to question and answer 16 regarding oxidation tower media. Add C.E. Sheperd as an approved equal supplier for equipment specified in Section 13500. Replace Section 13500 with attached revised version. Please note various changes throughout this entire section.
8. Revise Section 01510 part 2.02.A.1 to read as follows:

Provide all pipeline plugs, pumps of adequate size to handle wet weather peak flows (as defined below), and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be replaced. For this project, the bypass pumping system shall be capable of pumping 1.25 million gallons per day utilizing one pump and the system shall also have a spare pump (of the same capacity) on standby that is set to automatically turn on if flows go above 1.25 million gallons per day.
9. On Pump House Elevations – North View (plan Sheet 10 of 12) – revise the note by changing the word “Repoint” to “Re-brick.”

Indicate receipt of Addendum No. 1 by signing below and returning this addendum by fax to Widmer Engineering Inc. at (724) 847-0419 before 4 PM, Monday August 25, 2025.

Name

Company

Date

22126 – MIDLAND WASTEWATER TREATMENT PLANT IMPROVEMENTS

CONTRACT 2024-1: GENERAL CONSTRUCTION

CONTRACT 2024-2: ELECTRICAL CONSTRUCTION

Contractor questions and answers:

Q1: Is there an existing drawing of the pier layout for the Trickling Filter tank?

A1: Yes. Potential bidders may email midlandwwtp@widmerengineering.com and ask for a link to download other site-related documents. Please also refer to 'Instructions to Bidders for Construction Contract', Section 5.03 (on page 6 of 17) for more information.

Q2: Can Sherwin Williams be considered approved equal for coatings?

A2: Additional product information was not received by the engineer in time to decide before the bid. The successful bidder would need to make a submission for this product manufacturer to be considered prior to construction.

Q3: Is a project estimated cost available for the project?

A3: Yes. Approximate ballpark costs for the project are as follows:

General Construction Base Bid: \$1.1 million

Electrical Construction Base Bid: \$600,000

Q4: Where are the details for the work included in Contract 2024-1: General Construction Alternate 1- Spot Repairs to Existing WWTP Structures (Add)?

A4: Refer to Section 01010 – Summary of Work, Section 1.05.A.22 through 1.05.A.28 (beginning on page 01010-6 for description of the work). Refer to plan sheets 6-10 for notes regarding specific buildings.

Q5: Does the Authority have an anticipated construction starting date?

A5: An anticipated construction starting date is not available.

Q6: Where is the Contractor to connect the 1" copper water supply line in the basement of the Administration Building?

A6: There is a 2" non-potable water supply line in the south western portion of the basement on the lowest level (located high on the wall above the sludge pumps). Site visits can be arranged view this location.

Q7: May the Contractor connect the 1" copper water supply line to the 2" non-potable waterline running out of Administration Building in the direction of the garage (in the yard)?

A7: Yes, this would be acceptable. If this option is used, a curb stop must be supplied and placed on the line near the connection point. This has been addressed in Addendum 1.

Q8: Is heat tracing required for the waterline where the waterline exits the ground and on the screen/auger?

A8: Yes. Heat tracing for the waterline and heat tracing and insulation blanket to inhibit freezing for the screen and auger system as supplied by the manufacturer must be provided. This has been addressed in Addendum 1.

Q9: Where does bypass pumping need to begin and end for the headworks portion of the project (i.e. where does the Contractor pump from and to)?

A9: In general, the bypass pumping shall not bypass more treatment units than is strictly necessary to complete the work. For example, pumping from the grit chamber effluent would be preferred to pumping from the junction manhole. See question and answer 10 below for more information.

Q10: How does the Contractor keep the headworks and primary clarifiers operational to the greatest extent practical while completing the modifications to the primary clarifier influent channel (what is the sequence of construction)?

A10: Construction of the new channel (including a screenings removal grinder/auger and flow meter) will be done adjacent to the existing channel. Flow will be unaffected until construction is complete, at which point it will be redirected through the new

channel. The demolition of the existing comminutor and open channel will be completed after the new channel is in service.

