

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER R5-2015-0018

FOR

ROOT CREEK WATER DISTRICT  
RIVERSTONE WASTEWATER TREATMENT FACILITY  
MADERA COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board or Board) finds that:

1. On 20 June 2014, the Root Creek Water District in conjunction with Riverstone Development, LLC, and San Joaquin River Ranch, LLC, submitted a Report of Waste Discharge (RWD) and applied for Waste Discharge Requirements (WDRs) to discharge secondary and tertiary treated wastewater from new wastewater treatment facilities (WWTFs) to be constructed for the proposed Riverstone Development Project.
2. The Riverstone Development Project (formerly Gateway Village) is a proposed mixed use master-planned community consisting of approximately 6,578 residential dwelling units and 191 acres of land designated for commercial and mixed use development. No industrial or heavy commercial businesses are to be included in the proposed development.
3. The master-planned community (hereafter Riverstone or Development) will comprise approximately 2,072 acres in southeastern Madera County as shown on Attachment A, which is attached hereto and made a part of this Order by reference.
4. Riverstone Development, LLC, the project developer, will undertake development obligations for Riverstone including construction of the wet utilities related to the sewer collection system, and proposed wastewater treatment facilities. Riverstone Development, LLC shall transfer ownership and operation of these facilities to the Root Creek Water District at the time of startup.
5. Root Creek Water District, created in 1996, will be the public agency responsible for providing potable water along with wastewater collection, treatment, and disposal services for Riverstone and shall be responsible for compliance with these WDRs. Root Creek Water District (hereafter Discharger or District) will have a long-term contractual relationship with Riverstone Development, LLC, to provide water and sewer service to the new development as it is built.

6. Wastewater treatment facilities for the proposed development will be constructed in phases. For the first phase, wastewater treatment and disposal will be handled by an Initial Plant, which will be designed to treat and dispose of up to 0.3 million gallons per day (mgd) of secondary undisinfected wastewater to evaporation/percolation ponds. At build out, wastewater treatment and disposal, for the Development, will be handled by a Tertiary Plant designed to treat and dispose of up to 1.8 mgd of disinfected tertiary treated wastewater for irrigation of crops and landscaping.
7. Source Water for the Development will be groundwater. Water supply wells will be located throughout the project area. Well locations for two supply wells to provide potable water for the first phase of development (“Village A”) have been identified and tested. The character of the potable water supply is summarized in Table 1.

TABLE 1. Source Water Quality			
Constituent	Units	Well 153	Well 169
pH	s.u.	7.8	7.2
Electrical Conductivity (EC)	umhos/cm	412	385
Total Dissolved Solids (TDS)	mg/L	268	290
Bicarbonate	mg/L	110	130
Calcium	mg/L	30	27
Chloride	mg/L	52	32
Magnesium	mg/L	10	10
Nitrate as nitrogen (NO <sub>3</sub> -N)	mg/L	1.2	4.6
Sodium	mg/L	38	30
Sulfate	mg/L	15	10
Iron	mg/L	<0.05	0.14
Manganese	mg/L	<0.01	0.05

### **Initial Wastewater Treatment Facility and Disposal**

8. The Initial Plant will be constructed on a 20 acre parcel set aside for the WWTF on the west side of Road 40 just south of Avenue 11 on the southern edge of the proposed Development, Assessor’s Parcel Number (APN) 049-054-038, shown on Attachment A.
9. According to the RWD, the Initial Plant will be constructed to treat wastewater during the initial stages of the development. The Initial Plant will have capacity to handle an average dry weather flow of 0.3 mgd, with a maximum daily flow of 0.48 mgd. The Initial Plant will incorporate a Biolac® open extended aeration activated sludge biological treatment system, with nitrification/denitrification to reduce nitrogen concentrations in the effluent to less than 10 mg/L. The Initial Plant will produce an undisinfected secondary treated effluent, which will be discharged to a series of evaporation/percolation ponds constructed adjacent to the Initial Plant and at the Effluent Storage Pond Complex on Avenue 10 and

Road 39, shown on Attachment A. A flow schematic for the Initial Plant is included in Attachment B.

