SOUTH DAVIS SEWER DISTRICT

ADDENDUM NO. 2

NORTH PLANT UPGRADE PROJECT April 29, 2024

This addendum changes and adds to contract documents as noted below. The bidder shall acknowledge this addendum on the bid form, certifying that the addendum was received in its entirety and that the Bidder accepts the conditions herein.

The contract documents are hereby revised as follows:

- **1.1** The Bid opening date has been moved to May 30, 2024 at 2:00pm.
- **1.2** The question period is extended to May 24, 2024 at 4:00 pm.
- **1.3** The contact information for the prequalified general contractors has been provided below.

Contact	Phone	Email
Eric Alder	801-266-8856	ealder@alderconstruction.com
Buck Sellers	801-557-7482	bsellers@bodellconstruction.com
Justin Broshear	801-298-9556	jsbroshear@copconstruction.com
Mark Nielsen	801-407-2000	mn@1gerber.com
Nathan Callaway 801-553-1661		nate@wadsco.com
Zeke Johnson	208-887-1401	zeke@rscigroup.com

1.4 Specification **237200** – **AIR-TO-AIR ENERGEY RECOVERY EQUIPMENT** Section 2.1.A has been updated to include Inovent as an approved Manufacturer.



1.5 Specification 237413 – **PACKAGED OUTDOOR, CENTRAL-STATION AIR HANDLING UNITS** Section 2.1.A has been updated to include Tempmaster as an approved Manufacturer.

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PART 2 - PRODUCTS
        MANUFACTURERS
2.1
   A.
        Manufacturers: Subject to compliance with requirements, provide products by one of the
        following:
                        AAON, Inc.
                  1.
                  2.
                        Carrier.
                  3.
                        Daikin
                  4.
                        Trane.
                  5.
                        York.
                        Tempmaster.
                  6.
                        Prior approved equal.
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- **1.6** Each MBBR tank should have the capacity to independently treat and pass a flow rate of 18 MGD if the other tank is offline. The MBBR screens in each tank should be designed around 18 MGD flow rate.
- 1.7 The results from the 14-day performance test specified in Specification 463350 MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT Section 1.10, A, 2 shall be an average over the 14 days.
- 1.8 The definition for *Beneficial Use* in Specification 463350 MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT Section 1.12, A, is after the 14-day performance test, and after the Owner has received all necessary training, equipment and commenced operation.
- 1.9 Various changes to Specification 463350 MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT have been made. These changes address conflicts regarding the maximum fill percentage, butterfly valve actuators and disc material, and what the Design Condition and Maintenance Condition parameters are. The updated Specification is attached to this Addendum.
- **1.10** Open air sandblasting on the clarifiers, gravity thickener, and digester lid is acceptable.
- **1.11** The coating requirements for Digester #3 lid have been specified in Addendum #1 drawing G020. The drawing indicates that the exterior of the Digester Lid shall be coated per Specification 072541 provided in Addendum #1. The interior of the Digester Lid shall be coated per Specification 098000 System 106B provided in Addendum #1.
- **1.12** Please note that the Coating Schedules are shown on drawings G019 and G020. This schedule identifies what coating system to use on the different structures for the project.

- **1.13** The bridge and platforms on the existing clarifiers and gravity thickener should also be coated. The walkways are removable grating.
- **1.14** The existing digester covers are not going to be recoated or receive any new insulation. Specification **072541 – DIGESTER COVER INSULATION ROOF SYSTEM** Section 1.1.B has been updated as shown below.

PART I - GENERAL
1.1 SUMMARY
A. CONTRACTOR shall furnish labor, materials, equipment and incidentals required to provide the insulated roofing system as shown and specified for all digesters.
B. The extent of the roofing system includes insulation and roofing on the Gas-Holding Covers for Digester No. 3.

- **1.15** The building permit will be from West Bountiful and the District will pay the fee directly.
- **1.16** Please note that the pump room in the headworks building shares the same ceiling as the electrical room. There is no intermediate floor/ceiling between the electrical room and pump room in the headworks building. The Finish Schedule on sheet 81A802 calls out for aluminum soffit for the ceiling in the Electrical/Pump Room correctly.
- **1.17** The contractor may discharge any water from site dewatering to the headworks or any nearby catch basin. Note that site catch basin drain back to the existing headworks. The contractor will coordinate any dewatering efforts with plant staff.
- **1.18** The coating schedule G019 indicates that the walls and floor of the wet well should be coated. This is incorrect, only the walls and ceiling should be coated. The coating schedule G019 has been corrected to reflect this. The revised document has been attached to this Addendum.
- **1.19** No coating is required on any existing/modified manholes. Coating schedule G019 has been updated to reflect this.
- **1.20** Tempered water will not be provided to site eyewashes or showers. Water heaters and associated equipment will not be installed.
- **1.21** On sheet 33P401, rotameter ME-33105 was mislabeled. It has been relabeled as M-33015. The updated sheet has been included with this addendum.
- **1.22** Question: Solenoid valve SV-33103 shown on sheet 33P401is not on the Valve Schedule. Answer: Solenoid valve SV-33103 is on valve schedule, see Sheet 81M807.

- **1.23** On drawings 69M206 and 69M405, butterfly valves HV-70530D and HV-7040D were mislabeled. They have been relabeled as HV-70530C and HV-7040C, respectively. The updated drawings (69M206 and 69M405) have been attached to this addendum.
- **1.24** On drawing 69M206, the meters shown as M-70531 and M-70541 have been removed from the drawing.
- **1.25** Suction diffusers ME-70521 and ME-70526 are shown on mechanical drawing 69M206 and 69M405. These diffusers have been added to the mechanical schedule on sheet 81M803 and P&ID sheet I125.
- **1.26** On drawing 69M409, valve HV-7501 was mislabeled. It has been relabeled as HV-70501. The updated drawing has been attached to this addendum.
- 1.27 Fittings 40 and 48 shown on the pipe schedule were mislabeled on drawing 69M801 as "SCH 40 SS" and have been updated to read "SCH 40 WS." The hot water piping shall all be welded steel, and the biogas piping shall be stainless steel. The pipe schedule on 69M801 has been updated to reflect this and is included in this addendum. No dissimilar metals should be connected in the digester building.
- **1.28** On drawings 06M201, 06M401, and 06M402 the diesel tank was mislabeled as ME-06011. The tag number have been updated to ME-06021C. The updated sheets are included in this addendum.
- **1.29** Contractor shall coordinate final fuel piping layout between diesel tank and generator upon approval of final submittals for those equipment. General Note 5 has been added on sheets 06M201, 06M401, and 06M402 to reflect this. Additionally, some incorrect keynote labels have been updated. The updated sheets are included in this addendum.

SECTION 463350 – MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Division 16481: Motor Control Center
- B. Division 17000: Instrumentation
- C. Division 16000: General Electrical Requirements
- D. Division 098000: Protective Coatings
- E. Division 220523: Valves

1.2 GENERAL CONTRACTOR SCOPE OF WORK

- A. Installation of all equipment and materials as provided by the SYSTEM SUPPLIER.
- B. Supply and installation of all sample pumps and sample piping as required for the instrumentation provided by the SYSTEM SUPPLIER.
- C. Provide all labor, materials, supplies and utilities as required for startup, adjustment and performance testing including laboratory equipment, laboratory facilities, analytical work and chemicals.
- D. Contractor shall provide all chemicals, lubricants and other supplies required for equipment startup and adjustment.
- E. Provide all anchor bolts for equipment and piping, including those provided by the SYSTEM SUPPLIER.
- F. Assist the SYSTEM SUPPLIER with process startup activities.
- G. Supply and installation of all insulation and heat tracing for all tanks and piping subject to freezing temperatures.
- H. Provide and install all piping required to connect to the SYSTEM SUPPLIER'S equipment.
- I. Provide all support beams and/or slabs, platforms, grating, floor plate, handrails, hatches, ladders, and platforms as required.
- J. The CONTRACTOR shall install and test all level floats, level transmitters, level alarms, and alarm communication devices prior to filling a process tank with media and water.
- K. Installation of all control panels and instrumentation provided by the SYSTEM

SUPPLIER in compliance with Division 16.

- L. Supply and install all electrical power, control wiring and conduit to the Biological Treatment System equipment, including wire, telephone lines, cable trays, cable, junction boxes, fittings, disconnects, conduit, etc. in compliance with Division 16.
- M. The CONTRACTOR shall coordinate the installation and timing of all interface points such as piping and electrical tie-ins with the SYSTEM SUPPLIER.
- N. Supply and installation of any embedded pipe sections or wall inserts, if applicable, for any penetrations including but not limited to those for drop pipes and instruments.
- O. Supply of all manual valves on aeration system drop pipes upstream of the MBBR SYSTEM SUPPLIER / CONTRACTOR interface, unless explicitly provided by the MBBR SYSTEM SUPPLIER.
- P. Coordination and timing of all interface points such as piping and electrical tie-ins with the MBBR SYSTEM SUPPLIER.
- Q. Video recording of any training activities.
- R. Supply and construction of MBBR reactors whose interior surfaces are free of all form marks, with all voids filled.
- S. Concrete Tank Finish adhere to requirements of ACI 301 (2011) for form facing materials and as-cast finishes.

