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ADDENDUM NO. 5

Date: September 25, 2018
Project: **Secondary Treatment Plant Upgrade & Recycled Water Expansion**
Job No.: 12600-07/16650-02

To: All Planholders and Prospective Bidders

This addendum consists of thirty-nine (39) pages including this page and all attachments with cover sheets broken down as follows:

Main Addendum #5 Document (including cover, signature page, and this sheet) – 15 pages

Attachment A – Public Parking Area & Contractor Parking Restrictions Plan and Contractor Employee Parking/Materials Storage Area - 3 pages (including cover sheet).

Attachment B – Specification Section 011000 – Summary of Work (revised) – 19 pages (including cover sheet).

Attachment C – Revised Instrument Schedule – 2 pages (including cover sheet).

Acknowledge receipt of this addendum in the space provided on page 2-5, Proposal Cover Page and Bid Schedule, of the Bid Forms, and by signing in the space provided below. Submit original copy of this addendum cover page along with the bid. Failure to do so may disqualify the bidder.

Las Gallinas Valley Sanitary District:

Bidder: _____

Michael P. Cortez, PE, District Engineer
Tel. No. (415) 472-1033, ext. 18

(Authorized Signature)

(Date)

The following changes and/or clarifications are hereby made to the Contract Documents, and shall become a part of the Contract Documents dated July 2018.

General Comments

1. The bid opening date has been moved to **Thursday, October 4th at 2:00 PM** local time.
2. To reiterate, the Contractor will not be able to use the existing public road and parking area for staff parking or staging. To clarify, a site plan indicating the no-parking areas is **attached to this addendum for reference**.
3. After additional review, the District and MMWD have elected to allow the existing MMWD facilities to be removed at the beginning of Phase 1, rather than at the end of Phase 1 as currently stated in the design drawings and summary of work (reference sheets MMD-1 thru MMD-9). In general, this will simplify installation of nearby yard piping and structures, and reduce the coordination necessary between the District, MMWD, and the Contractor during construction. Note that the MMWD clearwell (at the top of the hill), and the MMWD distribution pumps are still to remain – the existing MMWD distribution pumps and associated electrical gear must remain in place and operational until the new pumps are installed and will still be replaced as currently described in the Summary of Work. In addition, temporary connections for drains, backwash, and sludge blow-off are eliminated from the work (Pipes 133 and 134).
4. The District has secured area (approximately 1.5 acres) for contractor employee parking and material storage/laydown at the San Rafael Airport (400 Smith Ranch Road, San Rafael, CA 94903), approximately one (1) mile from the jobsite, available beginning mid-December 2018. The contractor will be responsible for general housekeeping and sanitation, fencing (with entrance/exit gates) and security, and any minor grading necessary to utilize the parking and laydown area, and returning the area to the pre-existing condition upon exiting the site. No recreational vehicle parking/overnight parking will be permitted.

Additionally the contractor will be required to indemnify the District and the Airport owner and name the District and Airport owner as additional insureds for general liability, personal property and accident insurance policies pursuant to Sections 8.8 and 8.9 of the General Conditions.

In lieu of the area noted above the contractor may secure alternate employee parking and material storage/laydown area from adjacent property owners at the contractor expense

Volumes 1 & 2:

1. Volume 1 Notice to Bidders: The Bidding Date is updated as described above.

Volume 3A

1. **Section 011000:** This specification is updated due to the removal of the requirement to keep the MMWD treatment plant online during Phase 1. Please see the revised specification included with this addendum.
2. **Section 071900:** This specification is redundant to the CMU protective coating system (System E) already provided in Section 098000. Accordingly, Section 071900 is removed from Volume 3A. Note that System E as detailed in Section 098000 is applicable for interior and exterior CMU walls, and that exterior CMU walls will be covered with a stucco system as shown in the various Volume 4A design drawings.
3. **Section 133419:** For reference, the design basis building is a modified version of the “Type S” building as manufactured by Parkline, Inc.
4. **Section 220523, 2.18 G:** The size reference “16-inch” is removed from this section. The valves referenced are 14” per the valve schedule.

Volume 3B

1. **Sections 432413 and 432415:** In reference to the additional requirements stated in Section 2.2.I of these sections: “Manufacturer shall also review the installation, including structural supports, and shall provide stamped or certified calculations indicating that the supports in the design drawings are acceptable for the pump or providing revisions/recommendations to the supports and coordinating with the contractor and engineer to provide suitable structural supports.” Some manufacturers have asked that the language be changed as they cannot comply with this request. Manufacturers shall provide the reactions of their furnished equipment to allow for the support beams (as applicable to each location) to be reviewed and confirmed by the Engineer.
2. **Section 431133 - ROTARY LOBE BLOWER PACKAGE:** Manufacturer of this package shall include the following instrumentation, as a minimum, as part of their integral package: inlet pressure gauge, outlet pressure gauge, and outlet temperature gauges. In addition, any other instrumentation required to make the package a complete and reliable system shall be included in the package.

Volume 4A

1. **Sheets MMD-1 thru MMD-9:** As discussed above, the MMWD facilities that are to be removed may now be demolished at the beginning of Phase 1 rather than then end. Note that equipment, piping, and electrical associated with the distribution pumps must remain online and operational until the new distribution pumps are installed as currently described in the Summary of Work and design drawings. Otherwise, all other buildings, structures, piping, valving, tanks, and other facilities on the MMWD property will be abandoned and ready to demolish at the beginning of the project.

2. **Sheets C-6, C-14:** Pipes 133 and 134 are removed from the work along with their connection to MH#2.
3. **Sheet C-40:** Note that a vapor barrier (as shown in Detail 430 on Sheet SD-15 of Volume 4A) is required beneath the fuel tank pad shown on this sheet.
4. **Sheets UVS-1 thru UVS-12:** Note that a vapor barrier (as shown in Detail 430 on Sheet SD-15 of Volume 4A) is required beneath the **non-hydraulic** floor slabs in the UV building (i.e. the barrier is not required beneath the UV channel structures). This detail reference will be added to the construction set for clarity.
5. **Sheet SD-2: Note 3 is modified as follows:** “ALL RAIL SHALL BE RUFRAIL AS SUPPLIED BY THOMPSON FABRICATIN (LLC) ~~NO EQUAL~~ **OR EQUAL**”

Volume 4B

1. **E-20:** This instrument schedule is reissued with this addendum.

Questions:

The following questions were submitted on 9/13/2018:

1. Drawings for PLC-PSP and PLC-PRP shows ethernet switch connected to POE that is connected to an antenna. What is the spec for the POE and antenna. Can an antenna be connected directly to a POE?

The antenna and radio are integral and the PoE will power the radio directly. The radio shall be a UBIQUITI Nanostation, 5.8 Ghz.

2. Drawing ND-01 says three antennas are being moved to MMWD Tank. Drawing NI-03 shows two existing antennas internal to CTC-MMWD. Are these the same antennas? Where is the third antenna? One antenna shows connecting directly to a media converter. Please provide spec for the media converter?

Yes, those are the same antennas. The third antenna is the antenna to MMWD and is not currently shown on the final network drawings. For bidding purposes assume this antenna needs to be moved to the new location. For the media converter please supply a converter that will do ethernet to multimode fiber. LC connectors gigabit speed with a 0-60 C operating range.

3. Drawing I-22 references CTC-AB. Where is this shown on the NI drawings?

It is not specifically called out but is located in the Aeration Electrical Building. It houses the switches and patch panels shown in the outline for the electrical building.

The following questions were submitted on 9/14/2018:

1. Section 011000.1.3.A.24 requires a project construction survey in which “The Contractor shall be responsible to survey the location of all buried piping and fittings...” Can you please expand on this requirement and specify if this survey is for new piping that is to be installed or for all piping that may be exposed/modified/abandoned/etc throughout the course of construction.

This requirement is for new improvements only. The project (and Bid Schedule) have a separate pot-holing line item for locating existing facilities. However, the contractor should note any corrections/deviations observed on existing piping or improvements in redline set of the plans so that the as-builts can be as accurate as possible.

2. The cage design has a very tight spiral <**in reference to the caisson/pile rebar design**>. This always causes concern, especially when the piles are being poured using the wet method (under slurry). The concern is flowability of concrete through such tight rebar windows for proper concrete cover (refer to attached FHWA Construction Procedures and Design Methods – Chapter 8 & 9). Is there any way the spiral pitch gets increased? Maybe using #5 or #6 rebar?

It is structurally acceptable with #5 spiral tie at 7” pitch. Where spiral tie occurs, fabricator shall butt weld them.

3. Drawing UVS-3, Note 2, indicates a 5000 psi light weight concrete strength for the composite deck topping. Suppliers are indicating a maximum of 250 psi is all they can attain for lightweight concrete. Is the 5000 psi requirement correct?

Will be answered in a future addendum.

4. Confirm what the applicable calendar dates are for the wet and dry season and which work is constrained by these seasons. Per Summary of Work, (011000) only the temporary improvements to Secondary Clarifier has been identified as a dry season activity.

June 1st to Oct 31st is the dry season for District’s NPDES permit.

5. Drawing CD-7 does not provide dimensions for the rolling gate track concrete. Please provide. Also provide information on how long this “V” track needs to be and confirm there is room on site to place this additional track. Finally, provide details on the “V” track itself.

Lengths for rolling gates were detailed in a previous addendum. The length of track will need to be confirmed with the supplier based on the gate lengths previously discussed.

6. Upon review of owner selected equipment (Hybrid Fixed Film Activated Sludge by H20, Educator tube mixers by JDV, Secondary Clarifiers by Ovivo, UV Disinfection by Suez, Pressure Membrane by GE and WAS Thickener by Huber) listed in Volume 3A, appendix A, there are numerous discrepancies between the vendor supply scopes and the terms and conditions of the contract documents. For example; equipment costs, liquidated damages, terms and conditions, roles and responsibilities, startup and testing,

commissioning, payment terms, scopes, etc. differ from one equipment package to the other and differ from the Owner's Construction Contract. Please advise the bidding contractors as to the order of precedence between the Construction Contract and the vendor quotes as shown in Volume 3A, appendix A.

The language in the individual agreements between vendors and the District would take precedence as each contract was negotiated and tailored individually. These equipment packages could have different terms than the general terms for equipment that was not pre-selected.

7. Please provide the specific types of equipment and the relevant Specification Sections to be listed on the form "List of Major Materials," which is to be submitted at bid time.
Material packages in excess of \$20,000 shall be listed on the form.
8. The self-framed metal building (spec 133419) is typical of a modular building type. Please provide the basis of design for this building, specifically the manufacture or model type.
The design basis building is a modified version of the "Type S" building as manufactured by Parkline, Inc.
9. The paint schedule listed on SCH-1 thru SCH-4 and protective coatings (098000) differ from fluid-applied waterproofing specification (071400). Is fluid-applied waterproofing meant to supersede the coating schedule and specifications? Is so, please confirm which structures 071400 applies to?
Section 071400 is for concrete foundation/stem walls that are not hydraulic structures.
10. Please confirm the application of water repellants specification (071900) is for only the exterior face of the CMU structures, both the UV and electrical building.
Provide System E as listed in Section 098000 for interior and exterior CMU walls. A color/painted finish is not required for the exterior CMU wall face as they will be covered with a stucco system as shown in the drawings.
11. Please confirm the application of water repellants specification (071900) is for only the exterior face of the CMU structures, both the UV and electrical building.
This section is redundant to system E as detailed in Section 098000 (Protective Coatings). This system is applicable to interior and exterior CMU walls. Accordingly, Section 071900 can be removed from Volume 3A as discussed above.
12. Drawing C-12 and C-13 show the retaining wall and chain link fence overlapping. What is the total length of fence along the wall? If the fence is to be installed on top of the wall or attached to the side of the retaining wall, please provide details.