Piping into the three primary clarifier tanks is included in this project to provide more even operation and balance the flow between the settling tanks. Currently, wastewater is diverted after exiting the comminutor/flume chamber, flowing into settling tanks 1 and 2 through a 12" pipe and tank 3 through a separate 12" pipe. This arrangement will be updated so that all flow enters the clarifiers through one 16" pipe; a 12" core will be drilled between the distribution chambers for tanks 1&2 and tank 3, connecting all three tanks. New stop gates will be installed, controlling the flow into each tank. Refer to Headworks Sequence of Construction section below for more details.

Headworks Sequence of Construction

1. Construct new open channel for grinder, screenings removal auger and Parshall flume.
2. Isolate primary clarifier tank nos. 1-3 individually and grout closed existing openings between the clarifier and the influent trough. Use existing valve (for tank 3) and/or stop gates (tanks 1 and 2) to isolate individual tanks (in coordination with Plant Staff/Operators). Core new openings and install new stop gates between each clarifier tank and the influent trough.
3. Install new 16" influent line at the center point of influent channel and 16" ductile iron pipe connecting new open channel to clarifiers. Temporarily plug the 16" opening with a removable plug.
4. Isolate primary clarifier no. 3. Grout closed influent line.
5. On a low-flow day, if possible, isolate primary clarifier tank nos. 2 and 3. Core drill the 12" opening to connect influent channels.
6. Transfer flow from the grit chamber into the new channel.
7. Install stop gate on clarifier tank no. 2 side of the old influent line to isolate tank no. 1.
8. Grout old 12" CIP tank no. 1 and 2 influent line closed.
9. Demolish old comminutor and open channel.
10. Portions of the work may require complete bypassing of the primary clarifier tanks to complete (if stop gates or valve do not hold). Bypass pumping in this circumstance shall be provided at no additional cost.

Q11: What is to be done with the lintels?

A11: They shall be cleaned and re-coated in accordance with Section 09910 - General Painting Requirements and Section 09970 - Exterior Coatings.

Q12: Please provide the top of concrete elevation for plan sheets 5 and 11 of 12.

A12: The elevation is 730.00'. Contractor to verify project dimensions in the field prior to ordering gates and stands.

Q13: The gate schedule per specification section 15001 E. calls out equipment #1, I see three new slide gates per the plans. Please confirm the quantity of gates required and each gate equipment ID number.

A13: Three (3) identical 12" x 12" gates are required for this project matching specifications in the gate schedule. They can simply be numbered gate 1, gate 2 and gate 3.

Q14: What are the details for the "non-structural concrete face repairs" shown on plan sheet 8 of 12.

A14: The notes on plan sheet 8 of 12 are to be revised by addendum 1. The "non-structural concrete face repairs" and associated SF totals shall be deleted and replaced with re-sealing of the entire exterior wall surface of the oxidation tower from the foundation up.

The concrete block and brick oxidation tower has been previously coated with Sika ThoroSeal concrete and masonry sealant product and presently exhibits hairline cracks throughout. The oxidation tower shall be recoated with two coats of Sika ThoroSeal-581 or approved equal (Contractor to fill cracks per manufacturer's directions before coating). Refer to Addendum 1.

Q15: Can Franklin Miller be considered approved equal for grinding/screening equipment?

A15: The engineer did not have sufficiently detailed product information in time to decide before the bid that Franklin Miller would be considered an equal. The successful bidder would need to make a submission for this product manufacturer to be considered prior to construction.

Q16: Can CE Sheperd be considered approved equal for oxidation tower media?

A16: Yes. Refer to Addendum 1.

SECTION 13500

OXIDATION TOWER (TRICKLING FILTER) MEDIA

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. Furnish structured media support system, polyvinyl chloride (PVC) structured sheet media modules (Media Modules), protective surface grating and all other components required to complete the Work as specified in this Specification and as shown in the Construction Drawings.
- B. The Work shall include the components shown in the below Table.