10. Because this is a new wastewater treatment facility, there is no existing effluent data available. The anticipated effluent quality for the Initial Plant based on the proposed treatment process and similar existing WWTFs is presented below:

<b>Parameter</b>	<b>Units</b>	<b>Result</b>
pH	pH units	7.4
Electrical Conductivity (EC)	umhos/cm	600
Ammonia as nitrogen	mg/L	<1
Biochemical Oxygen Demand (BOD)	mg/L	40
Total Suspended Solids (TSS)	mg/L	40
Chloride	mg/L	80
Sodium	mg/L	45
Total Dissolved Solids (TDS)	mg/L	400
Total Nitrogen (TN)	mg/L	<10

11. The RWD includes a water balance prepared by Provost & Pritchard, Engineering Group, Inc., for the proposed Development. Based on the water balance, the District will need approximately 99.1 acre-feet of storage to accommodate the proposed flow of 0.3 mgd from the Initial Plant with precipitation and inflow from a 100-year wet year. The water balance shows that the District will have more than enough area available to provide the necessary storage capacity.
12. Wasted sludge from the treatment process will be discharged to sludge drying beds to be constructed at the Initial Plant site. According to the RWD, the dried sludge will be taken to a nearby composting facility for use as a biofuel or delivered to the Madera County Landfill in Fairmead for disposal. Alternatively, the RWD states that the District may decide to load the sludge directly into bins to be hauled off rather than using on-site sludge drying beds. The RWD does not provide details for the construction of the sludge drying beds. This Order includes a provision requiring the District to submit a technical report with specifications for the construction and lining of the on-site sludge drying beds.
13. Based on development projections for Riverstone, the Initial Plant will meet wastewater treatment demands for the development for approximately six to eight years.

### Tertiary Wastewater Treatment Facility and Disposal

14. According to the RWD, when flows to the Initial Plant approach 80% capacity, construction will begin on a new tertiary wastewater treatment facility (hereafter Tertiary Plant). The Tertiary Plant will be constructed adjacent to the Initial Plant and include a sequencing batch reactor system with secondary equalization storage, tertiary filtration, and ultraviolet disinfection. The Tertiary Plant will also include nitrification/denitrification steps to reduce effluent nitrogen concentrations to less than 10 mg/L. The Tertiary Plant will produce a disinfected tertiary treated effluent for unrestricted reuse and will provide recycled water for crop and landscape irrigation. A flow schematic for the Tertiary Plant is included in Attachment C.
15. The Tertiary Plant will be constructed in two equal phases. Phase I will be designed to treat up to 0.9 mgd. Phase 2, with an additional capacity of 0.9 mgd, will be constructed as demand warrants, bringing the total treatment capacity for the Tertiary Plant to 1.8 mgd.
16. The anticipated effluent quality for the Tertiary Plant, based on the proposed treatment process and similar existing WWTFs, is presented below:

Parameter	Units	Result
pH	pH units	7.0
Electrical Conductivity (EC)	umhos/cm	600
Ammonia as nitrogen	mg/L	<1
Biochemical Oxygen Demand (BOD)	mg/L	<10
Total Suspended Solids (TSS)	mg/L	<10
Chloride	mg/L	80
Sodium	mg/L	45
Total Dissolved Solids (TDS)	mg/L	400
Total Nitrogen (TN)	mg/L	<10
Total Coliform Organisms (TCO)	MPN/100mL	<2.2

17. Solids processing facilities at the Tertiary Plant will include an aerobic digester, waste activated sludge storage, a centrifuge dewatering system, and covered storage bins. All sludge produced at the Tertiary Plant will be hauled off-site for disposal at an authorized facility.
18. The Tertiary Plant will have reliability and redundancy features that include: (a) standby power, (b) redundant machinery and/or components to allow for uninterrupted operation, (c) automated control, monitoring, and alarm systems, and (d) an emergency storage basin for diversion of effluent that does not meet Title 22 requirements for unrestricted reuse.