The District has elected to install the fence on top of the concrete retaining wall. Details for this installation shall be coordinated with the supplier/installer during the submittal process.

13. For demolition of tanks and storage areas, will the District be responsible for draining and emptying its contents? If not, are they assumed to be full? What is their contents and are there any special disposal requirements? Specifically, the hydronematic tank (D-11), dechlorination pump building and storage tanks (D-14), storage containers (D-14), MMWD filters, tanks, mixers, skids, ect (MMD-1 thru 9).

The District will drain the tanks as much as is feasible, though a small amount of residual chemicals may remain in various tanks that will need to be handled and properly disposed of with the tank removal. The hydropneumatic tank has non-potable water. Other chemicals in tanks on site include sodium hypochlorite (12.5%), sodium bisulfite (40%), caustic soda (25%), zinc orthophosphate, and aluminum sulfate. Please refer to Appendix A of Volume 2, Safe Work requirements for list of chemicals being used at the District.

14. Please confirm what specific materials properties are to be met per Concrete note #18 (pg G-8), "All aggregates shall be comparable to "San Gabriel Valley" aggregates".

This sentence is replaced with "All aggregates shall conform to Technical Specifications Section 32000 and 33000."

15. Please refer to "Notice Inviting Sealed Bids" page 1-1 #3, which states, "3. A mandatory pre-bid meeting is scheduled for 10:00AM on August 21st, 2018, 300 Smith Ranch Road, San Rafael, CA 94903." Please confirm that only the General Contractors listed on the sign-in sheet from the Mandatory Pre-bid Meeting are eligible to submit a bid for the project.

Confirmed.

16. Specification section 03300 2.3.B.1 allows for the maximum size aggregate in slabs on grade, walls, and all concrete shall be $\frac{3}{4}$ inch. Our supplier for this project only carries 1" for their concrete mixes. Will you consider mixes using 1" minimum? As $\frac{3}{4}$ " is not their norm, requiring it will increase the cost of concrete as it is a special request for material not on hand and would also have to add a shrinkage reducing admix.

Will be answered in a future addendum.

17. Drawing SD-15, Vapor Barrier Detail (430), please confirm under which buildings this detail is applicable. Section 03 30 00, 2.6A, references building slabs and/or mat foundations, but does not specify if this includes water containing structures or those constructed on caissons. Additionally, what prevents the lower sand layer from mixing with the $\frac{3}{4}$ " angular gravel layer?

The vapor barrier is required beneath certain slabs on or near top of grade that are not hydraulic structures. This detail is typically called out in the drawings where applicable, but the following list is compiled for reference: Fuel storage tank pad

(sheet C-40), UV building floor, excluding UV channels (sheets UVS-1 to UVS-12), Electrical Building (sheets EBS-1 thru EBS-5), Dechlorination Building (sheets DCS-1 thru DCS-2).

18. Addendum 3, Volume 3B, 3, h, Is this 18” over-excavation in addition to the 24” over-excavation and replaces the scarification referenced in previous sections or does it replace the 24” over-excavation entirely? (essentially replacing the 24” over-excavation with an 18” over-excavation & geogrid) Is this 18” bay mud stabilization required for all structures or just those not on caissons?

The 18” over-excavation with geogrid/filter fabric replaces the 24” over-excavation requirement (and is therefore not in addition to) for conditions where subgrade is unstable and required compaction cannot be achieved (e.g. in bay mud). This system would be required in any area that compaction is required (e.g. roadways/pavement, slabs on grade, grade beams/floor slabs that are supported on caisson/pier structures) where the excavation/compaction listed in the specifications cannot be achieved through the regular means.

19. Please provide any load restrictions on the bridge located east of the plant site.
The bridge is designed for H20 loading one truck/vehicle at a time. Contractor shall take extra precaution when using this bridge.

The following questions were submitted on 9/17/2018:

1. Reference Drawing E-04: Please provided manufacturer, model, series and build order number that identifies existing motor control centers MCC-RW1 and MCC-RW2.
Allen-Bradley Centerline 2100 Catalog No. Y Serial No. LTHNH27/1 and LTHNH27/2
2. Reference: Drawings: NI-03 and I-21: Please provided space requirements for existing Fixed Film Reactor MDA ipMASTERS that will be located within CTC-MMWD. And who will install the existing equipment.
The CTC needs to be twice the size shown on I-21 for CTC-MMWD to accommodate MDS radios, network hardware and possible future radios. The re-located radios will be installed by the contractor.
3. Reference: Drawing: NI-03 and I-21: Please provided space requirements for existing Business Network equipment that will be located within CTC-MMWD. And who will install the existing equipment.
See answer to Question 2 above. Re-located equipment will be installed by the contractor.
4. <In reference to the DBE/WBE forms in Appendix H of Volume 1> - The forms included in the original spec book appear to be out of date. There are more

recent updated forms required by the funding agencies which also include all of the GFE guidelines.

See response #8 below.

5. Is this project subject to the Buy America or Buy American material requirements for steel products?

As discussed in previous addenda, ARRA requirements (aka “Buy American”) and AIS requirements are not applicable to this project. The owner has listed American-made valves as part of the valve specifications.

6. Looking at the details for the ornamental iron fence on sheet CD-7 it shows the ornamental iron fence at 7’ high. But looking at the chain link fence details on sheet CD-9 it does not show a height for the chain link fence fabric. On sheet CD-9 under “NOTES”, #9 says that the fabric shall be a minimum of 6’ high. Please clarify the height of the chain link fabric.

The intent is to match existing chain-link fence at the site as the new fence will be connecting to existing fence at multiple locations. The existing fence is nominally 7-foot tall, with filter fabric height to match.

7. Which item number in the Bid Proposal covers the fencing and gates on this project. We are thinking that the fencing and gates would be under Bid Item #4 Clear and Grub, Site Work. Please clarify which bid item includes the fence and gate portion of the work on this project.

A WBS number 120 is listed on the site plan sheets where the various fencing is indicated. Per the Bid Schedule, it is anticipated that these items would be associated with Bid Item #4.

8. Regarding Good Faith Effort requirements and forms are they outdated or are they not included. With no requirement guidelines to follow how can you expect a prime contractor to fulfill the requirements?

The forms in the bid documents are intended to satisfy requirements listed in Article II, Section 3 paragraphs (e)(2)(i) through (vi) of the grant agreement for both general contractor and subcontractors. Contractor shall comply with other requirements set forth in Appendix H of Volume 2. There may be newer versions available, but the forms provided are sufficient for bidding purposes.

The following questions were submitted on 9/18/2018:

1. The details on drawings call out Thompson rails, no equal. The specs say nothing. Please advise.

The District has standardized on the rail style produced by Thompson Rails, however “or equal” products will be allowed.

2. The bidder's check list mentions to include the Financial Qualifications and Statement of Experience of Bidder I do not see them included in the package, please clarify?
Financial Qualifications and Statement of Experience of Bidder are not required to be submitted as part of the bid.

The following questions were submitted on 9/18/2018:

1. E20 has a column for instrument ranges however no ranges are called out. Please provide required instrument ranges. Ranges can often impact the model numbers and prices of instruments?
See updated instrument list.
2. PI-16 show LIT 43-LIT-1011, 43-LIT-1012, 43-LSH-1011 and 43-LSH-1012 however these instruments are not included on the instrument schedule. Specification 22 12 45-6.2.3H indicates that these instruments are to be supplied with the Dechlor Tanks by the vendor. Please confirm that these instruments are to be supplied by the Tank Manufacturer?
It is our preference that the leak detection system be provided by the tank manufacturer and as such is not included in the instrument schedule. However, we would like the IS to provide the ultrasonic level sensors to maintain commonality with equipment being provided elsewhere.
3. PI-16 shows 43-AE-1340 at the Pond Diversion Box Sample Line however this instrument is not shown on the Instrument List. Please confirm that this instrument is required?
See updated instrument schedule.
4. PI-27 shows 51-FE/FIT-1007 as a 10" meter however the instrument schedule calls this meter out to be a 16". Please confirm what size this meter needs to be?
The meter is 10-inch.
5. PI-09 shows 61-PI/PSH-1100 and 61-PI/PSH-1200 both on an annular seal. Addendum 4 indicates that these should be added to the instrument list however they did not make it on the revised E20 schedule. Please revise schedule to include the assemblies?
See updated instrument schedule.
6. PI-27 shows 51-PI-1000 however this instrument is not shown on the Instrument Schedule. Please confirm that this gauge is required.
See updated instrument schedule.

The following questions were submitted on 9/19/2018:

1. The fan schedules for the subject job (Sheet SCH-14) call for Loren Cook direct drive fans for 44-H-1510 and 44-H-15-20, with 3/4HP 460/3/60 motors. The specs, however (Section 233400 2.3 C. 5) call for belt drive fans. The scheduled fans are not available as

standard with the motors scheduled and, should we be able to get a 460/3/60 direct drive motor for these fans, we will require VFD's or some sort of fan speed control. If we go with belt drive fans, per the written spec, we can get the 3/4HP 460/3/60 motors with no need for additional fan speed control. Please advise how you would like us to proceed?

Belt drive fans are acceptable.

1. Do you have the Single Line showing the 500KW? The spec states both a 1500KW and a 500KW Generator are being provided with this bid. Please clarify
Strike the 500kW generator from the specification. Only the 1500kW is being supplied.

The following questions were submitted on 9/20/2018:

1. Reference: Drawings: E-01 thru E-05 (Online Diagrams) and VFD Control Schematics.
- Some of the VFD's installed within the MCC's on the online diagram are depicted with load reactors. VFD Control Schematics however don't include load reactors. Are load reactors required?
Yes. Loads that show load reactors on the Online Diagrams require load reactors. This supercedes the schematic in the case of the load reactors.
2. Reference: Drawings: E-13 (VFD Control Schematic) - Please provide manufacturer, model and part number for BMH Brake Rectifier and Aux Terminals .
Please coordinate with the biowheel equipment supplier for brake rectifier sizing and model. The aux terminals represent the field terminals at the brake assembly itself.