1	Number of Towers:	1	Each
2	Tower Diameter:	40	Feet
3	Depth of Media:	16	Feet
4	Media Description	CFS3000 or CF300 <u>or</u> <u>approved equal</u>	
5	Protective Surface Grating	100% Coverage of top Surface Area	
6	FRP Support Grating	Designed by Media Manufacturer	

- C. All dimensions to be field verified by Contractor. The volume of media provided shall include a reasonable allowance for wastage during installation.
- D. Removal and disposal of exiting oxidation tower (trickling filter) media, protective surface grating and structural support components is included in this scope of work.
- E. Replacement of oxidation tower (trickling filter) tower liner is included in this scope of work. Refer to Section 02070 - Geosynthetics.
- F. Bypassing wastewater flow is included in the scope of work.

- G. Coordinate the work in this section with the following Sections:
 - 1. Section 01300 - Submittals
 - 2. Section 02060 - Demolition
 - 3. Section 02070 - Geosynthetics

1.02 REFERENCE STANDARDS

- A. ASTM – American Society for Testing and Materials
- B. AISC Code of Standard Practice

1.03 DEFINITIONS

- A. Media Support Grating– Pultruded Fiber Reinforced Plastic support gratings supplied by oxidation tower (trickling filter) Media manufacturer to support Structured PVC Media Modules while maximizing drainage.
- B. Media Modules - Cross-flow media shall be used for distribution of the wastewater as shown in Engineer’s drawings. The cross-flow media shall be fabricated from PVC sheets and completely corrugated at a 60-degree angle from the horizontal to form a cross-corrugated pattern between adjacent sheets, creating a continuous and horizontal redistribution of air and wastewater. Modules will be either 1 ft. or 2 ft. high, 2 ft. wide, and either 4 ft or 6 ft long.
- C. Protective Surface Grating – Interlocking polypropylene or high density polyethylene panels, a minimum 1-1/4 in. height, to absorb hydraulic impact, provide operator access, provide a protective layer from foot traffic, and added UV protection to the top layer of Structured PVC Media Modules.
- D. Tolerances:
 - 1. Media Support System shall be installed true and level, plus or minus ½ in. in height.
 - 2. Structured PVC Media Modules shall be constructed to ensure that solvent bond points are within ½ in. from the top and bottom of the modules on all sheets.
 - 3. Structured PVC Media Modules tolerances for height and length dimensions shall be plus or minus 1/2", for width dimension shall be -1/4"/+3/4" depending on sheet thickness.
 - 4. A maximum of 2-in. is allowed during installation between the field-cut edges of the Structured PVC Media Modules, the tank perimeter wall and the center column.
 - 5. The top of the AccuPier or VARI-PIER cap and the top of the support ledge (if existing) should be at the same elevation, plus or minus 1/8 in.

1.04 SUBMITTALS

- A. Submit ISO 9001:2015 certificates of the forming and assembly plant and manufacturer’s QA/QC procedures, if applicable.

- B. Shop drawings submittals as required for the following items:
 - 1. The Media Support Grating
 - 2. Structured PVC Media Modules
 - 3. Protective Surface Grating
 - 4. Installation instructions

- C. Product data as required by Engineer.
 - 1. The Media Support System – Materials and Product Characteristics.
 - 2. Structured PVC Media Modules – Materials and Product Characteristics.
 - 3. Protective Surface Grating – Materials and Product Characteristics.
 - 4. Media Test and Evaluation Reports
 - 5. Certificate of compliance with Quality Assurance requirements of Section 1.05 A and B.

- D. Operating and Maintenance (O&M) Instructions:
 - 1. Storage and installation procedures
 - 2. Operating instructions
 - 3. Maintenance instructions
 - 4. Shutdown instructions

1.05 QUALITY ASSURANCE

- A. Qualifications of Manufacturer:
 - 1. The Oxidation tower (trickling filter) Media System shall be as manufactured by Brentwood Industries , C.E. Shepherd Co., L.P. or Approved Equal. Other manufacturers must meet all requirements specified herein. If the equipment accepted requires an arrangement or space differing from that indicated on the Drawings or specified, the Contractor shall prepare and submit to the Engineer for approval detailed drawings and equipment lists showing all necessary changes and embodying all special features of the equipment to be furnished. Such changes, if approved, shall be at no additional cost to the Owner. The Contractor shall assume the cost of, and responsibility for, satisfactorily accomplishing all the necessary changes for installation of the alternate equipment as approved by the Engineer.
 - 2. Oxidation tower (trickling filter) Media System manufacturer shall certify that they have a minimum of 15 installed and operating filters with Structured PVC Media volume of greater than 150,000 cubic feet in wastewater treatment applications in the US, and at least 10 years continuous experience as the manufacturer and supplier of Structured PVC Media Modules in wastewater treatment applications.
 - 3. The Media Support System shall be a standard product of the Manufacturer specifically designed for wastewater applications, and the Oxidation tower

(trickling filter) Media System manufacturer shall certify that they have more than 5 existing Media Support System installations in use in wastewater treatment applications.