1.3 SYSTEM SUPPLIER SCOPE OF WORK

- A. The SYSTEM SUPPLIER shall furnish the process design, equipment, and process performance guarantee for a Biological Treatment System, as shown on the Contract Drawings and specified herein. In addition to the equipment shown below, technology licenses and patent infringement indemnification shall be included in the SYSTEM SUPPLIER's scope. A single SYSTEM SUPPLIER shall supply the process equipment for Biological Treatment System in order to establish system performance responsibility.
- B. Mechanical process equipment to be furnished under this section includes the following:
 - 1. Plastic media
 - 2. Cylindrical Screen assemblies with air sparge
 - 3. Flat Screen assemblies
 - 4. Coarse bubble aeration grids
 - 5. Modulating airflow control valves
- C. Supplier shall list any exceptions to this specification and a written justification of all deviations of this specification.

1.4 QUALIFICATIONS

- A. The SYSTEM SUPPLIER of the Biological Treatment System shall be:
 - 1. SUEZ Water Technologies
 - 2. World Water Works
 - 3. Or approved equal.

1.5 SUBMITTALS

- A. Submittals shall include the following:
 - 1. Equipment drawings showing all important details of construction and dimensions.
 - 2. Descriptive literature, bulletins, and/or catalogs of the equipment.
 - 3. Data on the characteristics, features, and performance of the equipment.
 - 4. The total weight of the equipment including the weight of the single largest item
 - 5. Motor drive data.
 - 6. Supplier to provide a comprehensive submittal that includes control narrative and P&ID.
- B. The SYSTEM SUPPLIER shall furnish operation and maintenance manuals. The manuals shall be prepared specifically for this installation and shall include all required catalog cuts, drawings, equipment lists, descriptions, and other information that is required to instruct operation and maintenance personnel unfamiliar with such equipment.
- C. The CONTRACTOR shall furnish shop drawings, catalog data, operation and maintenance manuals, installation instructions, parts list, layout drawings, equipment design data, testing data and reports to show full compliance with these specifications.

1.6 QUALITY ASSURANCE

- A. The installations shall conform to all applicable codes that are typical and reasonable for the type of installation.
- B. Requirements of the following organizations shall be considered minimum:
 - 1. OSHA Occupational Safety and Health Act
 - 2. ANSI American National Standards Institute

- 3. ASTM American Society for Testing and Materials
- 4. AISI American Iron and Steel Institute
- 5. AIWC American Institute of Steel Construction
- 6. AWS American Welding Society
- 7. AGMA American Gear Manufacturers Association
- 8. NEMA- National Electrical Manufacturers Association
- 9. NEC -National Electric Code.
- 1.7 PATENTS
 - A. The SYSTEM SUPPLIER shall assume all costs of patent fees or licenses for equipment or processes it supplies under this agreement, and shall safeguard and save harmless the GENERAL CONTRACTOR, OWNER and ENGINEER and their agents from damages, judgments, claims and expenses arising from license fees or claimed infringements or any letters of patent or patent right, or because of royalty or fee for the use of any equipment or process; and the price stipulated for all such patent fees, licenses, or other costs pertaining thereto.

1.8 DESCRIPTION OF OVERALL SYSTEM

- A. The Biological Treatment System shall allow the media to move about freely within a reactor using the supplier's standard aeration system for aerobic reactors. Screen assemblies shall be used to retain the carrier elements within the MBBR system. Wastewater (Influent) is fed to MBBR on a continuous basis.
- B. The MBBR shall be capable of operating in a Maintenance Condition scenario. Maintenance Condition allows for one train to be taken offline, with all media transferred from that train to the other.
- C. The Biological Treatment System shall be designed for operation in a reactor as indicated on the drawings. Equipment shall be designed for the following:

Parameter	Units	Value
Number of Process Trains	-	2
Number Reactors Per Train	-	1
Reactor Dimensions	ft	56' x 56' x 20' SWD
Reactor Volume	ft3	62,720
Minimum Freeboard	ft	2'
Max Reactor Media Fill Carrier Elements	%	25 (Design Condition) 50 (Maintenance Condition)
Min total protected surface Area	m2	444
Aeration System Type	-	Coarse Bubble
Residual D.O., Design	mg/L	2-4

D. The SYSTEM SUPPLIER shall provide the following design parameters:

Parameter	Units	Value
Specific Media Surface Area		
Total Surface Area:	m2/m3	955
Protected Surface Area:	m2/m3	806
Max Bulk Volume of Media (Maintenance Condition)	m3 (ea)	888
Min Bulk Volume of Media (Design Condition)	m3 (ea)	444
Max Air Requirements, (Design Condition) Max Air Requirements, (Maintenance Condition)	SCFM/PSI	2,800 / 12 PSI 5,500 / 12 PSI
Min Air Requirements, (Design Condition) Min Air Requirements, (Maintenance Condition)	SCFM/PSI	2,500 / 12 PSI 3,200 / 12 PSI

1.9 PROCESS GUARANTEE

- A. Basis of Design:
 - 1. OWNER/CONTRACTOR hereby agrees to the Basis of Design as defined herein, confirms its accuracy and completeness, and agrees that it shall serve as the basis for the Process Performance Guarantee.
 - 2. Basis of Design:

BIOLOGICAL TREATMENT SYSTEM DESIGN							
FLOW CONDITIONS							
Design Flow, MGD		9.0					
Peak Hour Flow, MGD		18.0					
BIOLOGICAL TREATME	ENT SYSTEM	DESIGN					
POLLUTANT LOAD CON	DITIONS						
BOD ₅							
Design, mg/L (lb/day)	14.6 (1,100)						
TSS							
Design, mg/L (lb/day)	32 (2,400)						
NH ₃ -N							
Design, mg/L (lb/day)	17.3 (1,300)						
TKN							
Design, mg/L (lb/day)	21.6 (1,625)						
Site Elevation							
Feet	4,220						
Wastewater Temperature							
Minimum, C	12						
Minimum Month, C	12						
Maximum Month, C	30						

* See table below for temperature history in degrees Celsius

	2017			2018			2019			2020		
MONTH	Min	Avg.	Max	Min	Avg.	Max	Min	Avg	Max	Min	Avg	Max
Jan	14	16	18	16	18	19	15	17	18	15	17	19
Feb	14	16	19	16	17	19	15	16	18	15	17	18
March	15	17	20	16	17	19	14	16	17	17	19	21
April	17	19	21	17	19	21	16	18	19	18	20	21
May	19	21	25	19	21	22	17	20	21	14	21	26
June	19	24	26	22	23	24	21	22	24			
July	25	26	27	24	26	27	24	26	36			
Aug	26	27	27	26	26	27	24	25	29			
Sept	20	25	28	20	25	27	16	21	24			
Oct	18	22	24	22	24	25	9	13	18			
Nov	16	19	22	19	21	23	10	13	22			
Dec	14	17	20	16	19	20	5	11	19			
Average	14	21	28	19	21	23	15	18	22	16	19	21

- 3. In addition to the data provided in the Basis of Design, the following conditions shall apply:
 - The wastewater shall contain sufficient alkalinity, either present in the wastewater or by means of chemical addition by the OWNER/CONTRACTOR, to maintain a pH in the range of 6.5 8.0 in the process tanks.
 - The refractory organic nitrogen component is less than or equal to 1.3 mg/L.
 - The influent BOD/TP ratio to the activated sludge system shall be equal to or greater than 22.
 - With the exception of temperature, all values listed in the Basis of Design are maximum values. The minimum and maximum temperatures in the Basis of Design are based upon a seven (7) day average.
 - The wastewater is biodegradable and does not contain any substance or element whose presence or concentration causes interference or inhibition, defined as: a substance that hinders the mechanisms of treatment; or whose treatment byproduct (sludge, dewatered liquor, etc.) is hazardous or otherwise requires additional cost for disposal; or may result in gases or vapors that pose a risk to system performance or human health; or that is corrosive, erosive, or abrasive; or which contains pollutants that obstruct the flow in the system. Examples include solvents, lubricants, preservatives, quaternary ammonium compounds, fugitive polymers, oils, etc.
- 4. During the Commissioning Period (prior to the Performance Test), should the Influent criteria be out of compliance with the criteria specified in the Basis of Design, the Owner shall make all necessary adjustments upstream of the SYSTEM SUPPLIER's process to bring the Influent into compliance. If this is not possible, the parties shall discuss in good faith and agree on the appropriate change order in order to take into account the impact of such variation with respect to the Basis of Design. The change order shall comprise any necessary adjustments, as appropriate, to the design, the Performance Guarantee, the Performance Test and remedies and modification of the Contract Price and the Contract schedule.
- B. Process Guarantee Requirements:
 - 1. The Process Guarantee shall be defined by the table(s) in this section.
 - 2. The Process Guarantee is predicated on all conditions specified herein, in the entirety of the Process Guarantee and Performance Test document.
 - 3. The Process Guarantee shall be conclusively demonstrated through the successful completion of the Performance Test, as described herein.
 - 4. Process Guarantee Table(s). The Biological Treatment System design shall be based on meeting the target effluent limitations summarized in the table below at the DESIGN loading conditions and governing design operating conditions summarized

above.

TARGET EFFLUENT QUALITY REQUIREMENTS					
Soluble cBOD5, mg/L	< 10				
NH4-N, mg/L	< 3				

5. A Performance Test Protocol shall be prepared by SYSTEM SUPPLIER and approved by ENGINEER prior to commencement of the Commissioning Period.