The following questions were submitted on 9/20/2018:

1. Drawing E-44, ductbank 4, calls out conduits P61-1100A, F001, F010. These conduits do not show up on the conduit schedule. Please provide conduit size and conductors.
Conduits F001 and F010 appear on E-35 and conduit P61-1100A is 1" and has 3 #12s w/ #12 GND.
2. See Conduit Schedule E-11. There are call out for TSP ITC and TRIPLEX ITC conductors. We could not find an abbreviation or spec for ITC. Please clarify what is required for ITC conductor
ITC – Instrument Tray Cable. All tray cable requirements in specification 260523 apply to these cables.
3. Drawing E-44 Rev 2, ductbank 6. Conduits P43-2100A, P43-2200A, P43-2300A, P43-2400A, SP503A, and SP503B do not show up in the conduit schedule. Please provide conduit size and conductors to be used

See sheet E-25 Rev 1 released in Addendum 3 for the P43 conduits. SP503A/B/C is a 1" spare with pull cord intended as a spare for 240VAC. Route is LP-AB to VLT 28 to JB-43-1000 then to the site lite.

4. Drawing E-33. SHD Triplex is called out on the conduit schedule, but does not appear in the specification. Please provide spec/manufacture/part number for SHD Triplex
This should be #18 Triplex instead of SHD Triplex

The following questions were submitted on 9/20/2018:

1. Question: Regards Flex checks with Tag#s: 36-V1102, V1202, & V1302. And (3) plug valves with tag#s: 36-V1103, V1203, & V1303.

Should the (3) 14" flex checks and the (2) 14" plug valves on the outlet of the pumps be 16" size instead?

Asking as your spec for the Flex checks says these flex check tags are to be 16" and meet the minimum flow requirements as per this paragraph in the spec...

- G. For the three 16-inch swing check valves (36-V-1102, 36-V-1202, and 36-V1302) headloss through the valve is a critical aspect of the valve. The design basis valve lists ~6-inches of headloss through the valve at peak flow (6.4 MGD). Valves with headloss greater than 10-inches will significantly decrease the internal recycle pump flow capacity and will be rejected during the submittal process.

**However, the current valve schedule and mechanical drawings indicate 14" on these valve and the flanged tee after them. I'm guessing the 14" plug valves on the inlet side of the pumps are still meant to be 14" just not sure about the tags listed above, I suspect they may be meant to be 16" as your spec states the pump design is based on this size?

The valves are 14" per the valve schedule. The size reference in the specification section is deleted.

2. In section 8.8 of the Insurance requirements under 8.8.3.2 (2) Subcontractors, it says that the General Liability Insurance limit is \$3 million per occurrence. Our normal General Liability Insurance is 1 million/2 million limit and we have a \$5 million Umbrella Policy. Is our insurance coverage having the \$5 million Umbrella acceptable in meeting the \$3 million General Liability Insurance called out for the Subcontractors.

Yes, Umbrella Policy is acceptable.

3. In section 8.8 of the insurance requirements under 8.8.3.5 Pollution Legal Liability there is no limit amount stated.

- a. What is the Pollution Insurance limit required amount?
 - b. This type of insurance is not typically carried by most Subcontractors and is expensive to purchase. Will the Subcontractor performing the fence and gate scope of work be required to furnish the Pollution Liability Insurance policy?

Fence and gate installation do not involve lead-based paint or asbestos identification/remediation; hence, Evidence of Insurance for Contractors Pollution Liability is not required.

4. Please confirm per 316329 – 3.3.B the “Owner will engage a qualified testing agency to perform tests and inspections”. Please confirm this includes all inspections and testing related to drilled concrete piers, including cross-hole sonic logging (CSL).

Confirmed.

5. Detail 204, on Drawing GE-03 indicates a 2’-6” minimum cover of 85% compacted native soil over ductbanks. Section 26 05 43, 3.2, H, 7, indicates a minimum cover of 24”. Please confirm the backfill requirement.

Minimum backfill requirement is 24-inches

6. Drawing SE-06, Note 4, requires all existing vaults to remain accessible. Please detail the method required to keep existing vaults accessible in areas of grade change. Please also identify all vaults that are to be altered.

Risers shall be added to increase the existing vault heights in areas where the existing grade is raised.

7. Drawing E-49, indicates that DB-21 runs from V#20P/V#20S to Flow Meter Vaults, but is not identified on the electrical site plans. Please confirm the location of this ductbank.

The first flow meter vault is right next to V#20S. The DB-21 should be shown from V#20S/V#20P to the vault shown at the top of SE-07 labeled “Secondary Effluent Meter Vault” The layout drawing reference should be corrected to LE-15 as well. DB-21 should also have S42-1120C (both) struck from the ductbank and conduit S42-1120D corrected to S44-1000D

8. Ductbank between Electrical Building and V#20P/V#20S is called out as DB-30 on Drawing E-49 and DB-33 on Drawing SE-06. Please confirm ductbank call out.

The ductbank between the electrical building and V#20P/V#20S should be corrected to DB-33 on sheet E-49

9. DB-11 is called out on Drawing SE-05, but does not appear on the Ductbank cross sections. Please confirm ductbank sizing.

Strike DB-11 from SE-05.

10. Please define the haul route to the existing stockpile and provide any limitations and/or requirements for access.

Main route is through Reclamation Bridge (designed for H20 loading) and existing levee parallel to Miller Creek owned by the District. Alternate route is through St. Vincents Dr-Hwy 101-Smith Ranch Rd. Contractor is responsible for obtaining permission from St. Vincent’s School for Boys and SMART if required.

11. Are the electrical installation costs for the UV Building to be included in bid item A.1? If not, please provide the required location.

Electrical costs for the UV building are part of bid item A.1.

12. Drawing DE-15, please confirm if below ground utilities called for demo must be removed or can be abandoned in place.

The conduits may remain in place however all cabling should be removed where possible.

13. 9. Drawing PI-17, 62-FE/FIT-2640 is shown as included with a vendor package, but appears in the Instrument schedule. Please confirm scope of supply.

This flow meter is part of the polymer dosing skid furnished with the mechanical thickener equipment package.

14. 10. 51-LSH-1010 is indicated on the instrument schedule, but does not appear on the P&ID's. Please confirm location.

This is a vault flood alarm and should be located next to 51-FE-1009 on PI-16. It will also be physically located in the vault with the flow meter shown on SE-06.

15. 11. The following instrumentation items appear in the P&ID's, but are not shown on the instrument schedule. Please confirm scope of supply.

PI-12 61-PI-1200 – See updated instrument schedule

PI-12 61-PSH-1200 – See updated instrument schedule

PI-12 61-PI-1100 – See updated instrument schedule

PI-12 61-PSH-1100 – See updated instrument schedule

PI-16 43-LSH-1011 – **This is a leak detector for the tanks and will be provided by the tank manufacturer.**

PI-16 43-LSH-1012 - **This is a leak detector for the tanks and will be provided by the tank manufacturer.**

PI-16 43-LIT-1011 – See updated instrument schedule

PI-16 43-LIT-1012 – See updated instrument schedule

PI-16 43-AIT-1600 – See updated instrument schedule

PI-16 43-AIT-1610 – See updated instrument schedule

PI-16 43-AIT-1620 – See updated instrument schedule

PI-16 43-AIT-1630 – See updated instrument schedule

PI-16 43-AE-1340 – See updated instrument schedule

PI-24 52-AE-1200 – See updated instrument schedule

PI-27 51-PI-1000 – See updated instrument schedule

PI-16 43-FSH-1400 – See updated instrument schedule

PI-17 62-FSH-5010 – See updated instrument schedule

16. Drawing P-16 indicates that 43-AIT-1610 was typical of 5 chlorine analyzers, but only 4 appear on the instrumentation schedule. Please confirm quantity.

5 – this includes 43-AE/AIT-1340

17. Section 26 32 13, 2.1, B, references two required generators. Electrical drawings only indicate the location of one of these two units. Please provide the install location of the 500kW generator.

Strike the 500kW generator from the specification.

18. There is a note 13 on page 236 (RM-1) that refers to replacement of 2 motors on second level and to see electrical drawings. We cannot find any specification or drawings that provide any details for this work.

If this is part of the rebid please provide the motor specification and the blower manufactures model number and part number for these items.

The two motors are to be furnished with the membrane equipment package and installed by the Contractor. Wiring and bucket updates to accommodate these motors are already detailed in Volume 4B.

19. Please confirm blower discharge pressure requirement? The spec states 20 feet. Is this the side water depth of the tank?

Based on the mixer submittal and the airlines relative depth in the service basin, a 20-foot discharge pressure from the blower is sufficient. The basins' operating water depth is 20-feet and the air-line connection to the mixer is located ~3-feet above the basin floor.

20. The P&ID drawing PI-03 only shows the blower package having a pressure transmitter, no gauges or other switches. Aerzen typically supplies an inlet pressure gauge, discharge pressure gauge and discharge temp gauge/switch. In addition, the spec does not call for any gauges, switches or transmitters. However, in drawing PSM-5, it does look like gauges are on the package. Please confirm required instrumentation to be supplied by the blower manufacturer.

Drawing PI-03 is referring to existing blowers that will not be worked on in this contract. At a minimum, the package shall include inlet and outlet pressure gauges and a discharge temperature gauge, along with any other required instrumentation the manufacturer recommends for a reliable and complete blower package.

END OF QUESTIONS SECTION FOR ADDENDUM #5

LIST OF ATTACHMENTS

Attachment A: Public Parking Area & Contractor Parking Restrictions Plan, Contractor Employee Parking/Materials Storage Area