4. The Protective Surface Grating shall be a standard product of the Manufacturer specifically designed for wastewater applications, and the Oxidation tower (trickling filter) Media System manufacturer shall certify that they have more than 10 existing installations of the Protective Surface Grating.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. All material shall be shipped, stored, handled, and installed in accordance with Media Manufactures written instructions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Brentwood Industries, Inc. of Reading, Pennsylvania
- B. C.E. Shepherd Co., L.P. of Houston, TX
- C. or approved equal.

2.02 MATERIALS

- A. The media modules shall be manufactured from flame resistant, self-extinguishing polyvinyl chloride (PVC). Due to high flammability and excessive creep, polypropylene (PP) shall not be acceptable.
- B. PVC sheets material shall be conducive to biomass growth and UV protected. PVC Sheets shall be resistant to rot, fungi, bacteria and inorganic/organic acids and alkalis as commonly found in municipal wastewater.
- C. The media manufacturer shall supply a signed certificate certifies all PVC resin supplied for this project contains a minimum of 1.5% (by weight) combined TiO₂ and carbon black (minimum 0.5% of either component) as UV inhibitors.
- D. PVC sheets conforming to ASTM D1784 cell classification 12344B with the following properties:

	Property	ASTM	Units	Value
1	Specific Gravity	D792	gm / cu.cm	1.50 <i>max.</i>
2	Tensile Strength	D638 / D882	psi	6,000 <i>min.</i>
3	Flexural Modulus	D790	psi	525,000 <i>min.</i>
4	Flexural Strength	D790	psi	11,000 <i>min.</i>
5	Elastic Modulus	D638 / D882	psi	360,000 <i>min.</i>

6	Impact Resistance	D5420	in. lbs. / mil	1.0 <i>min.</i>
7	Heat Deflection	D648	°F (264 psi)	158 <i>min.</i>
8	Flammability	D635		<25 mm <5 sec.

2.03 MEDIA SUPPORT SYSTEM

- A. Pultruded fiberglass grating shall be installed on the concrete supports. The Contractor shall confirm the concrete supports meet or exceed the loading requirements. Nominal 12-inch wide by 2-inch tall grating shall be capable of supporting the design load. Grating shall provide 50% void space and sufficient contact with Media Modules to prevent media deformation. The FRP grating, with a net support span of 24-inch, shall have a maximum service load not less than 2,100 PSF under uniform load. Product data shall be submitted to the engineer for review.

2.04 STRUCTURED PVC MEDIA MODULES:

- A. PVC sheets shall be thermoformed into corrugated sheets with dedicated bond points to allow precise alignment of sheets during assembly. PVC Media Modules shall be assembled from corrugated sheets. Sheets shall be solvent bonded at dedicated bond points into a cross-corrugated pattern.
- B. The sheet gauge for each module shall be sufficient to provide the following minimum load bearing strengths:
 1. Modules in the top layer shall have a minimum bearing capacity of 1000 PSF.
 2. Modules in the intermediate layers shall have a minimum bearing capacity of 400 PSF or 40PSF per foot of media height above the module as installed in the filter whichever is greater.
 3. Media modules in the bottom layer shall have a load bearing capacity calculated 40 PSF per foot of media height or 1000 PSF, whichever is greater.
- C. The finished modules shall be suitable for normal wastewater temperatures between 50°F and 75°F.
- D. Media Modules shall be Brentwood Industries model CFS3000, CE Shepherd model CF300, or approved equal.
 1. Flute height for each corrugation shall be 1.20 in. There shall be a minimum of 20 sheets per 24-in. wide assembled Media Module.
 2. Each Structured PVC Media Module must provide a minimum surface area of 31 sq. ft. / cu. ft. with a minimum of 95% void-to-volume ratio.
 3. Modules shall provide a minimum of 180 mixing or redistribution points per cu. ft. to provide diffusion between liquid, air and biomass.
- E. Media Modules assembled from non-thermoformed sheets, sheets with glued or

thermo-bonded joints, and sheets which do not provide dedicated bond points for precise sheet alignment shall not be accepted.