1.10 PERFORMANCE TEST

- A. Timing of Performance Test:
 - 1. Start of the Performance Test
 - SYSTEM SUPPLIER shall provide the OWNER/CONTRACTOR written notice with the date when SYSTEM SUPPLIER believes the process has reached system stability (defined below) and is ready for the Performance Test to start in accordance with the requirements described herein.
 - SYSTEM SUPPLIER's determination with regard to "System Stability" shall take into account factors that include, but are not necessarily limited to, the following:
 - i. The Basis of Design conditions are being met (although at SYSTEM SUPPLIER's discretion, flowrate may be less than the Basis of Design); and
 - ii. The System appears to be acclimated to the material (water, wastewater, biosolids, etc.) that it is intended to treat; and
 - iii. The System's unit operations are treating the load being provided and appear to be functioning at acceptable operating conditions; and
 - iv. The System is being operated with proper pre-treatment, preconditioning, or chemical conditioning as instructed by SYSTEM SUPPLIER.
 - The Owner/Contractor shall start the Performance Test within sixty (60) days after the date the process has achieved System Stability as determined by SYSTEM SUPPLIER.
 - 2. Duration of the Performance Test
 - In the event that the Performance Test is interrupted due to equipment failure, at SYSTEM SUPPLIER's discretion, only the remaining unfinished test period will be tested following modifications/repairs to the System.
 - The Performance Test shall consist of one 14-day Performance Test.
 - 3. Performance Test Period Window

• The Performance Test must be conducted within 12 months of delivery of SOUTH DAVIS SEWER DISTRICT MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT NORTH PLANT UPGRADE 463350-8 the SYSTEM SUPPLIER's last major equipment item, as provided on the Project Schedule. Should System Stability not be achieved and the Performance Test not be conducted within such time period, then SYSTEM SUPPLIER's total liability with regard to the Process Guarantee shall be discharged and the Certificate of Performance Test Acceptance will be executed by the Parties.

B. Responsibilities During the Performance Test

1. OWNER/CONTRACTOR

- System Operations
 - i. OWNER/CONTRACTOR shall be responsible for providing the Influent conditions as specified in Basis of Design.
 - ii. OWNER/CONTRACTOR shall be responsible for furnishing all trained personnel, Influent, materials, utilities, services, chemicals, and all incidentals required for the operation of the complete facility, including SYSTEM SUPPLIER's System.
 - iii. Owner/ Contractor shall be responsible for operating SYSTEM SUPPLIER's System in accordance with SYSTEM SUPPLIER's O&M instructions, manuals and instructions, or SYSTEM SUPPLIER's reasonable revisions of the same.
 - iv. If required by SYSTEM SUPPLIER, OWNER/CONTRACTOR shall restore the System to the specified operating conditions before testing begins.
 - v. Should the OWNER/CONTRACTOR operate the System outside of the specified operating conditions, the Process Guarantee shall be deemed to have been met, and SYSTEM SUPPLIER shall have no further obligation or liability hereunder.
 - vi. Should the Owner/Operator already have operated the System outside of the specified operating conditions, and such operation damaged System equipment, the Process Guarantee shall be deemed to have been met, and SYSTEM SUPPLIER shall have no further obligation or liability hereunder.
- Sampling and Analysis
 - i. OWNER/CONTRACTOR shall be responsible and bear all costs for collecting all samples, carrying out all laboratory analysis or other tests, and furnishing all necessary labor, laboratory equipment, and supplies.
- Record Keeping and Copies of Records

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- i. OWNER/CONTRACTOR shall record and maintain such detailed records as may be necessary for determining whether the Process Guarantee has been met.
- ii. OWNER/CONTRACTOR shall retain such records until the Process Guarantee has been satisfied, discharged, or until the expiration of the Performance Test Period Window, whichever occurs last.
- iii. Owner/Operator's records shall include all daily log sheets, operator notes, sample inspections, calibration reports, laboratory and analytical results, maintenance records, and instrument charts produced in operation of the System.
- iv. OWNER/CONTRACTOR shall provide one (1) copy of such records to SYSTEM SUPPLIER at no charge upon SYSTEM SUPPLIER's request.
- v. OWNER/CONTRACTOR shall make such records available to SYSTEM SUPPLIER for inspection and for further copying at SYSTEM SUPPLIER's expense.
- Access to the System
 - i. Owner/Operator shall provide full access to SYSTEM SUPPLIER's System, facility components upstream and downstream of the System that may impact System performance, and test results and records for SYSTEM SUPPLIER's personnel or authorized subcontractor.

2. SYSTEM SUPPLIER

- SYSTEM SUPPLIER shall provide the OWNER/CONTRACTOR O&M instructions and manuals to advise the OWNER/CONTRACTOR, and reasonable revisions of the same, on System operation.
- SYSTEM SUPPLIER shall have the right, but not the obligation, to:
 - i. Inspect the System prior to testing to ensure the System meets SYSTEM SUPPLIER's specified requirements for operation.
 - ii. Provide technical personnel on-site to provide technical input and to observe the Performance Test.
 - iii. Witness sampling and analysis, and to take its own samples to a lab of SYSTEM SUPPLIER's choosing for analysis at SYSTEM SUPPLIER's expense.
 - iv. Carry out adjustments to the System to optimize or improve the System's performance.
- SYSTEM SUPPLIER shall consolidate the Performance Test data (data

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provided by OWNER/CONTRACTOR) and provide the OWNER/CONTRACTOR with the results in a Performance Test Report.

- C. Determination of Performance Test Result
 - 1. Performance shall be based on the System meeting the Process Guarantee Requirements. Measured values of the System performance shall be based upon
 - 24-hour composite sample result
 - Basis of Design conditions being met
 - 2. Upon receipt of test data confirming that the Process Guarantee has been met, the Performance Test shall have been deemed successful and SYSTEM SUPPLIER's total liability under the Process Guarantee shall be discharged and the OWNER/CONTRACTOR shall have no further recourse against SYSTEM SUPPLIER or any claims for recovery with respect to the Process Guarantee.
 - 3. SYSTEM SUPPLIER shall then execute and submit the Performance Test Report and the Certificate of Performance Test Acceptance.
 - 4. OWNER/CONTRACTOR shall execute the Certificate of Performance Test Acceptance as specified elsewhere herein.
 - 5. If OWNER/CONTRACTOR does not return the executed Certificate of Performance Test Acceptance within fourteen (14) calendar days, the Certificate shall be deemed to have been issued with the effective date being the date the Performance Test was completed.
- D. Remedies in Event of Performance Test Failure
 - 1. If, during the Performance Test, all of the Basis of Design conditions are being met, but it appears that the Process Guarantee is not being met due to SYSTEM SUPPLIER'S fault:
 - SYSTEM SUPPLIER shall have the right to have the System operated at such conditions as it may deem necessary or advisable for purposes of determining the nature or cause of the failure of the System to meet such guarantee, provided such operating conditions are in accordance with good engineering practices, OWNER/CONTRACTOR's regulatory obligations, safety rules, operational restraints, and similar requirements.
 - SYSTEM SUPPLIER shall have the right to make or have made such adjustments as it deems necessary or advisable in order to meet such guarantee and to make or have made, at its own expense, such alterations or modifications to the SYSTEM SUPPLIER System as it deems necessary or advisable. It is understood and agreed that any mechanical corrective work necessary to cause the System to meet the Process Guarantee shall be performed by SYSTEM SUPPLIER, a SYSTEM SUPPLIER-authorized subcontractor, or the OWNER/CONTRACTOR as agreed upon by SYSTEM SUPPLIER. Corrective work shall be allowed to commence as soon as practical.

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- SYSTEM SUPPLIER shall have the right to conduct two (2) additional Performance Tests to meet the Process Guarantee at SYSTEM SUPPLIER's expense. Prior to the start of any of these subsequent tests, SYSTEM SUPPLIER shall have the right to make any additional modifications to the System at SYSTEM SUPPLIER's expense.
- In the event that the System fails to meet the Process Guarantee, SYSTEM SUPPLIER's sole obligation and OWNER/CONTRACTOR's sole remedy shall be to replace or modify the System as SYSTEM SUPPLIER deems appropriate to enable the System to meet such Guarantee, subject to the following:
 - i. SYSTEM SUPPLIER shall not be accountable for failure to meet the Process Guarantee during this necessary modification period.
 - ii. The OWNER/CONTRACTOR shall allow for sufficient time for the order and delivery of any necessary equipment for SYSTEM SUPPLIER to complete modifications to the System.
 - iii. The costs and expenses incurred by the SYSTEM SUPPLIER's shall be subject to the limitation provided in the Contract, which shall in no event exceed the total Purchase Price paid to SYSTEM SUPPLIER for the original System.
- 2. If the Performance Test fails due to noncompliance with the Basis of Design:
 - If after the commencement of the Performance Test, any daily Influent composite samples taken during such Test are not in accordance with Table 1.09-A, or any other Basis of Design conditions are not being met, the non-compliant Influent shall be treated to the extent possible, while OWNER/CONTRACTOR makes every effort to bring Influent and the System into compliance with the Basis of Design. Notwithstanding such efforts, that day's results and any following days impacted will be excluded from the Performance Test's final results and that day(s) will be considered passed.
 - Upon mutual agreement of the Parties, SYSTEM SUPPLIER may assist OWNER/CONTRACTOR and use commercially reasonable efforts to adjust equipment and controls settings and/or operating guidelines to optimize performance of the facility under the prevailing conditions. All costs and expenses of SYSTEM SUPPLIER as a result of such efforts, including costs related to extension of the Performance Test and the costs of any additional Performance Tests shall be reimbursed by the OWNER/CONTRACTOR to SYSTEM SUPPLIER. Reimbursement shall include at a minimum SYSTEM SUPPLIER's standard labor rates, travel and living costs and expenses. SYSTEM SUPPLIER and OWNER/CONTRACTOR may mutually agree on an extension of the period of time reasonably estimated as necessary to bring Influent and other Basis of Design conditions into compliance and the pertinent, impacted terms of the Contract shall be adjusted accordingly.

time shall be allowed to replace or repair the damaged equipment in accordance with the Contract provisions, and associated costs shall be borne by the Purchaser.