Attachment B: Section 011000 – Summary of Work

Attachment C: Drawing E-20

END OF ADDENDUM #5

See following Sheets for Attachments

Attachment A

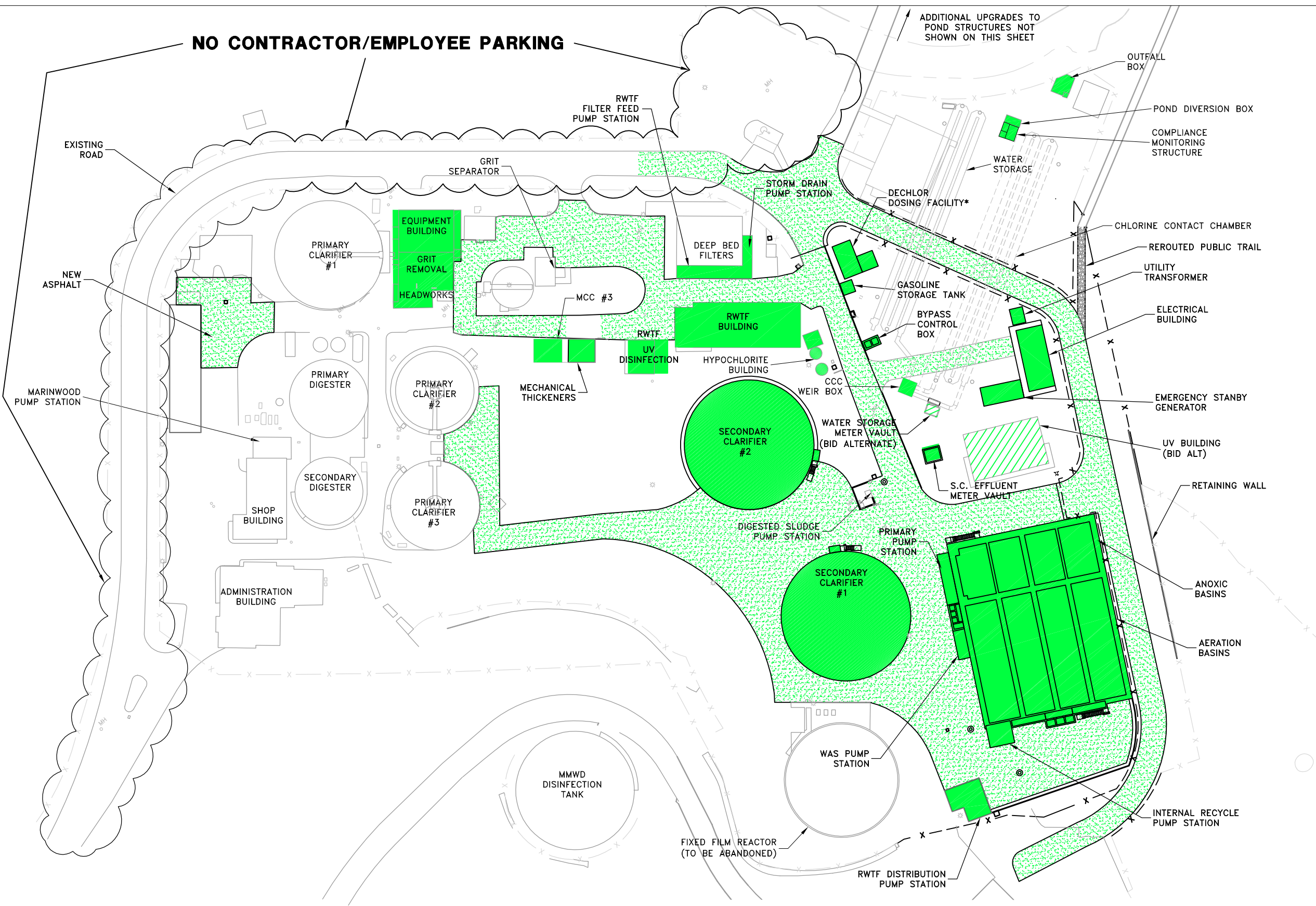
Public Parking & Contractor Parking Restriction Plan Contractor Employee Parking/Materials Storage Area

KRB_09/24/2018 X:\Las Gallinas\LASG150119-Secondary Treatment Upgrades\Drafting\Civil\G-19.dwg

PLOTTED:
SAVED:

PLOT: EXTEND
SCALE: 1:1
BORDER: 22,34

COLOR: No.
RED 0.70MM
YELLOW 0.20MM
GREEN 0.25MM
CYAN 0.40MM
BLUE 0.50MM
MAGENTA 0.20MM
WHITE 0.35MM
GRAY 0.15MM
9 0.15MM
10 1.00MM
100 0.70MM
210 0.60MM



LEGEND

- NEW ASPHALT/PAVEMENT
- NEW OR UPDATED STRUCTURE
- BID ALTERNATE
- GRAVEL ACCESS

* REMOVED WITH UV BID ALTERNATE

OVERALL SITE PLAN
SCALE: 1"=40'-0"
0 40 80
Scale in Feet



JOB NO. 12600-07/16650-02
LAS GALLINAS VALLEY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA
SECONDARY TREATMENT PLANT AND RW EXPANSION

GENERAL OVERALL SITE PLAN

CHECKED JRL		DRAWN DCH		SCALE AS SHOWN
APPROVED JRL		DESIGNED EES		DATE 07/26/18
GENERAL MANAGER Chris DeGabriele		DISTRICT ENGINEER Michael P Cortez		
		RCE # 54038		
NO.	DATE	DESCRIPTION	BY	APPR'D
REVISIONS				

ADDENDUM 5

LGVSD 1 FILE:
FD144793

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 40 80



Legend

- Parcel Note
 - easement
 - centerline
- Address
 - Parcel
 - Condominium Common Area
 - Mobile Home Pad
 - City

755-110-23
 900-012-24
 900-012-23
 755-110-24
 900-012-23
 900-012-21
 900-012-20
 900-012-19
 900-012-18
 900-012-17
 900-012-16

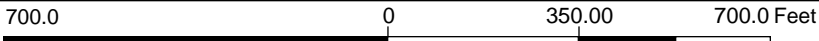
**POTENTIAL LGVSD PARKING/
 MATERIAL STORAGE AREA**

0.65 ac

NOTES:
 THE DISTRICT HAS SECURED AREA (APPROXIMATELY 0.65 ACRES) FOR CONTRACTOR EMPLOYEE PARKING AND MATERIAL STORAGE/LAYDOWN AT THE SAN RAFAEL AIRPORT (400 SMITH RANCH ROAD, SAN RAFAEL, CA 94903), APPROXIMATELY ONE (1) MILE FROM THE JOBSITE, AVAILABLE BEGINNING MID-DECEMBER 2018. THE CONTRACTOR WILL BE RESPONSIBLE FOR GENERAL HOUSEKEEPING AND SANITATION, FENCING (WITH ENTRANCE/EXIT GATES) AND SECURITY, AND ANY MINOR GRADING NECESSARY TO UTILIZE THE PARKING AND LAYDOWN AREA, AND RETURNING THE AREA TO THE PRE-EXISTING CONDITION UPON EXITING THE SITE. NO RECREATIONAL VEHICLE PARKING/OVERNIGHT PARKING WILL BE PERMITTED.

ADDITIONALLY THE CONTRACTOR WILL BE REQUIRED TO INDEMNIFY THE DISTRICT AND THE AIRPORT OWNER AND NAME THE DISTRICT AND AIRPORT OWNER AS ADDITIONAL INSUREDS FOR GENERAL LIABILITY, PERSONAL PROPERTY AND ACCIDENT INSURANCE POLICIES PURSUANT TO SECTIONS 8.8 AND 8.9 OF THE GENERAL CONDITIONS.

IN LIEU OF THE AREA NOTED ABOVE THE CONTRACTOR MAY SECURE ALTERNATE EMPLOYEE PARKING AND MATERIAL STORAGE/LAYDOWN AREA FROM ADJACENT PROPERTY OWNERS AT THE CONTRACTOR EXPENSE.



Attachment B

Revised Volume 3A Section 011000 – Summary of Work (revised)

SECTION 011000 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and drawing conventions.
9. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for details regarding temporary bypass pumping, limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: **Secondary Treatment Plant Upgrade and Recycled Water Expansion**

1. Project Location: 300 Smith Ranch Road, San Rafael, California 94903

B. Owner: Las Gallinas Valley Sanitary District (LGVSD)

C. Design Engineer: AQUA Engineering, (801) 299-1327

D. Construction Managers MWH Constructors

1. Consultants have been engaged for this Project to provide engineering and construction services and to serve as Project's coordinator.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- ##### A.
- The following list has been furnished for the convenience of the Contractor and shall not be considered as representing all Work required in the Contract Documents. Contractor shall not take advantage of any errors or omissions in this listing and shall report any discrepancies or questionable items to the Engineer for clarification. The Work of Project is defined by the Contract Documents and consists of the following:

1. The Mobilization of all equipment, labor, tools, and materials to and from the project site.
2. Site demolition and removal of existing equipment and/or infrastructure as indicated in the Contract Documents.
3. Construction of all site improvements as indicated in the Contract Documents.
4. Modification of the existing Headworks, including grit chamber modifications and other miscellaneous items.
5. Construction of new electrical building.
6. Modifications to primary clarifier effluent piping.
7. Demolition of primary and secondary biofilters.
8. Construction of new primary pump station, anoxic basins, and aeration basins including splitter structures, RAS collection structure and installation of all associated equipment, pumps, pipes, valves, gates, and other related items.
9. Modify existing secondary clarifier for interim phasing operation.
10. Construction of two new secondary clarifiers and all associated mechanisms, piping, valves, and other related items.
11. Construction of new dechlorination dosing facility including all foundations/pads, building, and associated tanks, pumps, valves, piping, and other related items.
12. Construction of new UV building (refer to bid alternate items) include all foundations, concrete channels/structures, interior rooms/finishes, and all installation of all associated equipment, pumps, pipes, valves, gates, and other related items.
13. Modifications to existing chlorine contact chamber piping, water storage piping, and outfall structure.
14. Construction of new mechanical thickeners. Construction includes thickeners, pumps, piping, valves, gates, and other items associated with thickening.
15. Removal of deep bed filter sand media and associated equipment and modifications to existing structure to accommodate additional RWTF feed pumps and storm water drain pumps.
16. Installation of new pond water return pumps (in existing pump station structure).
17. Installation of additional recycled water treatment facility (RWTF) feed pumps in existing concrete channel.
18. Installation of RWTF membrane skids in existing process building.
19. Installation of new feed pumps in existing wet well to transfer membrane effluent to chlorine chamber.

20. Installation of new recycled water distribution pumps.
21. Other site modifications such as equipment pads, gasoline/fuel tank pads.
22. All associated site grading, yard piping, electrical, valving, paving, retaining walls, concrete walkways, and other appurtenances as indicated in the design drawings and specifications.
23. Coordination of all construction activities with plant operators to ensure the reliable and efficient operation of the plant during construction and transition to new processes. The WWTP is an active plant that must remain operational at all times.
24. Project Construction Survey – The Contractor shall be responsible to survey the location of all buried piping and fittings. The survey information shall be presented on the Record Drawings and each surveyed point shall have the Station, Offset, Elevation information and a brief description. The survey shall be performed and data certified by a licensed surveyor in the State of California.

List above is intended to provide an overview of the major project components and does not include all work described in Contract Documents.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.4 CONSTRUCTION DOCUMENTS

- A. The Contractor may obtain copies of the construction documents as directed in Volume I, “Contract Documents.” Electronic copies of the existing plant drawings will be available to the successful Contractor through the same means. Please note that hard copies of “record drawings” or “as-constructed drawings” from previous construction projects are not available. The contractor may produce hard copies as they may require internally from the electronic files provided.

1.5 PHASED CONSTRUCTION

- A. The Work shall be conducted in accordance to an approved Contractor Schedule.

1. Work on the project shall commence simultaneously with the Notice to Proceed and be substantially complete and ready for occupancy one thousand sixty (1,060) calendar days after the Notice to Proceed. All time-frames referencing “days” in the following description assume calendar days unless specifically stated otherwise. It is expected that the project will consist of several phases due to the need to keep the facility operational during the construction. Phasing of the project will require continuous coordination between the Plant staff and the Contractor as the plant needs to be operational during the construction.

- B. Phases: The following paragraphs are provided as guidance to the Contractor with the intent of providing general information regarding the required sequencing of construction of individual

processes and infrastructure. It is not the intent of the following paragraphs to identify all the work required to be in place for a given process to be Substantially Complete. Thus, items such as utility water connections, access roads, plant drain system, and process piping are not all specifically listed and discussed. The Contractor is responsible for all coordination and scheduling with the plant manager and personnel. The Contractor shall verify that all processes are available before the start-up of the systems. Also, some of the process infrastructure may be constructed (but not Substantially Complete) simultaneously, or ahead of the identified process predecessors. It is noted that the guidelines may change upon a more detailed review of the scheduling. The Engineer is not responsible for scheduling the Contractor's work.