2.05 PROTECTIVE SURFACE GRATING:

- A. Protective Surface Grating shall consist of interlocking polypropylene panels. When installed the grating shall provide a continuous protective surface for the Media Modules, minimize hydraulic impact, provide additional UV protection, and allow operator access to the top of the media.
 - 1. Grating panels shall have nominal measurements of: 24 in. in width, 24 in. in length, 1-¼ in. in height, and shall weigh approx. 2 lbs.
 - 2. Opening in the grating shall be nominal 2 in. by 2 in. to protect media from hydraulic impact.
 - 3. Grating shall have a non-skid surface.
 - 4. Grating must not adversely impact or damage media.
 - 5. Grating design shall be interlocking such that hold down ties, clips or fasteners are not required
- B. Grating shall be Brentwood Industries “AccuGrid” or approved equal.

2.06 MEDIA SHEET TESTING

- A. ISO certified manufacturers can submit their ISO Certificate and historic media testing data and are not subject to mandatory media sheet testing. Non-ISO certified Manufacturers are required to do mandatory media sheet testing as described herein or supply CoC (Certificate of Compliance/Analysis) from the PVC film manufacturer certifying the rollstock for this project meets the material characteristics in Section 2.02.D.
- B. Testing of PVC sheets used in the fabrication of media modules to be used in this project shall be conducted at the media manufacturer’s material testing laboratory or an independent laboratory approved in writing by the Engineer prior to the start of testing.
- C. Testing shall be performed on both the thinnest and heaviest gauge to be used in this project. The engineer and/or owner shall select media sheets from modules delivered to the job site. Parameters to be tested shall include all eight (8) parameters as shown in Table in 2.02 D of this specification. Testing shall conform to all ASTM standards shown in the same Table and shall result in a certified report signed and sealed by a registered PE. Reports from previous projects are not acceptable.
- D. Failure of any one test to meet the required standards will be considered as grounds for rejection of the material. In such an event, the Engineer may request tests on additional sheets, at no cost to the Owner, as necessary to determine the acceptability of the material.

- E. Non-testing of sheets shall be deemed as grounds for not meeting the material properties as shown in Table 2.02D and potential rejection of the media products. All costs associated with media sheet testing shall be borne by the media manufacturer bidding the job.

2.07 MODULE TESTING

- A. All manufacturers are required to do mandatory media module testing as described herein.
- B. ISO certified manufacturers can submit their ISO certificate in lieu of quality management system documentation. Non-ISO certified Manufacturers are required to submit work plans which include QA/QC procedure and corrective actions.
- C. ISO certified Manufacturers to submit a sampling plan for media modules to be tested. For Non-ISO Manufacturers, all tested modules shall come from random pulls of media delivered to the site by the Contractor and/or Engineer. Media packs from the production run and other projects shall not be accepted for Non-ISO manufacturers. Test data from previous projects are not acceptable for either supplier.
- D. All media manufacturers shall provide one structural test for each different media type and each different strength gradation to be used in the project. The structural testing shall be done at the media manufacturers' test facility or at an independent laboratory approved in writing by the project engineer. The structural tests shall conform to the following criteria:
 - 1. The test sample shall consist of four 2 ft. wide by 2 ft. high by 4 ft. long media modules stacked two modules high with two modules in each layer. The arrangement of the stacked modules shall simulate the geometry as placed in the oxidation tower (trickling filter).
 - 2. Modules intended for the base layer shall be tested on a simulation of the media support system. Modules intended for all other layers shall be tested on a flat base.
 - 3. Test loads shall be the design load of the media as specified. The test load shall be at a temperature of 75 °F ±2 °F .
 - 4. A preload equal to 10% of the design load shall be applied to act as a seating load, which shall be retained for 1 hour.
 - 5. After 1 hour, the deflection shall be noted and considered zero and the load increased in 10 percent increments of the design load. Each loading shall be held for 5 minutes and the deflection recorded at the end of the 5-minute period. Incremental loading shall continue until failure.
 - 6. Maximum allowable deflection at the design load shall be 1.0 percent. The term "deflection" shall mean the vertical deflection expressed as percent of the vertical distance between the top and bottom surfaces of the stack of media after the pre-load.