- 3. Should the Parties disagree on whether the Basis of Design (Influent) is compliant, SYSTEM SUPPLIER may take additional Influent [and Effluent] samples and conduct independent laboratory testing and the Performance Test shall be extended and the Contract adjusted accordingly until the results of such laboratory test are available. If the laboratory test results confirm that the Influent is out of compliance, OWNER/CONTRACTOR shall reimburse SYSTEM SUPPLIER for the costs and expenses associated with the sampling and laboratory testing and costs related to the extension of the Contract.
- 4. Notwithstanding the efforts provided in Section 1.10(F)(2) above, should compliant Influent or other Basis of Design conditions not be attainable within 12 months of delivery of the SYSTEM SUPPLIER's last major equipment item, as provided on the Project Schedule, the requirement to meet the Process Guarantee shall be deemed to have been met, and SYSTEM SUPPLIER shall have no further obligation or liability hereunder. The OWNER/CONTRACTOR shall promptly execute the Certificate of Acceptance, with the last day of the originally scheduled Performance Test being the effective date.
- 5. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SYSTEM SUPPLIER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SYSTEM SUPPLIER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE EQUIPMENT SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE EQUIPMENT. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.
- 6. THERE ARE NO GUARANTEES ESTABLISHED, EXPRESS, IMPLIED OR STATUTORY, EXCEPT THOSE SET FORTH HEREIN.
- E. Mechanisms that Discharge the Process Guarantee. Upon any of the following, SYSTEM SUPPLIER's total liability for the Process Guarantee shall be discharged:
 - 1. Successful completion of a Performance Test, as demonstrated by the Performance Test results.
 - 2. OWNER/CONTRACTOR's operation of the System at any time (prior to or during the Performance Test) outside of the operating conditions as specified herein in a manner that does damage to the System's equipment.
 - 3. OWNER/CONTRACTOR's operation of the System during the Performance Test outside of the operating conditions as specified herein.
 - 4. Conditions meeting the Basis of Design are not available 12 months of delivery of the SYSTEM SUPPLIER's last major equipment item, as provided on the Project Schedule, or the OWNER/CONTRACTOR is otherwise unable to complete the Performance Test within such time period.

- 5. Any other conditions outside of SYSTEM SUPPLIER's control, including but not limited to the following:
 - Engineering design (other than that by SYSTEM SUPPLIER).
 - Materials and equipment (other than those specified or supplied by SYSTEM SUPPLIER).
 - Workmanship and services (other than those provided by SYSTEM SUPPLIER).
 - Defective materials or mechanical conditions, or deficient performance of equipment or auxiliary parts (other than those supplied by SYSTEM SUPPLIER).
 - Defective conditions or performance of any materials, equipment (other than equipment supplied by SYSTEM SUPPLIER) or work supplied by or contracted for by anyone other than SYSTEM SUPPLIER.
 - Failure of the Contractor to furnish adequate utilities, such as, but not limited to, electricity, air, water, etc. as set forth in the O&M Manual and /or O&M training supplied by SYSTEM SUPPLIER, or SYSTEM SUPPLIER's reasonable revisions of the same.
 - Failure of the OWNER/CONTRACTOR to provide adequate personnel.
 - Mechanical failure of any of the equipment or component parts thereof due to ordinary wear and tear or any other cause.
 - Failure of the OWNER/CONTRACTOR to perform any of the responsibilities and obligations specified herein.
 - Any other cause outside of a cause attributable to SYSTEM SUPPLIER, including Force Majeure.
 - OWNER agrees to waive the Performance Test.
- F. Certificate of Performance Test Acceptance
 - 1. Certificate of Performance Test Acceptance shall be executed by both parties upon discharge of the Performance Guarantee:
 - Upon successful completion of the Performance Test, SYSTEM SUPPLIER shall execute and submit the Performance Test Report and Certificate of Performance Test Acceptance to the OWNER/CONTRACTOR. OWNER/CONTRACTOR shall execute the Certificate of Performance Test Acceptance effective as of the date the Performance Test was completed, and return the Certificate to SYSTEM SUPPLIER within fourteen (14) calendar days of its receipt from SYSTEM SUPPLIER. If OWNER/CONTRACTOR fails to execute the Certificate of Performance Test Acceptance within the fourteen (14) calendar days, the Certificate shall be deemed to have been issued with the effective date being the date the

SOUTH DAVIS SEWER DISTRICT NORTH PLANT UPGRADE

Performance Test was completed.

- Should the conditions provided in Section 1.10(G) prevail, the Certificate shall be deemed to have been issued with the effective date being the date the Performance Test was originally scheduled to be completed.
- Should the Performance Test and/or Process Guarantee be discharged for any of the other reasons as specified herein, the Certificate shall be deemed to have been issued with the effective date being the date that SYSTEM SUPPLIER determines the Process Guarantee is discharged.

1.11 CERTIFICATE OF PERFORMANCE TEST ACCEPTANCE

CERTIFICATE OF PERFORMANCE TEST ACCEPTANCE

The undersigned representative of the SYSTEM SUPPLIER hereby certifies that	at the system successfully
completed the Performance Test on	_and as required by the
Contract between the SYSTEM SUPPLIER and	_ for the named project.
System:	
Project Name:	
SYSTEM SUPPLIER	
Signed:	
Printed or Typed Name:	
Title:	
Date:	
ACCEPTANCE:	
OWNER/CONTRACTOR hereby agrees that the system has successfully comple	ted the Performance Test
and the Process Guarantee is discharged as of the completion date shown.	
OWNER/CONTRACTOR	
Signed:	
Printed or Typed Name:	
Title:	
Date: SOUTH DAVIS SEWER DISTRICT MOVING BED BIOFILM REACTOR NORTH PLANT UPGRADE	R (MBBR) EQUIPMENT 463350-15

SOUTH DAVIS SEWER DISTRICT NORTH PLANT UPGRADE

MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT 463350-16

1.12 BOND

A. The SYSTEM SUPPLIER shall provide a process performance bond as an alternative add-on to the base bid to the OWNER. The SYSTEM SUPPLIER shall list the cost for the Bond separately from the equipment purchase price. Bonds will be purchased at the owner's discretion. Bonds shall be valid for a period of one (1) year from beneficial use. The bond shall be for an amount of one hundred (100) percent of the SYSTEM SUPPLIER'S contract value. A letter from the SYTEM SUPPLIER'S surety company shall be provided with the bid at bid time.

1.13 EQUIPMENT WARRANTY

A. SYSTEM SUPPLIER shall warrant to the OWNER that the Equipment shall materially conform to the description in SYSTEM SUPPLIER's Documentation and shall be free from defects in material and workmanship. The warranty shall not apply to any Equipment that is specified or otherwise demanded by OWNER and is not manufactured or selected by SYSTEM SUPPLIER, as to which (i) SYSTEM SUPPLIER hereby assigns to OWNER, to the extent assignable, any warranties made to SYSTEM SUPPLIER and (ii) SYSTEM SUPPLIER shall have no other liability to OWNER under warranty, tort or any other legal theory. If OWNER gives SYSTEM SUPPLIER prompt written notice of breach of this warranty within 18 months from delivery or 1 year from acceptance, whichever occurs first (the "Warranty Period"), SYSTEM SUPPLIER shall, at its sole option and as OWNERS's sole remedy, repair or replace the subject parts or refund the purchase price therefore. If SYSTEM SUPPLIER determines that any claimed breach is not, in fact, covered by this warranty, the OWNER shall pay SYSTEM SUPPLIER its then customary charges for any repair or replacement made by SYSTEM SYSTEM SUPPLIER's warranty is conditioned on OWNER's (a) SUPPLIER. operating and maintaining the Equipment in accordance with SYSTEM SUPPLIER's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to SYSTEM SUPPLIER. SYSTEM SUPPLIER's warranty does not cover damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by SYSTEM SUPPLIER). THE WARRANTIES SET FORTH IN THIS SECTION ARE SYSTEM SUPPLIER'S SOLE AND EXCLUSIVE WARRANTIES. SYSTEM SUPPLIER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

1.14 SYSTEM CONTROLS

- 1. Programing and system integration shall be supplied by owner's system integrator.
- 2. Supplier to provide complete instrumentation and controls strategy for the process system.

PART 2 – PRODUCTS

2.1 GENERAL

- A. The work shall generally comprise the supply of a Biological Treatment System complete with process design, media, Aeration System, Screen Assemblies with air sparging, controls and all other related appurtenances required for a complete system.
- B. License fees or royalties required in connection with use of the Biological Treatment System shall be included in the Contract Price. The SYSTEM SUPPLIER shall indemnify and hold harmless OWNER against all claims, damages, losses and expenses arising out of any infringement of patent rights or copyrights of the equipment supplied by the MBBR System Supplier.