1. **PHASE 1** shall be completed in 517 days from the Notice to Proceed with noted critical Recycled Water components being completed within a 456-day interim milestone of the Notice to Proceed. Phase 1 consists of the following main activities:
 - a. Recycled Water – Critical Interim Milestone Activities to be completed within 456 days of the Notice to Proceed. The upgrade to the RWTF will require several critical tie-ins to combine what are currently two independent recycled water plants. In order to facilitate the conversion into a combined plant and minimize down-time for both MMWD and NMWD, the following steps outline key points and tie-ins in the anticipated order of their completion.
 - 1) This work shall be completed in Phase 1 with a few minor items being completed at the beginning of Phase 2 as described below.
 - 2) Parallel Activities
 - i. MCCAB
 - 3) Description
 - i. While ~~MMWD and~~ NMWD continue to operate as currently installed (part of **Phase 1 work**):
 - Install new GE membrane skids and headers in the RWTF building.
 - Install new process piping in RWTF Process building to tie-in points (without completing tie-ins).
 - Install new membrane supply pumps in the DBF effluent channel (without completing tie-in to the main supply header that serves the existing supply pumps).
 - Install ~~portion of~~ new pond return piping (16"). ~~Do not complete the tie-in with the 16" MMWD line at this time.~~
 - Install 18" MMWD clearwell supply line to tie-in point with existing MMWD clearwell supply line near the existing MMWD distribution pumps. ~~Do not complete the tie-in at this time.~~
 - Remove one (1) NMWD distribution pump from the UV awning structure and install Phase 1 piping in the UV awning area. This will allow NMWD to continue supplying their 12" distribution line while new MMWD clearwell supply pumps are installed and brought online.
 - Install two (2) MMWD clearwell supply pumps in the RWTF UV wet well (one in the vacant spot and one to replace the NMWD pump that was removed). This allows one NMWD pump to continue furnishing water while two of the three MMWD clearwell supply pumps can be installed.
 - ~~Complete temporary tie-ins of MMWD drain (Pipe #134) and backwash (Pipe #133) lines to the rerouted 6" gravity line (Pipe #105) manhole #2. This will allow MMWD to continue to operate normally once the old~~

~~sludge ponds are removed for construction of the anoxic/aeration basin structure.~~

In summary, at the end of step 'a', ~~MMWD will continue to operate its facility as normal (including supply and distribution pumps),~~ NMWD will have one distribution pump only but otherwise operate as normal.

- ii. Once all membranes, pumps, and piping listed above have been installed, some downtime will be required to complete the first round of tie-ins. **(Phase 1):**
- ~~Tie-in new 18" MMWD clearwell supply line to existing supply line near the MMWD distribution pumps.~~ The existing MMWD distribution pumps must remain intact and operable.
 - Complete tie-ins for the new GE membrane skids inside the RWTF process building to existing process lines (skid supply, product/permeate, backwash, clean in place supply/return, air scour, drain, electrical, etc.).
 - Complete tie-ins for the two (2) new membrane supply pumps installed in the DBF effluent channel – this will require that the membrane supply be offline as the entire supply header must be offline.
 - After these items are completed, the membrane supply pumps and RWTF process (membrane) building will be at full capacity. Two of the three MMWD clearwell supply pumps will be installed providing full supply pumping capacity to the clearwell (with no standby pump). MMWD will transition to use water from the expanded RWTF facility. MMWD will continue using its existing distribution pumps, ~~but the rest of its plant can be taken offline and decommissioned.~~ NMWD will continue to pump water from the UV awning wet well with no standby pump.
 - **At this point, the RWTF will not be able to run at full (4.0 MGD) capacity!** The existing closed vessel UV disinfection system can only treat 1.6 MGD per vessel (total of 3.2 MGD). Thus, supply cannot exceed 3.2 MGD if NMWD will be supplying water from the RWTF UV wet well.
 - Chlorine will be introduced at this point for MMWD water to the clearwell so that this disinfection system can be monitored and verified before it becomes the sole point of disinfection.
 - Note that the demolition of the MMWD facilities ~~near the end of Phase 1~~ will be required to complete the secondary clarifier influent piping (from the new aeration basin structure) that will be necessary to complete startup of the new process at the end of Phase 1.

At the end of step 'b', the expanded RWTF membranes will supply water for NMWD and MMWD. Permeate from the membranes will pass through the existing closed vessel UV units to achieve disinfection and ensure that NMWD water still meets Title 22 standards. NMWD will continue to pump from the UV wet well, and the new MMWD clearwell supply pumps will furnish water to MMWD's clearwell. Chlorine will be injected to test the clearwell and any new disinfection monitoring that is in place. MMWD's plant can be abandoned and demolished except for the four (4) distribution pumps that must remain online to deliver water from the clearwell.

- iii. Once the items listed in parts a and b are complete, preparation for final transition can be completed. **(End of Phase 1/Early Phase 2):**
- Modify existing MMWD distribution pump station. This will include installing four (4) new distribution pumps and associated piping changes.
 - Replace the pond return pumps ~~and complete tie-ins for the pond return line with the existing 16" MMWD supply line (no longer needed by MMWD at this point).~~
 - Install new NMWD distribution line from new distribution pump station, utilizing a portion of the abandoned 16" MMWD line, and install line to the tie-in point with the existing 12" NMWD distribution line.
 - Complete MMWD clearwell tank bypass valving/connections
- b. Demolition – Includes various plant items in Phase 1 as follows:
- 1) Sludge pond storage area and associated feed/drain piping
 - 2) Storage containers/debris in chlorine contact chamber (CCC) area
 - 3) 15" Overflow Line from Junction Box
 - 4) Canopy and existing concrete pad near MCC #3 (to accommodate mechanical thickeners)
 - 5) Storage pads near lab building to make room for new public road
 - 6) Some boundary fencing (as required for access)
 - 7) MMWD backwash sumps at sludge ponds ~~– requires the rerouting of MMWD backwash and sludge blowoff lines prior to removal~~
 - 8) 6" VCP sewer (reroute). Removal item #19 on D-2. **May require bypass pumping for tie-ins; see Section 015000**
 - 9) Remove 4" NPW and 2.5" and 1.5" PW (reroute), removal items 34, 33, and 36 listed on D-2, respectively
 - 10) 12"/18" sewer line (reroute). Removal item #30 on D-2. **May require bypass pumps for tie-ins; see section 015000**
 - 11) Demolition of MMWD facilities ~~(near the end of Phase 1 as described in paragraph 'a' above.~~
- c. Electrical Building
- 1) This work shall be completed in Phase 1
 - 2) Predecessors
 - i. New power feed
 - ii. Overhead power relocation by utility (to be completed prior to project NTP)
 - 3) Construct and power new electrical building, transformer and generator. This facility shall be completed at least three (3) months prior to the completion of Phase 1 work in order to provide time for startup, commissioning and testing of the Phase 1 work. Connecting power to this building will need to be coordinated between PG&E and the Contractor.
- d. Install new public road along east side (including construction of retaining wall). Backfill and grading may take place as excavation and other material becomes available for use. Contractor is responsible for maintaining this non-paved road well-graded and in useable condition. The road must maintain access for the adjacent county golf course maintenance and service workers. Backfill, compaction, and settling of the

road shall be monitored by a 3rd party Geotech to monitor and minimize long-term settlement once final pavement is installed.

- e. Modifications to CCC and water storage risers and dewatering wells (to accommodate new grading in the area)
- f. Primary Pump Station
 - 1) This work is to be performed in Phase 1
 - 2) Predecessors
 - i. MCCAB shall be commissioned
 - 3) Parallel work will include construction of anoxic and aerobic basins. Associated yard piping required to connect this structure to the primary clarifiers and secondary clarifier.
 - 4) Construct RAS collection structure and WAS pump station (connected to primary pump station structure)
- g. Temporary Upgrades to Existing Secondary Clarifier #1
 - 1) This work shall be performed in Phase 1 and will be completed in two parts. The first part must take place during the dry season in 2019 as described below and involves modifications to the structure to facilitate its tie-in to the new process basins that will take place at the end of Phase 1. Per Volume 1, this work is associated with liquidated damages and must be completed within the timeline and constraints outlined therein and as described below.
 - 2) Predecessors
 - i. Stub line work for SC #2 RAS line (Pipe 116) and influent line (Pipe 119), to allow for connection of temporary influent and RAS lines from the existing SC #1 structure.
 - 3) Sequencing of clarifier modification work – This work shall be completed during the dry season prior to October 2019 and includes the installation of a temporary RAS line in the floor of the clarifier.
 - i. Bypass pumping and piping (see Section 015000) will be required from the secondary biofilter to the northeast corner of the DBF structure where the piping will connect to a 12” line that returns flow to grit chamber #1 which will feed exclusively into PC #1 while this work is completed. This redirects the entire flow from the secondary biofilter effluent box to PC#1. PC#1 will be used as a secondary clarifier during this bypass pumping period to allow for the secondary clarifier work to be completed. This bypass will allow for the existing secondary clarifier to be taken offline to perform the required work.
 - ii. The Contractor shall coordinate power for bypass pumping and piping routing to the 12” line connection point and from there to PC#1.
 - iii. Operations will divert influent flow through screening, to grit chamber #2, and then to PC#2 and PC#3 during this time.
 - iv. Effluent from PC#1 will go directly to the DBF influent channel using existing plant piping.
 - v. This work should be accomplished in as short a period of time as possible with the maximum time available for the work being 30 days. Liquidated damages will apply for each day over 30 days.
 - vi. Installation of the temporary RAS and influent lines outside of the existing clarifier must also be completed before the tie-in work at the end of Phase 1, but do not necessarily require the clarifier to be offline and can therefore be completed at anytime during Phase 1.

- 4) Startup/Sequencing tie-in work – This work shall be completed at the end of Phase 1, once RAT testing of the new anoxic/aeration basins is nearing completion as described above.
 - i. Install temporary lines associated with the operation of the existing SC#1, 30” influent from aeration basin (Pipe #124) and 14” RAS piping (Pipe 121).
 - ii. Connect existing SC#1 influent to temporary influent line from new SC splitter box (Pipe #124). This connection will allow influent from both the secondary biofilter and the new splitter box to enter the existing clarifier.
 - iii. Connect one existing pump to temporary RAS line (Pipe #121) feeding into the RAS/WAS structure.
 - iv. Once RAT testing is complete and the secondary biofilter can be taken offline, the second pump should also be connected to the temporary RAS line. The temporary connection associated with Pipe #124 that connects to the secondary biofilter will be capped at this time as well, allowing flow solely from the new splitter box.