- E. The project engineer shall have the opportunity to witness the media testing or the test results meeting the specified load criteria and maximum allowable deflection shall be certified by a P.E. and submitted to the project engineer for approval prior to the installation of the media.
- F. If any of the modules tested in any strength gradation exhibit a compressive deflection greater than 1%, additional testing will be required of eight additional modules to determine the structural suitability of the media. If the additional testing indicates the media does not meet the specified strength, then the media manufacturer shall replace all media of that strength gradation with new media meeting the specifications and passing the structural testing. The engineer shall have the right to send packs shipped to the jobsite to an independent lab for further testing if in his opinion the packs do not appear to have the strength specified. All expenses shall be at the cost of the media manufacturer.

2.08 SITE TESTING REQUIREMENTS

- A. For Non-ISO certified manufacturer, 2.5% (approximately 1 in 40 packs) of the constructed media modules will be pulled by the Contractor and measured for tolerance. Tolerance tests will be done in accordance with design engineer's instructions and reports for each test will be completed by the Contractor for review by the design engineer. Alternatively, the manufacturer may measure, record and supply pack dimensions for 1 in 40 packs prior to shipment.
- B. For ISO certified manufacturer, QA/QC documents of the media pack assembly facility shall be submitted in lieu of the onsite tolerance testing reports.
- C. If any of the modules tested by the Contractor are out of tolerance in accordance with 1.03.D.3, Contractor is required to inspect all finished media modules for that gradation and pull modules that are out of alignment. Additional compression testing will be required of eight additional modules to determine the structural suitability of the media. If any of the additional testing indicates the media does not meet the specified strength, then the media Manufacturer shall replace all media of that type or strength gradation with new media meeting the specifications and passing the structural testing. Prior to resuming module production, the manufacturer shall perform a review of assembly procedures, identify the cause of the failures, implement corrective actions and repeat the testing, with all expenses at the cost of the Manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Contractor shall field verify all dimensions affecting installation. If any discrepancies are found between actual field measurements and the drawings, Contractor shall notify Engineer before continuing work.

3.02 PREPARATION

- A. Contractor shall protect adjacent surfaces, piping, the distribution system and other existing structures that are indicated to remain as may be required.
- B. Contractor shall remove existing filter media as required or indicated on the drawings and required by the specifications. Dispose of used media in accordance with local laws and regulations. Remove all debris from the base slab and clean as needed to provide a suitable surface for the layout of the proposed media support system.

3.03 MEDIA SUPPORT SYSTEM INSTALLATION

- A. The Media Support System shall be installed in accordance with the Manufacturer's recommendations and installation guidelines, and as indicated on the approved drawings.

3.04 STRUCTURED SHEET MEDIA MODULES INSTALLATION

- A. Media Modules shall be installed and packed in the tower or basin in accordance with Manufacturer's recommendations and as shown on the Installation and layout drawings.

3.05 PROTECTIVE GRATING INSTALLATION

- A. Grating shall be installed in accordance with Manufacturer's recommendations and as shown on the Installation and layout drawings.

3.06 FIELD QUALITY CONTROL

- A. The media manufacturer shall provide the services of a company-employed field technician experienced in the erection, operation and maintenance of the equipment. The manufacturer shall provide 1 trip and 3 consecutive days on-site during the installation of each filter to provide training and instructions on the correct installation of the supplied equipment.

3.07 SYSTEM STARTUP, TRAINING AND TROUBLESHOOTING

- A. System startup shall be coordinated with start-up of the distributor mechanism as required. Contractor shall coordinate with plant Operations staff and media manufacturer's process engineer prior to directing flow to the filter.

END OF SECTION 13500