2.2 MEDIA

- A. General:
 - 1. The CONTRACTOR shall install the media into the reactors and maintain an accurate inventory of the number of bags installed in each reactor. These records shall be made available to the ENGINEER or SYSTEM SUPPLIER upon request.
- B. Biofilm Carrier Media:
 - 1. The SYSTEM SUPPLIER shall provide a total minimum protected surface area as shown on the contract drawings and in this specification, in the MBBR reactor. Outer surfaces of the biofilm carrier will not be considered protected surface area and should be reflected accordingly in the process calculations.
 - 2. The total media percent fill shall not exceed 25% in each basin for Design Conditions. This allows for one train to be taken down for Maintenance Conditions by transferring all the media from one train to the other to accomplish a 50% fill.
 - 3. Material shall be an extruded, virgin high-density polyethylene. Recycled materials will not be accepted.
 - 4. The nominal density of the biofilm carrier elements in bulk is 7.37 lb/ft3. The specific gravity of the biomedia shall be 0.95.
 - 5. The SYSTEM SUPPLIERS shall clearly state the following in their bid to CONTRACTOR.
 - Protected surface area of carrier element in ft2/ft3.
 - Total protected surface area provided for the MBBR system ft2.
 - MEDIA percent fill of specified reactor at 20' SWD
 - MEDIA material

2.3 AERATION SYSTEM (MEDIUM BUBBLE)

- A. General:
 - 1. The CONTRACTOR shall furnish and install aeration grid(s) in the basin(s) as shown and specified. The Equipment Manufacturer shall furnish the items listed below:
 - Drop Pipe(s)
 - Aeration Grids
 - Supports
 - Air Flow Control Valves (manual and modulating)
- B. Equipment:
 - 1. Drop Pipe

A 304/304L stainless steel drop pipe(s) shall be provided for the aeration grid(s) to a point approximately 3' above the SWD. The drop pipe shall be schedule 10 pipe and connect to the CONTRACTOR supplied out-of-basin pipe. VENDOR scope ends at the Straub coupling at the top of the drop pipe.

2. Aeration Grids

A 304/304L stainless steel aeration grid(s) shall be provided for the basin(s) as shown on the contract drawings. The aeration grid(s) shall be comprised of; an aeration grid manifold of schedule 10 pipe with \emptyset 1" or \emptyset 1-1/4"laterals of schedule 5 pipe. The laterals shall be uniformly spaced along the length of the aeration grid manifold. Each lateral will have a series of 4mm (5/32") holes uniformly spaced along the bottom. The lateral pipe shall include a crimped drop pipe at the end, to provide for easy drainage, and to prevent entry of media. Each aeration grid shall be supplied with all necessary gaskets and hardware.

3. Supports

Aeration Grid and In-Basin Manifold Supports: Aeration grid and in-basin manifold supports to be fabricated from 304/304L stainless steel. Each support shall consist of a minimum 2" bearing contact between the pipe and support. The support shall be secured by two (2) 18-8 stainless steel threaded rods with a minimum diameter of 5/8". Each rod will be anchored to the concrete by chemical anchors. The aeration grid and in-basin manifolds shall be secured to the support by a u-bolt to prevent lateral movement. Supports shall be designed to allow for on-site height adjustment. Supports shall have a maximum spacing of 9'-0". All interconnecting hardware required to secure the support to the aeration grid shall be provided. No field welding shall be required.

4. Construction

procedures. All factory welding shall undergo pickling/passivation to prevent rust and corrosion.

- Bolting: Where nothing to the contrary is indicated, bolts, screws, nuts, and washers shall be 18-8 stainless steel.
- Installation: The installation of the aeration equipment shall be such that upon completion of installation, all diffusers are level to $\pm 1/8$ " of a common horizontal plane.
 - i. Checkout: CONTRACTOR to provide an embedded benchmark location in each reactor along with its elevation as a means for comparing air grid elevations from one reactor to the next.

5. Design

- The system shall be designed to be submerged within the tank basin without deforming any component.
- All welded parts and assemblies shall be shop fabricated from 304L stainless steel with a 2D finish. Unless otherwise specified, all non-welded parts and pieces shall be shop fabricated from type 304 stainless steel with a 2D finish.
- All flanged joints shall have 45 to 55 durometer, Shore A, neoprene gaskets.
- All aeration grid and in-basin manifold supports shall be designed to compensate for a maximum floor elevation difference of ± 3 ".
- All supports shall be designed to resist the load of the media in the event the tank is drained.
- 6. Airflow Control Valves (manual and modulating)
 - Modulating Butterfly Valves
 - i. SYSTEM SUPPLIER shall provide, and the CONTRACTOR shall install butterfly valves with actuators, one for each MBBR zone as shown on the contract drawings.

Qty:	1
Size:	12"
Valve Type:	Butterfly
Valve Style:	Lug
Operation:	Open/close
Actuator Type:	Electric Actuator
Material:	Cast iron lugged body, Stainless Steel

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disc, 316SS stem

Seat:

EPDM or Viton

- Manual Butterfly Valves
 - ii. SYSTEM SUPPLIER shall provide manual butterfly valves for each drop pipe as shown on the contract drawings.

Qty:	As shown in drawings
Size:	12"
Valve Type:	Butterfly
Valve Style:	Lug
Operation:	Open/close
Actuator Type:	Lever
Material:	Cast iron lugged body, Stainless Steel disc, 316SS stem
Seat:	EPDM or Viton

2.4 SCREENS

- A. General:
 - 1. The SYSTM SUPPLIER shall furnish and the CONTRACTOR shall install cylindrical screen(s) for media retention in the basin(s) as shown and specified. The Equipment Manufacturer shall furnish the items listed below:
 - Cylindrical Screens
 - Flat Screens
 - Air Sparge System
 - Supports

B. Equipment:

- 1. Cylindrical Screen
 - Cylindrical Screens shall be constructed of 304/304L stainless steel and shall be provided for the basins as shown on the contract drawings.
 - Design and supply of screens and supports shall be provided by the SYSTEM SUPPLIER.

 Cylindrical Screen (Perforated Plate): 304/304L stainless steel cylindrical SOUTH DAVIS SEWER DISTRICT MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT NORTH PLANT UPGRADE 463350-21 screens shall be provided for the basins as shown on the contract drawings. The cylindrical screens shall be constructed of a minimum 14 gauge sheet and have a perforation pattern of 5/8" dia. with 13/16" centers on a staggered spacing. Each screen will have a minimum 1/4" thick plate mounting flange with two sets of anchor holes for wall mounting.

- 2. Sparge Air Scour Piping
 - 1-inch diameter 304/304L stainless steel air scour piping will be provided for each cylindrical screen as shown on the contract drawings. The air scour piping shall be tapped from the main air line inclusive of manual isolation valves.
 - Sparge piping shall be rated for continuous operation.
- 3. Flat Screen
 - A 304/304L stainless flat screen(s) shall be provided for the basin as shown on the contract drawings. The flat screen shall be constructed of a minimum 14 gauge sheet and have a perforation pattern of a 5/8" dia. with 13/16" centers, on a staggered spacing. Each screen will mount directly to the wall.
- 4. Construction
 - Welding: All welding shall conform to industry standard welding fabrication Procedures. All factory welding shall undergo pickling/passivation to prevent rust and corrosion.
 - Bolting: Where nothing to the contrary is indicated, bolts, screws, nuts, and washers shall be 18-8 stainless steel.
 - Installation: Each cylindrical screen shall be mounted directly to the concrete wall with (8) 18-8 stainless steel threaded rods with a minimum diameter of 3/8". Where cylindrical screens have spargers, screens shall be installed so that all air scour piping within the system is level to ±1/8" of a common horizontal plane. Where cylindrical screens do not have spargers, screens shall be installed so that they are level to ±1/4" of a horizontal plane.
- 5. Design
 - The system shall be designed to be submerged within the tank basin without deforming any component.
 - All welded parts and assemblies shall be shop fabricated from 304L stainless steel with a 2D finish. Unless otherwise specified, all non-welded parts and pieces shall be shop fabricated from type 304 stainless steel with a 2D finish.
 - The cylindrical screens shall be designed to handle the combined peak hour flow, RAS flow, and internal recycle flows.
 - Screen design loading rate shall not be more than 23 gpm/sf of screen surface area.

- Screens shall have a minimum of 50% open space.
- Maximum headloss through the cylindrical screens shall not exceed 3" in each basin at peak hydraulic flows.

2.5 ANCHORS

- A. General:
 - 1. The CONTRACTOR SHALL furnish anchoring hardware for the supplied equipment.
 - The CONTRACTOR SHALL furnish anchoring hardware for the supplied equipment.
 - The CONTRACTOR shall furnish all epoxy and dispensing equipment for chemical anchoring.

PART 3-EXECUTION

3.1 SHIPMENT, HANDLING AND STORAGE

A. The CONTRACTOR shall be responsible for receipt, protection and storage in accordance with manufacturer's recommendations of all items shipped to the site from the time of delivery until installation is completed and the units and equipment are ready for operation. The equipment shall be suitably covered and protected at all times. Sufficient blocking shall be provided to prevent noticeable sagging of stored materials between supports and to prevent permanent distortion of the equipment. No iron or steel tools shall be allowed to come into contact with stainless steel components during handling and storage of the equipment. The CONTRACTOR shall follow manufacturers' instructions to exercise any stored rotating equipment.

3.2 INSTALLATION/STARTUP

A. The CONTRACTOR shall install the equipment specified herein in accordance with the manufacturers' instructions and recommendations.

3.3 SYSTEM START-UP, TESTING, AND CERTIFICATION

- A. The SYSTEM SUPPLIER shall provide five (5) days of service in not less than two (2) trips by a fully qualified service engineer to inspect the installed equipment, assist the CONTRACTOR to start the equipment operation.
- B. The SYSTEM SUPPLIER in conjunction with the installing contractor shall inspect equipment furnished by the SYSTEM SUPPLIER and provide certification on the installation. This certification shall be limited to the visual inspection and known quantitative aspects of the SYSTEM SUPPLIER's equipment.
- C. Instruments and other devices that require calibration and checkout will be carried out after the contractor has the equipment installed and verified continuity, hooked up

electrically where/if required. Instruments and devices shall be configured and demonstrated to function prior to start-up. A document indicating the set points and calibration shall be furnished for documentation records.

- D. The contractor shall furnish all consumables, including oil and grease, prior, to operation of equipment. All consumables after beneficial occupancy will be by the owner.
- E. Operation, maintenance and installation manuals shall be provided for the supplied equipment. A total of five (5) copies shall be furnished.