- h. Construct Process Basins (Anoxic and Aeration Basins)
 - 1) This work shall be completed in Phase 1 and includes all work associated with the process basins including the equipment installation, blowers, pumps, and Biowheel components.
 - 2) Predecessors
 - i. Removal/reroute of 6” gravity sewer and 12”/18” pressure sewer main.
 - ii. Demolition and backfill (as required) of sludge storage pond area.
 - iii. Rerouting of public road (graded gravel road)
 - 3) Parallel Work
 - i. Primary Pump Station
 - ii. MCCAB in electrical building
 - iii. Temporary upgrades to existing SC #1
 - iv. Required yard piping to connect new process to existing facilities/processes.
 - v. Demolition of MMWD plant as necessary to complete secondary clarifier #2 yard piping.
 - 4) Startup of this process will include the following sequence upon completion of the FAT:
 - i. Water will be drained to the top of the anoxic basin mixers (approximately 2’) in train 1.
 - ii. 20,000 gallons of seed sludge will be provided by the District, hauled in over 2 days, and will be pumped into train 1. This will raise the MLSS concentration to approximately 700 mg/l in train 1.
 - iii. A portion of the primary effluent (from PC #1) will be diverted to the Primary Pump Station and fed into train 1 in order to feed this system. This will begin once the first seed sludge is delivered. During the delivery of sludge seed, the quantity delivered shall not exceed 25,000 gallons.
 - iv. The IRPS will be used to recirculate flow to the anoxic basin feed channel with no flow exiting to the Secondary Clarifiers until the tanks are full.
 - v. The existing biofilters, secondary clarifier, and fixed film reactor will continue to process the majority of the primary effluent.
 - vi. The temporary RAS line will be connected to the existing secondary biofilter feed pumps. One pump will continue to pump flow to the secondary biofilter while one pump will be valved to pump RAS to the primary pump station. A standby pump will be provided by the contractor to backup either of these pumps during this process.

- vii. With train #1 full and seeded, it will be fed 25% of the primary effluent, and the RAS flow rate will be set at 1Q (or 750,000 gpd, 520 gpm). IRPS will continue to operate at about 4Q or 3 MGD.
 - viii. The system will operate like this for 7 days without issues to complete the RAT requirements.
 - ix. At the completion of the RAT for train 1, the MLSS concentration should be about 1,500 mg/l. At this time, train 2 can be brought online and commence the 7-day RAT for this train. The MLSS will be split between the two trains, dropping the overall concentration back down to about 700 mg/l and 50% of the Primary effluent will be pumped to the PPS and 50% will continue to the Primary Biofilter. At the successful completion of the 7-day RAT for this train, both basins 3 and 4 can be brought online with all the mixed liquor being split between the four basins and the PPS receiving 75-100% of the primary effluent.
 - x. The Secondary Biofilter could be taken offline at this time.
 - xi. Once the MLSS is increased to 2,000 mg/l, the 7-day RAT is complete for the entire system, and with operator approval, the Primary Biofilter can be taken offline.
- i. Install mechanical thickeners, WAS pumps and 4" WAS line, (Pipe #128)
 - 1) Mechanical Thickening shall be installed during Phase 1.
 - 2) Predecessors
 - i. MCCAB
 - ii. Awning and other adjacent removals in this area.
 - iii. New electrical gear in MCC #3.
 - 3) Parallel activities include
 - i. Installation of WAS pumps (in primary pump station).
 - j. Construct new dechlorination chemical storage and dosing facility (Item will be removed if UV bid alternative is selected)
 - 1) This work shall be performed in Phase 1
 - 2) Predecessors
 - i. MCCAB
 - 3) Parallel Work
 - i. Primary Pump Station
 - ii. Anoxic Basins
 - iii. MCCAB
 - k. Major Yard Piping
 - 1) Install 16" RAS bypass line (to internal recycle pumps)
 - 2) Reroute 6" gravity sewer/drain line, (Pipe #105)
 - ~~3) Install temporary backwash (Pipe #133) and drain lines (Pipes #134) from MMWD plant to new manhole #2 on rerouted gravity/sewer drain line (#105).~~
 - 4) Reroute 12"/18" pressure sewer main, (Pipe #114)
 - 5) Install stub lines SC influent, effluent, RAS, and scum lines; these lines will not be connected to the existing secondary clarifier until the new anoxic/aeration basin process is ready to bring online and have been mentioned as part of that work.
 - 6) Install 12" MMWD tank drain (Pipe #102)
 - 7) Install 30" PC#1 effluent line and bypass control structure (Pipe #131A/B) and associated Bypass Control Box; These lines cannot be tied into the existing 30"

PC #1 effluent line until after the temporary upgrades to the existing secondary clarifier are completed.

8) Install portion of 16" pond return line (Pipe #103) to Bypass Control Box

l. Modifications to MCC #3 building.

m. Regrade public trail as required to maintain grade with new public access road. Public trail and access shall remain open and protected during the entire construction project.

n. Install fencing

o. MMWD Demolition

1) This work is to be conducted at the ~~end~~ of Phase 1

2) Predecessors

i. RWTF

beginning

3) The distribution pump station and associated electrical gear shall remain in service even though the rest of the MMWD facility is removed. The pump station will be modified to service both water districts.

p. Recycled Water Distribution Pump Station Modifications

1) This work shall be completed in Phase 1

2) Predecessors

i. MCCAB

ii. Recycled Water Treatment Facility (RWTF) upgrades

3) This task must be completed before the existing MMWD distribution pump station, transformer, and MCC are removed from service.

q. Recycled Water Treatment Facility Upgrade (continued)

1) Once all of the piping and pumps listed for item a paragraph iii are installed to the tie-in points, final transition can be completed (**At the end of Phase 1 or at the beginning of Phase 2**):

i. Complete tie-in of 16" NMWD distribution line to existing 12" line.

ii. Bring new RWTF distribution pumps online. Switching of the pumps and power associated with this pump station may need to be staggered in order to continue supplying recycled water if needed.

iii. Remove final NMWD supply pump at UV wet well and install third (backup) MMWD clearwell supply pump at the RWTF UV wet well.

2) At this point, the RWTF should be online and operating at full capacity. Less critical tasks such as connecting the 12" MMWD clearwell drain line may still remain.

2. **PHASE 2** shall be completed in 730 days from the Notice to Proceed and consists of the following main activities:

a. Primary Biofilter Removal

1) The existing primary biofilter media and distributor will be part of Phase 2 (or Phase 3 if desired).

2) Predecessors

i. Phase 1 work must be complete, including construction of the primary pump station (PPS), anoxic/aeration basins, and associated yard piping improvements so that flow may bypass the biofilters to allow for their removal.

- b. Secondary Biofilter Removal
 - 1) This work shall be performed in Phase 2.
 - 2) Predecessors
 - i. Phase 1 work must be complete, including construction of the primary pump station (PPS), anoxic/aeration basins, and associated yard piping improvements.
- c. Primary Clarifiers
 - 1) Predecessors
 - i. Regarding the electrical work associated with the change in power feed to PC#2 and PC#3, MCCAB must be commissioned and operational prior to removing the existing power feed from MCC #9 and connecting to MCCAB. This work shall be coordinated with operations to ensure proper treatment can be achieved while the power feed change is accomplished.
 - ii. Connection of PC #2/#3 effluent to the Primary Pump Station cannot be completed until SC #2 is constructed and online, allowing for removal of the existing secondary clarifier and its associated influent/effluent piping.
- d. Secondary Clarifier #2
 - 1) This work shall be performed in Phase 2.
 - 2) Predecessors
 - i. Secondary Biofilter Demolition
 - ii. Anoxic/Aeration Basins, Primary Pump Station
 - iii. MCCAB
 - iv. Temporary improvements to existing Secondary Clarifier #1
 - 3) Parallel work:
 - i. Install SC#2 influent line (Pipe #119)
 - ii. Install SC#2 RAS line (Pipe #116)
 - iii. Install SC#2 scum line (Pipe #127)
 - iv. Install SC#2 effluent line (Pipe #112)
- e. UV Building (Bid Alternate)
 - 1) This work shall be performed in Phase 2.
 - 2) Predecessors
 - i. MCCAB
 - ii. MMWD removal
 - iii. Anoxic/Aeration Basins and PPS
 - iv. Demolition of dechlorination facility and installation of temporary dechlorination facility installation.
 - 3) Parallel activities include
 - i. SC#2
- f. Other Demolition Items:
 - 1) Remove unused portions of 16" MMWD pond return line, Removal Item #49
 - 2) Remove segments of abandoned old 12" sewage line. Removal Item #11
 - 3) Removal of additional boundary fencing as required for access
 - 4) Demolition and removal of old dechlorination chemical storage and dosing pump facilities
 - 5) Remove portion of 20" bypass line (and cap) – associated with secondary clarifier #2, Removal Item #6

- 6) Remove gasoline tank
 - 7) Remove pneumatic tank
 - 8) Remove portion of 30" SC#1 influent line (Removal Item #26) and portion of 30" Secondary Biofilter recycle line (Removal Item #15)
- g. Yard Piping and Site Improvements
- 1) Connect pond return pumps to new Bypass Control Box (Pipe #103)
 - 2) Install secondary clarifier effluent box and main 42" effluent line (including flow meter vault), (Pipe #111)
 - 3) Install 36" effluent line to connect CCC Weir Box to secondary effluent box (Pipe #99)
 - 4) Modify outfall structure and pond diversion box
 - 5) Complete modifications to CCC Weir Box
 - 6) Install new dechlorination injection points and sampling risers on 36" effluent line between CCC weir box and pond diversion box
 - 7) Install 42" UV effluent line to outfall structure. (Pipe #97 - BID Alternate)
 - 8) Install access roadway to new Electrical Building; **road may be graded without asphalt at this point, with asphalt completed in Phase 3**
 - 9) Extend retaining wall around digested sludge pump station
 - 10) Install 16" NMWD distribution line connection and tie-in to 12" line (Pipe #110)
 - 11) Install new gasoline tank/pad
 - 12) Install 8" PW line (Pipe #104)
 - 13) Upgrade Pond Return Pump Station
3. **PHASE 3** shall be completed in 1,060 days from the Notice to Proceed and consists of the following main activities:
- a. Demolition:
 - 1) Remove SC #1 and associated piping, including temporary influent and RAS connections/lines
 - 2) Removal of junction box and associated piping (replace j-box with segment of new HDPE pipe)
 - 3) Remove DBF influent line and filter feed line (from fixed film reactor), Removal Item #24
 - 4) Complete removal of DBF sand media and associated equipment
 - 5) Remove storm drain pump station. New storm drain pump station shall be operational prior to removal.
 - 6) Removal of effluent water pumps (at CCC box) and pneumatic tank
 - 7) Remove additional segments of abandoned 12" line (as accessible with construction of SC #2), associated with Item 2-D-4
 - 8) Remove 10" MMWD supply line
 - 9) Remove SC#1 effluent piping
 - b. Electrical Building MCC#9 Building Removal
 - 1) This work shall be completed in Phase 3.
 - 2) Predecessors
 - i. SC#2 shall be commissioned.
 - ii. MCCAB shall be commissioned and operation
 - c. Installation of new storm drain pumps (in DBF structure) and installation of new storm drain lines

- d. Construct Secondary Clarifier #1 (New Structure)
 - 1) Temporary work for existing structure will be performed during Phase 1, construction of the new SC #1 structure will take place in Phase 3.
 - 2) Demolition of existing secondary clarifier construction of the new Secondary Clarifier #1 shall be performed in Phase 3.
 - 3) Predecessors
 - i. Construction, startup, and commissioning of Secondary Clarifier #2
 - ii. MCCAB
 - 4) Parallel Work
 - i. Connect SC#1 influent (Pipe #118), effluent, RAS, and scum lines to SC #1
 - ii. Connect SC#1 effluent pipe (Pipe #111)
 - iii. Connect SC#1 RAS pipe (Pipe #115)
 - iv. Connect SC#1 scum pipe (Pipe #125)
 - e. Complete grading/paving work around the site
 - f. Install boundary fencing
 - g. Complete installation of NPW/PW
 - 1) Care shall be taken to keep NPW and PW available to existing process and the system operational during construction in order to maintain existing plant operations.
 - h. Install replacement pipe at Junction Box
4. Non-phase critical items. There are a few items that can be completed during any phase of the construction as follows:
- a. Headworks
 - 1) This work shall be coordinated with the District to ensure proper treatment can be achieved while the work is completed. If facilities are to be removed from service, t this work must occur during the dry season (typically June through October) when flows are lower. While this work is performed one grit chamber must remain in operation at all times.
 - 2) The work includes replacing effluent weir, effluent troughs, and isolation gates in the grit chambers, and other miscellaneous pipe modifications in the headworks/equipment building area
 - b. Modify hypo building and storage tanks
 - c. Install portion of SC#3 effluent line (Pipe #113)
 - d. Modify pond supernatant pump station
- C. The Contractor's Schedule shall include work phases and completion dates. It shall also be coordinated with the phasing and sequencing plan. It is anticipated and expected that work on all Phases will begin with the Notice to Proceed and only the completion dates of these Phases will be different. Items in later phases may be completed earlier based on an approved Contractor Schedule.
- D. The Contractor shall prepare and submit phasing/sequencing plans, prepared by a licensed engineer or Grade 5 operator, for all major areas of work prior to the commencement of the work

in that area. These plans will detail and sequence the general work flow, tie-ins, electrical work, and also address maintaining plant operations and permit compliance. Plans shall be submitted within 60 days to the Owner, Engineer, and Construction Manager for review and approval just like other submittals. Phasing/sequencing meetings may be required to work through more complicated areas and to insure coordination with plant operations. The contractor may use the individual process sequencing listed above as a basis to propose construction phasing/sequencing. Again, when developing the phasing/sequencing plan, the contractor shall evaluate other construction factors such as the requirement to keep the plant operational at all times and provide adequate access for plant operations and maintenance.

- E. There will be several local tie-ins and shut downs in order to bring on-line new equipment and infrastructure. The contractor shall coordinate ahead of time local tie-ins and shut-downs with the Plant staff and will be responsible for planning and coordinating all aspects of the work. The Contractor is required to submit a detailed work plan for each shutdown or tie-in event.
- F. While localized shut downs or bypassing may be required, the Plant shall continue to process influent flows and meet the current Water Discharge Permit (available upon request). It shall be the responsibility of the Contractor to ensure that each process maintains operability throughout the construction. All bypass pumping shall be provided with complete redundancy. The Contractor shall bear any fines associated with the failure to meet Water Discharge Permit requirements due to construction activities. The Contractor shall also be held liable for violations of applicable permits due to construction activities. The Contractor shall be held liable for damages resulting from sewage spills caused by improperly performed shutdowns and bypasses.
- G. For each proposed bypass operation, the Contractor shall submit a bypass plan in accordance with Section 020960 of the Specifications. Prior to any bypassing, the plan must be approved by the Owner and Engineer. The Contractor shall be responsible for clean-up and repair of any damage caused during bypassing.

1.6 OWNER FURNISHED EQUIPMENT

There is no Owner Furnished Equipment associated with this project.

1.7 OWNER SELECTED EQUIPMENT

- A. The Contractor shall be responsible to purchase, receive, offload, inspect, store, and install Owner Selected Equipment.
- B. See specification section 151100 for additional requirements and details.

1.8 ACCESS TO SITE

- A. General: Contractor shall have access to the Project site, defined as the limits of construction, for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors for work on the site or facilities. Contractor shall coordinate and confirm with Owner the areas that are essential for facility operation which shall not be disturbed, blocked, or impacted by the construction efforts.

- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. This includes maintaining access to the county facility located just south of the MMWD treatment facility.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
- C. The Contractor shall place a project sign at least four feet tall by eight feet wide made of ¾ inch thick exterior grade plywood or other approved material in a prominent location on the Project site and shall maintain the sign in good condition for the duration of the construction period. The sign shall include the following color logos (available from the Authority) and the following disclosure statement:

“This project has been funded in part with a WaterSMART (USBR) grant.”

1.9 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
 - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.
- B. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours notice to Owner of activities that will affect Owner's operations.
- C. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Engineer will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be Substantially Complete, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

D. The construction area includes a public access road. The phasing plans in the design drawings indicate proposed temporary routes for the public road to maintain necessary public access through the site. Contractor shall grade and maintain these roads and change the routing as possible to accommodate phased construction activity and required access – refer to Section 015000 Temporary Facilities and Controls for additional details.

1.10 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work at the existing site to normal business working hours of 6:30 a.m. to 5:00p.m., Monday through Friday, unless otherwise indicated by and/or agreed upon with operating staff.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate with Owner all operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy.
1. Notify Owner not less than 72 hours in advance of proposed disruptive operations.
 2. Additional limits on allowable vibrations are applicable for shoring/pile driving required for excavation near existing structures and improvements. Refer to Sections 312000 and 315000 for additional details.
- E. Smoking requirements are to comply with California State law.

1.11 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. General and Special Conditions: Requirements of General and Special conditions provided in Volume I of Contract Documents apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

END OF SECTION 011000

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Attachment C

Revised Volume 4B Drawings E-20

K:\LAS GALLINAS\000949 D LAS GALLINAS SECONDARY TREATMENT\SKM CAD FILES\14 E-20 INSTRUMENT SCHEDULE.DWG

PLOTTED: 9/24/2018
SCALE: 1:1
BORDER: 22,34

COLOR: No.
RED 0.70MM
YELLOW 0.20MM
GREEN 0.25MM
CYAN 0.40MM
BLUE 0.50MM
MAGENTA 0.20MM
WHITE 0.35MM
GRAY 0.15MM
9 0.15MM
10 1.00MM
100 0.70MM
210 0.60MM