3.4 TRAINING

- A. The SYSTEM SUPPLIER shall provide on-site training to the OWNER's plant personnel.
- B. The training services shall comprise of a qualified representative to instruct and train plant personnel in the proper startup, operation, shutdown, maintenance, repair and troubleshooting of the system. The O&M Manual shall be the primary training tool with supplemental training provided from a presentation. Mechanical equipment suppliers will also provide training on their specific equipment.
- C. A training outline shall be submitted to the ENGINEER for approval including the credentials of the training staff.
- D. The training shall include the following topics:
 - 1. Theory of Operation
 - 2. Actual Operation
 - 3. Mechanical Maintenance
 - 4. Electrical Maintenance
 - 5. Instrumentation
 - 6. Optimum Operation
 - 7. Troubleshooting
 - 8. Hands-on
 - 9. Question and Answer Session

END OF SECTION 463350

Γ		
	COATING SCHEDULE	
AREA	ITEM	COATING
GENERAL PIPING	NON SUDMEDGED EVTEDIOD STEEL DIDING VALVES EITTINGS AND ADDUDTENANCES	
	INTERIOR STEEL PIPING, VALVES, FITTINGS, AND APPLIRTENANCES	COATING SYSTEM 102
	SUBMERGED STEEL PIPING VALVES, FITTINGS, AND APPIRTENANCES	COATING SYSTEM 104
	SUBMERGED AND NON-SUBMERGED STEEL PIPING VALVES FITTINGS AND APPLIETENANCES. MODERATE H2S EXPOSURE	COATING SYSTEM 104
	DUDIED STEEL DIDING AND EITTINGS	COATING SYSTEM 107
	BURIED STEEL PIPING AND FITTINGS BURIED DUCTUE FIRON OR CAST IRON PIPE VALVES FITTINGS AND APPURTENANCES	COATING SYSTEM 107
	NON -SUBMERGED EXTERIOR DUCTILE IRON OR CAST IRON PIPE VALVES FITTINGS AND APPURTENANCES	COATING STSTEM 211
	INTERIOR DUCTILE IRON OR CAST IRON PIPE, VALVES, FITTINGS, ND APPURTENANCES	COATING SYSTEM 212
	SUBMERGED EXTERIOR DUCTILE IRON OR CAST IRON PIPE VALVES FITTINGS AND APPURTENANCES	COATING SYSTEM 213
	EXPOSED EXTERIOR PVC OR CPVC PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 221
	EXPOSED INTERIOR PVC OR CPVC PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 222
	EXPOSED INTERIOR/EXTERIOR GAI VANIZED STEEL PIPING	COATING SYSTEM 201
	STAINLESS STEEL PIPE	NOT COATING REQUIRED
	HOBAS PIPE	NOT COATING REQUIRED
	FIBERGLASS REINFORCED PIPING, FITTINGS AND APPURTENANCES	NOT COATING REOUIRED
	PIPE BOLLARDS	COATING SYSTEM 102 1
	MANHOLES (INTERIOR)	NO COATING REQUIRED
MISC METALS		hannin
	STRUCTURAL STEEL (NON HDG)	COATING SYSTEM 101
	ALUMINUM PLANK OR GRATING	NOT COATING REQUIRED
	STRUCTURAL ALUMINUM	NO COATING UNLESS EMBEDED OR IN CONTACT WITH CONCRETE- SYSTEM 203
	ALUMINUM HANDRAIL	FACTORY FINISH - CLEAR ANODIC
	ALUMINUM STAIRS	NO COATING UNLESS EMBEDED OR IN CONTACT WITH CONCRETE- SYSTEM 203
HEADWORKS		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALL ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE CHANNEL WALLS	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	SUBMERGED CONCRETE CHANNEL SLAB AND FLOOR	NO COATING REQUIRED
	WET WELL CONCRETE WALLS AND CEILING 1	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	INTERIOR CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	INTERIOR CONCRETE CHANNEL SLABS/FLOOR	NO COATING REQUIRED
	STEEL WEB TRUSSES	HOT-DIP GALVANIZED
	SCREENING EQUIPMENT	STAINLESS STEEL FACTORY FINISH - NO COATING REQUIRED
	WASHPRESS EQUIPMENT	STAINLESS STEEL FACTORY FINISH - NO COATING REQUIRED
	INFLUENT PUMPS	EPOXY FACTORY FINISH-TOUCH-UP/REPAIR PER MFG RECOMMENDATIONS
	STAINLESS STEEL GATES	NO COATING
PRIMARY CLARIFIE	ER	
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	SUBMERGED CONCRETE WALLS	NO COATING REQUIRED
	SUBMERGED CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	LAUNDER CONCRETE WALLS AND FLOOR	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	CLARIFIER MECHANISM	COATING SYSTEM 104
	V-NOTCH WEIR	NO COATING REQUIRED
TRICKLING FILTER	S	
	EXISTING MECHANISM	NO COATING REQUIRED
MBBR PUMP STATI	ON	
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	WET WELL CONCRETE WALLS	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	WET WELLCONCRETE FLOOR/SLABS	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	INTERIOR CONCRETE WALLS	NO COATING REQUIRED
	INTERIOR CONCRETE FLOOR	NO COATING REQUIRED
	MBBR SUBMERSIBLE PUMPS	EPOXY FACTORY FINISH-TOUCH-UP/REPAIR PER MFG RECOMMENDATIONS
BLOWER BUILDING		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE WALLS	NO COATING REQUIRED
	CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	INTERIOR ROOF TRUSSES	HOT-DIP GALVANIZED
	BLOWERS	FACTORY FINISH - NO COATING REQUIRED
	CLASSIFIER	FACTORY FINISH - NO COATING REQUIRED

NC	TES:											
1.	UNLESS NOTED OTHERWISE, SURFACE PREPARATION AND COATING SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 098000.											
2.	ALL COLORS SHALL BE SELECTED BY OWNER, PIPE LABELING AND COLOR CODING SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 220553.											
3.	WHERE AN ITEM IS NOT SPECIFICALLY INCLUDED IN THE TABLE, REFER TO TECHNICAL SPECIFICATIONS SECTION 098000. WHERE ONE OR MORE COATING SYSTEM APPEAR TO BE APPLICABLE BASED ON GENERAL DESCRIPTION, THE MORE STRINGENT (ROBUST) COATING SHALL BE USED (FOUL OWING REVIEW AND APPROVAL BY	SCALE SCALE RES: LE	ALE		HECKED	BMR		BMR				
4.	THE ENGINEER). CONCRETE SURFACE FINISH SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 033000.	DRAWING IS TO S IF BAR MEASUF 1" = FIII I SCA	1/2" = HALF SC	URIGINAL	SIGN DRAWN C	3DP CAL	EVISIONS	BDP BDP				
5.	FOR ARCHITECTURAL FINISHES AND COATING REQUIREMENTS SEE TECHNICAL SPECIFICATION 09900.	0 1/2 1			O. DATE DE	3 04/01/2024 E	B	1 04/29/2024 1				
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> KEYNOTES:	
CONFIRM SNAIL TRAP, FLUIDIZING WATER REQ'S W/ SUPPLIER INCLUDING LINE SIZE, CONTROL, (E.G. SOLENOID VALVES & ROTAMETERS).	
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	SOUTH DAVIS SEWER DISTRICT NORTH PLANT UPGRADE MBBR / SNAIL TRAP / BLOWER BUILDING PLUMBING SECTION SECTION
	DRAWING NO.
	33P401