ADDENDUM 5

LGVSD 1 FILE:
FD144793

SHEET	TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
PI-27	21-LT-1000	POND SUPERNATANT LEVEL TRANSMITTER	SIEMENS	HYDRORANGER 200	120VAC	0-15 FT	TRANSMITTER, OR APPROVED EQUAL
PI-27	21-LE-1000	POND SUPERNATANT LEVEL SENSOR	SIEMENS	ECHOMAX XPS-15	XMTR		PROVIDE WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
PI-09	23-LT-1002	PRIMARY PUMP STATION TRANSMITTER	SIEMENS	HYDRORANGER 200	120VAC	0-14 FT	TRANSMITTER, OR APPROVED EQUAL
PI-09	23-LE-1002	PRIMARY PUMP STATION SENSOR	SIEMENS	ECHOMAX XPS-15	XMTR		PROVIDE WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
PI-09	23-LT-1003	PRIMARY PUMP STATION LEVEL	KPSI	750	24VDC	0-10 PSI	LARGE HEAD, OR APPROVED EQUAL
PI-09	23-LSL-1004	PRIMARY PUMP STATION LEVEL LOW SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-09	23-LSH-1004A	PRIMARY PUMP STATION LEVEL HIGH SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-09	23-LSH-1004B	PRIMARY PUMP STATION LEVEL HIGH SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-09	23-PL-1100	PRIMARY PUMP 1 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-09	23-FSL-1100	PRIMARY PUMP 1 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-09	23-FE-1100	PRIMARY PUMP 1 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-09	23-PL-1200	PRIMARY PUMP 2 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-09	23-FSL-1200	PRIMARY PUMP 2 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-09	23-FE-1200	PRIMARY PUMP 2 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-09	23-PL-1300	PRIMARY PUMP 3 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-09	23-FSL-1300	PRIMARY PUMP 3 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-09	23-FE-1300	PRIMARY PUMP 3 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-09	23-PL-1400	PRIMARY PUMP 4 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-09	23-FSL-1400	PRIMARY PUMP 4 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-09	23-FE-1400	PRIMARY PUMP 4 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-09	23-PL-1500	PRIMARY PUMP 5 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-09	23-FSL-1500	PRIMARY PUMP 5 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-09	23-FE-1500	PRIMARY PUMP 5 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-11	23-FE/IT-1010	ANOXIC BASIN INFLUENT CHANNEL FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-22 MGD	24" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-11	23-FE/IT-1020	AERATION BASIN INFLUENT CHANNEL FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-22 MGD	24" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-10	31-AIT-1010	ANOXIC BASIN 1 ORP TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-10	31-AE-1010	ANOXIC BASIN 1 ORP SENSOR	HACH	pH		- 1500 mV to 1500 mV	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-10	31-AIT-2010	ANOXIC BASIN 2 ORP TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-10	31-AE-2010	ANOXIC BASIN 2 ORP SENSOR	HACH	pH		- 1500 mV to 1500 mV	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-10	31-AIT-1001	AERATION BASIN 1 DISSOLVED OXYGEN 1/2 TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-10	31-AE-1001	AERATION BASIN 1 DISSOLVED OXYGEN 1 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-10	31-AE-1002	AERATION BASIN 1 DISSOLVED OXYGEN 2 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-10	31-AIT-2001	AERATION BASIN 2 DISSOLVED OXYGEN 1/2 TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-10	31-AE-2001	AERATION BASIN 2 DISSOLVED OXYGEN 1 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-10	31-AE-2002	AERATION BASIN 2 DISSOLVED OXYGEN 2 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-11	31-AIT-4010	ANOXIC BASIN 4 ORP TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-11	31-AE-4010	ANOXIC BASIN 4 ORP SENSOR	HACH	pH		- 1500 mV to 1500 mV	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-11	31-AE-3010	ANOXIC BASIN 3 ORP SENSOR	HACH	pH		- 1500 mV to 1500 mV	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-11	31-AIT-3001	AERATION BASIN 3 DISSOLVED OXYGEN 1/2 TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-11	31-AE-3001	AERATION BASIN 3 DISSOLVED OXYGEN 1 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-11	31-AE-3002	AERATION BASIN 3 DISSOLVED OXYGEN 2 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-11	31-AIT-4001	AERATION BASIN 4 DISSOLVED OXYGEN 1/2 TRANSMITTER	HACH	SC200	120VAC		OR APPROVED EQUAL
PI-11	31-AE-4001	AERATION BASIN 4 DISSOLVED OXYGEN 1 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-11	31-AE-4002	AERATION BASIN 4 DISSOLVED OXYGEN 2 SENSOR	HACH	LDO PROBE 2		0-10 PPM	PROVIDE ORP SENSOR WITH APPROPRIATE CABLE LENGTH & HANDRAIL MOUNTING KIT, OR APPROVED EQUAL
PI-12	31-PT-5000	ANOXIC BLOWER HEADER PRESSURE TRANSMITTER	ROSEMOUNT	3051 SERIES	24VDC	0-10 PSI	OR APPROVED EQUAL
PI-12	36-FE/IT-1000	INTERNAL RECYCLE PUMP FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-15 MGD	24" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-12	36-PL-1100	INTERNAL RECYCLE PUMP 1 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-12	36-FSL-1100	INTERNAL RECYCLE PUMP 1 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-12	36-FE-1100	INTERNAL RECYCLE PUMP 1 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-12	36-PL-1200	INTERNAL RECYCLE PUMP 2 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-12	36-FSL-1200	INTERNAL RECYCLE PUMP 2 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-12	36-FE-1200	INTERNAL RECYCLE PUMP 2 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-12	36-PL-1300	INTERNAL RECYCLE PUMP 3 SEAL WATER PRESSURE GAUGE	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-12	36-FSL-1300	INTERNAL RECYCLE PUMP 3 SEAL WATER LOW FLOW SWITCH	DWYER	LOW FLOW MODEL V6			OR APPROVED EQUAL
PI-12	36-FE-1300	INTERNAL RECYCLE PUMP 3 SEAL WATER ROTAMETER	KROHNE	VA40 SERIES			OR APPROVED EQUAL
PI-09	33-LT-1111	SECONDARY CLARIFIER RAS SPLITTER BOX 1 LEVEL	SIEMENS	SITRANS PROBE LU	24VDC	0-7 FT	OR APPROVED EQUAL
PI-09	33-LT-1211	SECONDARY CLARIFIER RAS SPLITTER BOX 2 LEVEL	SIEMENS	SITRANS PROBE LU	24VDC	0-7 FT	OR APPROVED EQUAL
PI-14	23-LT-1020	STORM DRAIN STORAGE LEVEL	KPSI	750	24VDC	0-15 PSI	LARGE HEAD, OR APPROVED EQUAL
PI-14	23-LSL-1020	STORM DRAIN STORAGE LEVEL STOP SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-14	23-LSH-1020A	STORM DRAIN STORAGE LEVEL LEAD START SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-14	23-LSH-1020B	STORM DRAIN STORAGE LEVEL LAG START SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-16	51-FE/IT-1009	UV BYPASS FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-7 MGD	18" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-16	51-LSH-1010	SECONDARY CLARIFIER EFFLUENT BOX VAULT FLOOD SWITCH	GEMS	LS-74780	NO CONTACT		OR APPROVED EQUAL
PI-09	42-FE/IT-1120	POND RETURN FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-3500 GPM	16" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-16	43-LT-1011	SODIUM BISULFATE TANK NO 1 LEVEL	SIEMENS	SITRANS PROBE LU	24VDC	0-9 FT	OR APPROVED EQUAL
PI-16	43-LT-1012	SODIUM BISULFATE TANK NO 2 LEVEL	SIEMENS	SITRANS PROBE LU	24VDC	0-9 FT	OR APPROVED EQUAL
PI-16	43-AE/AT-1340	FINAL EFFLUENT CHLORINE RESIDUAL	HACH	CL10	120VAC	0-10 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-16	43-AE/AT-1600	SECONDARY EFFLUENT CHLORINE RESIDUAL VERIFICATION	HACH	CL10	120VAC	0-10 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-16	43-AE/AT-1610	BYPASS CHLORINE RESIDUAL	HACH	CL10	120VAC	0-10 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-16	43-AE/AT-1620	SODIUM BISULFATE DOSING CHLORINE RESIDUAL	HACH	CL10	120VAC	0-10 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-16	43-AE/AT-1630	FINAL EFFLUENT CHLORINE RESIDUAL	HACH	CL10	120VAC	0-10 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-16	43-FSH-1400	SODIUM BISULFATE BUILDING EYEWASH STATION	DWYER	LOW FLOW MODEL V6	NO/NC CONTACT		OR APPROVED EQUAL
PI-17	62-FE/IT-2500	THICKENER INFLUENT FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-150 GPM	4" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-17	62-FE/IT-2500	SLUDGE FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-50 GPM	4" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-17	62-FSH-2300	THICKENER SLUDGE PUMP 1 DISCHARGE PRESSURE SWITCH	ASHCROFT	SERIES B	120VAC	100 PSI	OR APPROVED EQUAL
PI-17	62-PL-2300	THICKENER SLUDGE PUMP 1 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-100 PSI	OR APPROVED EQUAL
PI-17	62-FSH-5010	POLYMER EYEWASH STATION	DWYER	LOW FLOW MODEL V6	NO/NC CONTACT		OR APPROVED EQUAL
PI-24	52-AE/AT-1200	RECYCLED WATER CFE TURBIDITY	HACH	TU5300	120VAC	0-1 NTU	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-26	52-FE/IT-1227	NMWD TANK FEED FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-4000 GPM	18" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-26	52-AE/AT-1250	NMWD TANK LINE CHLORINE RESIDUAL	HACH	CL10	120VAC	0-20 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-26	52-AE/AT-1260	NMWD TANK WIER CHLORINE RESIDUAL	HACH	CL10	120VAC	0-20 PPM	WITH SC200 DISPLAY OR APPROVED EQUAL
PI-26	52-LT-1300	NMWD TANK LEVEL	KPSI	750	120VAC	0-15 PSI	LARGE HEAD, OR APPROVED EQUAL
PI-26	43-AIT-1650	SODIUM BISULFATE DOSING CHLORINE RESIDUAL	HACH	CL10	120VAC	0-10 PPM	PART OF ALTERNATE BID OR APPROVED EQUAL
PI-26	43-AIT-1660	FINAL EFFLUENT CHLORINE RESIDUAL	HACH	CL10	120VAC	0-10 PPM	PART OF ALTERNATE BID OR APPROVED EQUAL
PI-27	51-FE/IT-1007	RECYCLED WATER NMWD DISTRIBUTION SYSTEM FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-4000 GPM	16" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-27	51-FE/IT-1006	RECYCLED WATER TO NON-POTABLE WATER FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-1000 GPM	4" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-27	51-PL-1000	NON-POTABLE WATER SYSTEM PRESSURE GAUGE	ASHCROFT	1279 SERIES	24VDC	0-100 PSI	OR APPROVED EQUAL
PI-27	51-PT-1009	NMWD DISTRIBUTION HEADER PRESSURE	ROSEMOUNT	3051 SERIES	24VDC	110 PSI	OR APPROVED EQUAL
PI-27	51-PT-1010	NMWD DISTRIBUTION HEADER PRESSURE	ROSEMOUNT	3051 SERIES	24VDC	175 PSI	OR APPROVED EQUAL
PI-27	51-PL-2100	NMWD DISTRIBUTION PUMP 1 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-200 PSI	OR APPROVED EQUAL
PI-27	51-PL-2200	NMWD DISTRIBUTION PUMP 2 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-200 PSI	OR APPROVED EQUAL
PI-27	51-PL-2300	NMWD DISTRIBUTION PUMP 1 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-200 PSI	OR APPROVED EQUAL
PI-27	51-PL-2400	NMWD DISTRIBUTION PUMP 2 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-200 PSI	OR APPROVED EQUAL
PI-13	44-FE/IT-1000	SECONDARY CLARIFIER EFFLUENT FLOW SENSOR/TRANSMITTER	SIEMENS	MAG 6000, 5100W	120VAC	0-20 MGD	20" 6000 IS THE TRANSMITTER, 5100W IS THE FLOWMETER, OR APPROVED EQUAL
PI-13	44-LSH-1010	SC EFFLUENT VAULT FLOOD SWITCH	GEMS	LS-74780	NO CONTACT		OR APPROVED EQUAL
PI-29	44-TE-1530	UV BUILDING INSIDE TEMPERATURE	ROSEMOUNT	SERIES 78 & 3144P	24VDC	0-100 DEG F	PROVIDE WITH 316SS THERMOWELL, OR APPROVED EQUAL
PI-29	44-AE-1540	UV BUILDING HUMIDITY	GE	GEH2-S	24VDC	0-100 %	OR APPROVED EQUAL
PI-29	44-TE-1550	UV BUILDING OUTSIDE TEMPERATURE	ROSEMOUNT	SERIES 78 & 3144P	24VDC	0-120 DEG F	PROVIDE WITH 316SS THERMOWELL, OR APPROVED EQUAL
PI-29	44-AE-1560	UV BUILDING OUTSIDE HUMIDITY	GE	GEH2-S	24VDC	0-100%	OR APPROVED EQUAL
PI-28	44-FSH-1500	UV BIOASSAY ROOM EYEWASH FLOW SWITCH	DWYER	LOW FLOW MODEL V6	NO/NC CONTACT		OR APPROVED EQUAL
PI-09	61-LT-1000	RAS BOX LEVEL TRANSMITTER	SIEMENS	HYDRORANGER 200	120VAC	0-15 FT	TRANSMITTER, OR APPROVED EQUAL
PI-09	61-LE-1000	RAS BOX LEVEL SENSOR	SIEMENS	ECHOMAX XPS-15	XMTR		PROVIDE WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
PI-09	61-LSL-1000	RAS BOX LEVEL LOW SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-09	61-LSL-1310	DRAIN BOX LEVEL LOW SWITCH	USA BLUEBOOK	48233	NO CONTACT		AVOCADO STYLE FLOAT SWITCH NORMALLY OPEN WITH APPROPRIATE LENGTH CABLE, NO MERCURY, OR APPROVED EQUAL
PI-12	61-PL-1100	WAS PUMP 1 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-25 PSI	OR APPROVED EQUAL
PI-12	61-PSH-1100	WAS PUMP 1 DISCHARGE PRESSURE SWITCH	ASHCROFT	SERIES B		21 PSI	OR APPROVED EQUAL
PI-12	61-PL-1200	WAS PUMP 2 DISCHARGE PRESSURE GAUGE	ASHCROFT	1279 SERIES		0-25 PSI	OR APPROVED EQUAL
PI-12	61-PSH-1200	WAS PUMP 2 DISCHARGE PRESSURE SWITCH	ASHCROFT	SERIES B		21 PSI	OR APPROVED EQUAL



JOB NO. 12600-07/16650-02

LAS GALLINAS VALLEY SANITARY DISTRICT
MARIN COUNTY, CALIFORNIA

SECONDARY TREATMENT PLANT UPGRADE
AND RECYCLED WATER EXPANSION

ELECTRICAL - POWER DISTRIBUTION
INSTRUMENT SCHEDULE

CHECKED MPJ	DRAWN DCL	SCALE AS SHOWN
APPROVED MPJ	DESIGNED MPJ	DATE 07/26/18
GENERAL MANAGER Chris DeGabriele		DISTRICT ENGINEER Michael P Cortez



533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com



533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153



NO.	DATE	DESCRIPTION	BY	APPR'D	SHEET	PLAN NO.	DRAWING NO.	REVISION NO.
2	9/24/18	ADDENDUM #5	MGJ	LAR	129	of 159	E-20	B
1	9/14/18	ADDENDUM #4	MGJ	LAR				
REVISIONS								