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NO	TES:					
1.	REFER TO 69M801 FOR PIPE SCHEDULE.					
2.	PROVIDE PIPE SUPPORTS AND HANGERS WHERE INDICATED AND AS REQUIRED BY CODE.					
3.	PIPE CONFIGURATION BASED ON PRELIMINARY INFORMATION FOR DESIGN BASED EQUIPMENT. CONTRACTOR TO ADJUST PIPING ROUTING TO ACCOMMODATE FURNISHED EQUIPMENT.					
4.	CONNECT EXPANSION TANK TO HOT WATER SUPPLY LINE PER BOILER SUPPLIER RECOMMENDATIONS. SEE MECHANICAL SECTIONS FOR MORE PLACEMENT DETAILS.	CALE ES: E	Ψ	CKED	ICKED MR	
	KEYNOTES:	3 IS TO S(MEASURI ULL SCAI	HALF SCA		DP B	
1.	CONFIRM BOILER VENT SIZE AND REQUIREMENTS WITH SUPPLIER.	DRAWIN IF BAR 1" = F	1/2" = GINAI	N DRAW BDP	SIONS IIGN DR/	
2.	CONNECT BIOGAS TO BOILER SKID PER MANUFACTURER REQUIREMENTS.	~		DESIG	REVI DES	
3.	INSULATE HOT WATER PIPING.	1/2		DATE	DATE 4/29/20	
4.	INSULATE SLUDGE RECIRCULATION PIPING.	。 _		0 ^w	0 0	
5.	PROVIDE 2" SS SCH 40 PIPE FOR CLEANOUT CONNECTION TO COMPANION FLANGE.			Z "		Z
6.	COORDINATE AND CONFIRM FINAL LOCATION FOR ALL INSTRUMENTS IN FIELD WITH ENGINEER AND OWNER.				LER	PLA
7.	CONNECT EXPANSION TANK AND AIR SEPARATOR TO HOT WATER SUPPLY LINE PER BOILER SUPPLIER RECOMMENDATIONS.	F			SES'	TION
8.	PROVIDE 1" TAP TO 4" HOT WATER LINE WITH 1" SS BALL VALVE FOR DRAIN OR AIR VENT PORT. SEE DETAIL 2 ON SHEET 69M901.	PLAN		ADE	G/DI(ULA ⁻
9.	PROVIDE (3) GALVANIZED PIPE SUPPORTS FOR AIRSEPARATOR. CONFIRM FINAL CONFIGURATION AND LAYOUT WITH EQUIPMENT SUPPLIER AND ENGINEER SEE SECTION FOR ADDITIONAL DETAILS.	S SEWER I	I	ANT UPGR	SUILDIN	HANICAL E RECIRC
		SOUTH DAVIS		NORTH PLA	PRIMARY DIGESTEF	MECH HOT WATER & SLUDG
				ENG		
		DRAW	/ING	NO.		
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NO	TES:							
1.	REFER TO 69M801 FOR PIPE SCHEDULE.	-						
2.	COORDINATE AND CONFIRM FINAL LOCATION FOR ALL INSTRUMENTS IN FIELD WITH ENGINEER AND OWNER.							
3.	PIPE CONFIGURATION BASED ON PRELIMINARY INFORMATION FOR DESIGN BASED EQUIPMENT. CONTRACTOR TO ADJUST PIPING ROUTING TO ACCOMMODATE FURNISHED EQUIPMENT.							
4.	PROVIDE PIPE SUPPORTS AND HANGERS WHERE INDICATED AND AS REQUIRED BY CODE.	Ш.,		ED		KED		
	KEYNOTES:	AG IS TO SCA REASURES FULL SCALE	HALF SCALE	WN CHECK	BMR	AWN CHECI		
1.	INSULATE ALL HOT WATER PIPING.	IF BAI	1/2" =	NAL DRA				
2.	PROVIDE 1" TAP TO 4" HOT WATER LINE WITH 1" SS BALL VALVE FOR DRAIN OR AIR VENT PORT. SEE DETAIL 2 ON SHEET 69M901.	- –		ORIGIN	t EES REVISI	24 DESIG		
3.	TAP 4" LNE FOR 1" NPT SS SPOOL. PROVIDE 1" SS BALL VALVE ON SPOOL FOR HOT WATER DRAIN POINT.	1/2		. DATE	04/01/2024	0. DATE 04/29/203		
4.	COORDINATE FIELD INSTRUMENT INSTALLATION WITH OPERATORS AND ELECTRICAL DRAWINGS.	o —		ON N	Ш	N N		
5.	SUPPORT PIPE HANGER FROM TEE BEAM HANGERS AS NEEDED. SEE TEE BEAM HANGER DETAIL S1002 ON SHEET 93S911.					STER		
		SOUTH DAVIS SEWER PL	1	NORTH PLANT UPGRAE		PRIMARY DIGESTER BUILDING/	MECHANICAL SECTIONS	
				EN	I G I			G
		DRAV		ο NO. 69	9M	4()5	
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MECHANICA	L EQUIPMENT SCHEDULE				
ME#	LOCATION	ITEM	SERVICE	HP (KW)	REMARKS
ME-68530	PRIMARY DIGESTER	ANAEROBIC DIGESTER	SLUDGE DIGESTION	-	80 FT DIAMETER DIGESTER WITH LINEAR MOTION MIXER, 155,500 CU-FT OR EQUAL
ME-68534A	NEW PRIMARY DIGESTER	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	VAREC RELIEF VALVE MODEL 5811B-4-1 W/ WEATHER COVER OR EQUAL
ME-68534B	NEW PRIMARY DIGESTER	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	VAREC RELIEF VALVE MODEL 5811B-4-1 W/ WEATHER COVER OR EQUAL
ME-68537	DIGESTER BUILDING	SEDIMENT TRAP	BIOGAS CONDENSATE AND SEDIMENT TRAP	-	6" VAREC CONDENSATE SEDIMENT TRAP MODEL 233-06-F-S OR EQUAL
ME-68550	DIGESTER BUILDING	HEAT EXCHANGER	SLUDGE HEATING		6" ALFA LAVAL SPIRAL HEAT EXCHANGER MODEL SW OR EQUAL
ME-68560	DIGESTER BUILDING	HEAT EXCHANGER	SLUDGE HEATING		6" ALFA LAVAL SPIRAL HEAT EXCHANGER MODEL SW OR EQUAL
ME-70500	DIGESTER BUILDING	EXPANSION TANK	HOT WATER LOOP EXPANSION	-	80 GAL BELL & GOSSETT SERIES B-300 FULL ACCEPTANCE TANK OR EQUAL
ME-70504	DIGESTER BUILDING	FLAME ARRESTER	BOILER DIGESTER GAS LINE FLAME ARRESTER	-	4" VAREC MODEL 5010 FLAME ARRESTER WITH THERMAL SHUTOFF VALVE OR EQUAL
ME-70505	DIGESTER BUILDING	BOILER	HOT WATER LOOP HEATING	-	ALDRICH COMPANY SERIES A3W4-60-G, 2,410,000 BTUH
ME-70510	DIGESTER BUILDING	AIR SEPARATOR	HOT WATER LOOP AIR SEPARATOR	-	34 GAL BELL & GOSSETT ROLAIRTROL R-6F (B) OR EQUAL
(ME-70521	DIGESTER BUILDING	SUCTION DIFFUSER	HEAT PUMP FLOW CONDITIONING		BELL & GOSSETT SUCTION DIFFUSER
ME-70526	DIGESTER BUILDING	SUCTION DIFFUSER	HEAT PUMP FLOW CONDITIONING		BELL & GOSSETT SUCTION DIFFUSER
ME-72510	FLARE LINE	FLARE IGNITION SYSTEM	WASTE GAS BURNER IGNITION	120V	PROVIDED WITH FLARE PACKAGE
ME-72520	FLARE LINE	DIGESTER GAS FLARE	WASTE GAS BURNER		6" VAREC 244W SERIES WASTE GAS BURNER AND IGNITION SYSTEM OR EQUAL
ME-72530	FLARE LINE	FLAME TRAP ASSEMBLY	LINE IGNITION PROTECTION AND PRESSURE RELIEF	-	4" VAREC MODEL 440 SERIES FLAME TRAP ASSEMBLY OR EQUAL
ME-76231	DIGESTER BUILDING 2	SEDIMENT TRAP	BIOGAS CONDENSATE AND SEDIMENT TRAP	-	4" VAREC CONDENSATE SEDIMENT TRAP MODEL 233-06-F-S OR EQUAL
ME-76232	DIGESTER BUILDING 2	DRIP TRAP	BIOGAS CONDENSATE DRAIN	-	4" VAREC MANUAL DRIP TRAP MODEL 2466 OR EQUAL
ME-76233	DIGESTER BUILDING 2	FLAME TRAP	BIOGAS LINE FLARE ARRESTER	-	4" VAREC 4500421S OR EQUAL
ME-80500	DEWATERING BUILDING	EMERGENCY EYE WASH AND SHOWER	EMERGENCY EYE WASH AND SHOWER	-	EMERGENCY SHOWER AND EYEWASH MODEL 8300.158 OR EQUAL
ME-80510	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X17' HORIZONTAL SHAFTLESS SCREW CONVEYOR FROM DEWATERING	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80515	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X17' VERTICAL SHAFTLESS SCREW CONVEYOR	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80517	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X23'-6" HORIZONTAL SCREW CONVEYOR TO SLUDGE DRYING BED	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80520	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X28' HORIZONTAL SHAFTLESS SCREW CONVEYOR TO TRUCKS	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80601	DEWATERING BUILDING	MONORAIL CRANE	DEWATERING PRESS CRANE	460V / 15HP	AMERICAN EQUIPMENT SYSTEMS 5 TON MONORAIL CRANE CLASS 1, DIVISION 2 RATED OR EQUAL

	TYPICAL OF 2 HEAT EXCHANGER PUMPS		0 1/2 1/2 DRAWING IS TO SCALE IT= FULL SCALE 1*= FULL SCALE IT= FULL SCALE 1/2*= HALF SCALE NO. DATE DESIGN NO. DATE DESIGN NO. DATE DESIGN NO. DATE DESIGN R 04/01/2024 RSP T 04/29/2024 EIT D 04/29/2024 EIT
J 530B	$ \begin{array}{c} & \overrightarrow{TIT} \\ & \overrightarrow{70530} \overrightarrow{A} \\ & \overrightarrow{70530} \overrightarrow{A} \\ & \overrightarrow{70530} \overrightarrow{B} \\ & \overrightarrow{70530} \overrightarrow{B} \\ & \overrightarrow{70530} \overrightarrow{B} \\ & \overrightarrow{70540} \overrightarrow{A} \\ & \overrightarrow{70540} \overrightarrow{70540} \overrightarrow{A} \\ & \overrightarrow{70540} \overrightarrow{70560} \overrightarrow{70560} \\ & \overrightarrow{70560} \overrightarrow{70560} \overrightarrow{70560} $	TO HEAT EXCHANGER 194 1124 FROM HEAT EXCHANGER 1124 195	SOUTH DAVIS SEWER DISTRICT NORTH PLANT UPGRADE 1800 W 1200 N WEST BOUNTIFUL, UT 84087 INSTRUMENTATION - P&ID BOILER AND HW RECIRCULATION
		4" IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Signa

AQUA ENGINEERING LLC, © COPYRIGHT

NC	TES:							
1.	REFER TO 69M801 FOR PIPE SCHEDULE.							
2.	PIPE CONFIGURATION BASED ON PRELIMINARY INFORMATION FOR DESIGN BASED EQUIPMENT. CONTRACTOR TO ADJUST PIPING ROUTING TO ACCOMMODATE FURNISHED EQUIPMENT.							
3.	PROVIDE PIPE SUPPORTS AND HANGERS WHERE INDICATED AND AS REQUIRED BY CODE.							
\bigcirc	KEYNOTES:					-		
1.	CONNECT BIOGAS AND NATURAL GAS TO BOILER AS REQUIRED BY BOILER SUPPLIER. CONTRACTOR TO COORDINATE SCOPE AND REQUIREMENTS PER GAS PRESSURE REGULATING VALVES FOR CONNECTIONS.	VING IS TO SCALE SAR MEASURES: = FULL SCALE	" = HALF SCALE	RAWN CHECKED	3DP BMR	DRAWN CHECKED BDP BMR		
2.	CONNECT EXPANSION TANK TO HOT WATER SUPPLY LINE PER BOILER SUPPLIER RECOMMENDATIONS.	DRAV IF E	1/2 ORIGINAL	DESIGN DF		DESIGN		
3.	CONFIRM BOILER VENT SIZE AND REQUIREMENTS WITH SUPPLIER.	2 –		ATE	01/2024	DATE /29/2024		
4.	CONNECT CORROSION INHIBITOR AND POTABLE WATER TO AIR SEPARATOR.	o		D.	B 04/0	- NO. - 100.		
5.	PROVIDE (3) GALVANIZED SUPPORTS FOR AIRSEPARATOR. CONFIRM FINAL CONFIGURATION AND LAYOUT WITH EQUIPMENT SUPPLIER AND ENGINEER SEE DETAIL 1 ON SHEET 69M901.					ER S		
6.	PROVIDE 1" TAP TO 4" HOT WATER LINE WITH 1" SS BALL VALVE FOR DRAIN OR AIR VENT PORT. SEE DETAIL 2 ON SHEET 69M901.	١T				GEST		
7.	COORDINATE FIELD INSTRUMENT INSTALLATION WITH OPERATORS AND ELECTRICAL DRAWINGS.	PLAN		ADE		G/DI(
8. 70505	SUPPORT PIPE HANGER FROM TEE BEAM HANGERS AS NEEDED. SEE TEE BEAM HANGER DETAIL S1002 ON SHEET 93S911.	SOUTH DAVIS SEWER		NORTH PLANT UPGR		PRIMARY DIGESTER BUILDIN	MECHANICAL	SECTION
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PIPE SC	HEDULE				
NO.	DESCRIPTION	SIZE	JOINT	MATERIAL	
1	SPOOL	24"	FLGxPE	DIP	
2	BLIND FLANGE	24"	FLG	DIP	
3	SPOOL	8"	GROOVED	DIP	
4	BLIND FLANGE	8"	FLG	DIP	
5	COMPANION FLANGE	8"x1"	FLGxNPT	DIP	
6	SPOOL	6"	GROOVED	DIP	
7	22.5° BEND	6"	GROOVED	DIP	
8	45° BEND	6"	GROOVED	DIP	
9	WYE	6"	GROOVED	DIP	
10	11.25° BEND	6"	GROOVED	DIP	
11	90° BEND	6"	GROOVED	DIP	
12	CONCENTRIC REDUCER	6"x4"	GROOVED	DIP	
13	CROSS	6"	GROOVED	DIP	
14	COMPANION FLANGE	6"x2"	FLGxNPT	DIP	
15	TEE	6"	GROOVED	DIP	
16	FLANGE ADAPTER W/ SS BACKER RING	6"	PE	HDPE	
17	SPOOL	6"	PE	HDPE	
18	90° BEND	6"	PF	HDPF	
19	SPOOL	4"	GROOVED	DIP	
20	TFF	4"	GROOVED	DIP	
21	90° LONG RADIUS BEND	4"	GROOVED	DIP	
22	SPOOL	4"	GROOVED	SCH 40 WS	
23	CAP	4"	GROOVED	SCH 40 WS	
20	TFF	4"	GROOVED	SCH 40 WS	
25	90° BEND	4"	GROOVED	SCH 40 WS	
26	45° BEND	⊿"	GROOVED	SCH 40 WS	
20		<u> </u>	GROOVED	SCH 40 WS	
28	SPOOL	6"	PF	SCH 20 SS	
20		6"	PF	SCH 20 SS	
30	11 25° BEND	6"	PF	SCH 20 SS	
31	22.5° BEND	6"	PF	SCH 20 SS	
32	45° BEND	6"	PE	SCH 20 SS	
33		6"	PE	SCH 20 SS	
3/		6"v/l"		SCH 20 SS	
35	SPOOL	<u>لا ال</u>		SCH 20 SS	
36				SCH 20 SS	
37				SCH 20 SS	
30		4 /"		SCH 20 SS	
20		4 6"			~
40		0 6"v4"			<u>,</u> 1
40		0 X4 6")
41	45 BEIND SPOOL	0 6"			
42		0			
43		0	SOCKET		
44		0			
45		0" C"			
40		0"	FLG		
47	SPOOL	0			
48		4"	GROOVED	SCH 40 WS	<u>у</u> ``
49	SPOUL	2"	PEXNPT	SCH 40 SS	
50	SPOOL	2"	NPIxFLG	SCH 40 SS	
51	REDUCING FERNCO *	4"x1"	-	RUBBER	
52	REDUCING FERNCO *	4"x2"	-	RUBBER	
53		4"x1"	FLGxNPT	SCH 40 WS	
* SERIE	ES 1056 COULER OR EQUAL				

SHEE		SOUTH DAVIS SEWER PLANT	0 1/2 1 DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE
VIN T			1/2" = HALF SCALE
б М С			ORIGINAL
10. 55	EN	NORTH PLANT UPGRADE	NO. DATE DESIGN DRAWN CHECKED
91	1 G		B 04/01/2024 EES BDP BMR
V			REVISIONS
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8	E		1 04/29/2024 EES BDP BMR
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	NC									
	1.	CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.								
	2.	CAP TANK PORTS NOT USED.								
	3.	SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.								
	4.	TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETRAC BY OMEGAFLEX OR APPROVED EQUAL.								
$\left\{ \right\}$	5.	CONTRACTOR SHALL COORDINATE FINAL FUEL PIPING LAYOUT BETWEEN DIESEL TANK AND GENERATOR UPON APPROVAL OF FINAL SUBMITTALS FOR THOSE EQUIPMENT.	S IS TO SCALE MEASURES: III I SCALE	HALF SCALE L	AWN CHECKE	3DP BMR		3DP BMR 3DP BMR		
	\sim	> KEYNOTES:	RAWING IF BAR 1" = FI	1/2" = H	GN DR					
	1.	CONNECT PER MANUFACTURERS RECOMMENDATIONS.	а ~ Т		DESIG)24 EI)24 EI		
	2.	ANCHOR PER MANUFACTURERS RECOMMENDATIONS.	1/2		DATE	04/01/20		04/19/2(04/29/20		
	3.	LADDER PROVIDED BY FUEL TANK SUPPLIER.	0-	┛	ON	Ш		~ ~		
	EE S RUT MLO	TANDING PIPING SUPORT (TYP) CK	SOUTH DAVIS SEWER DISTRICT	NORTH PLANT UPGRADE				FUEL STATION	MECHANICAL	PLAN
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	NC	DTES:										
	1.	CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.										
	2.	CAP TANK PORTS NOT USED.										
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	5.	CONTRACTOR SHALL COORDINATE FINAL FUEL PIPING LAYOUT BETWEEN DIESEL TANK AND GENERATOR UPON APPROVAL OF FINAL SUBMITTALS FOR THOSE EQUIPMENT.	3 IS TO SCALE MEASURES:		HALF SCALE L	AWN CHECKEI	3DP BMR	S	3DP BMR			
	\langle	> KEYNOTES:	RAWINC		1/2" = H RIGINA	IGN DR	ш —	/ISION				
	1.	CONNECT PER MANUFACTURERS RECOMMENDATIONS.			J D D	DES	2024 EI	RE	2024 E	-		
	2.	ANCHOR PER MANUFACTURERS RECOMMENDATIONS.	0 1/2			O. DATE	3 04/01/2	_	04/19/2			
	3.	LADDER PROVIDED BY FUEL TANK SUPPLIER.				Z	ш					
	4.	CUT PIPE AT 45° ANGLE.										
		YING YP)	SOUTH DAVIS SEWER DISTRICT		NORTH PLANT UPGRADE				FUEL STATION		MECHANICAL	SECTIONS
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	NC	DTES:											
	1.	CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.											
	2.	CAP TANK PORTS NOT USED.											
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	5.	CONTRACTOR SHALL COORDINATE FINAL FUEL PIPING LAYOUT BETWEEN DIESEL TANK AND GENERATOR UPON APPROVAL OF FINAL SUBMITTALS FOR THOSE EQUIPMENT.	S IS TO SCALE MEASURES: ULL SCALE	HALF SCALE		AWN CHECKE	3DP BMR	S	3DP BMR				
,	$\langle \rangle$	> KEYNOTES:	EAWING F BAR I 1 = FL	1/2" = H	GINA	SN DR		SION					
	1.	CONNECT PER MANUFACTURERS	<u>е</u> —		ORI	DESIG	4 EIT	REVI	4 EIT				
	2.	ANCHOR PER MANUFACTURERS RECOMMENDATIONS.	1/2			DATE	04/19/2024		04/29/202				
	3.	LADDER PROVIDED BY FUEL TANK SUPPLIER.	₀⊥			NO.	ш		-				
			SOUTH DAVIS SEWER DISTRICT							FUEL STATION	MECHANICAL	ULCITONO	OLC I CINC
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