19. After treatment and disinfection, the effluent will be discharged to the Effluent Storage Pond Complex at Avenue 10 and Road 39. The Effluent Storage Pond Complex will consist of several unlined storage ponds with an estimated storage capacity of about 545 acre-feet at build out. A water balance included in the RWD indicates the amount of recycled water produced at build out would be about 2,000 acre-feet per year. Based on the water balance, the District will need approximately 530 acre-feet of storage to accommodate the proposed flow of 1.8 mgd with precipitation and inflow from a 100-year wet year.
20. The disinfected tertiary treated effluent will be used for irrigation of citrus and pistachio trees on land owned by San Joaquin River Ranch, LLC. The Root Creek Water District has an easement with San Joaquin River Ranch, LLC for wastewater reclamation on approximately 320 acres of land proposed for reclamation, and will contract with San Joaquin River Ranch, LLC for a similar easement on the remaining 320 acres once the Tertiary Plant is in operation. In addition, recycled water may also be applied to approximately 100 acres of landscaping within Root Creek Park, part of the Development. Together these properties make up the "Use Areas" for recycled water.
21. Once the Tertiary Plant is in operation, the Initial Plant will be decommissioned and the area redeveloped.

### **Water Recycling Regulatory Considerations**

22. Undisinfected domestic wastewater contains human pathogens that are typically measured using total or fecal coliform organism as indicator organisms. Title 22 of the California Code of Regulations ("Title 22") establishes criteria for the use of recycled water. This Order implements the applicable portions of the Title 22 water recycling regulations.
23. Effluent from the Tertiary Plant will be treated to meet the requirements for disinfected tertiary recycled water, under Title 22, section 60301, and is approved for use on food crops, including edible root crops, where the recycled water comes in contact with the edible portion of the crop; parks and playgrounds; school yards; residential landscaping; unrestricted access golf courses; and any other irrigation use specified in Title 22, section 60304, and not prohibited by other sections of the California Code of Regulations.
24. Title 22, section 60323, requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards. The Discharger has not submitted an approved Title 22 Engineering Report.

This Order includes a provision requiring the District to submit a copy of the letter from State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW) approving the Title 22 Engineering Report (including approval of the design and field commissioning tests/demonstration and long term operation and maintenance for

the UV disinfection system) and a copy of the approved Title 22 Engineering Report prior to initiation of wastewater recycling.

25. On 3 February 2009, the State Water Board adopted Resolution 2009-0011, *Adoption of a Policy for Water Quality Control for Recycled Water* (Recycled Water Policy). The Recycled Water Policy promotes the use of recycled water to achieve sustainable local water supplies and reduce greenhouse gases.
26. On 23 April 2009, the Central Valley Water Board adopted Resolution R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants* (the "Regionalization Resolution"). The Regionalization Resolution encourages water recycling, water conservation, and the regionalization of wastewater treatment facilities. It requires dischargers to document:
  - a. Efforts to promote new or expanded wastewater recycling opportunities and programs;
  - b. Water conservation measures; and
  - c. Regional wastewater management opportunities and solutions (e.g. regionalization).

Recycling of effluent by the District is consistent with the intent of the State Water Board's Recycled Water Policy and the Central Valley Water Board's Regionalization Resolution.

27. On 3 June 2014, the State Water Board adopted Water Quality Order 2014-0090, *General Waste Discharge Requirements for Recycled Water Use* (Recycling General Order). The Recycling General Order includes prohibitions, specifications, and administrative requirements for the production and application of recycled municipal wastewater for non-potable uses.

This Order includes a provision requiring the District to submit a Notice of Intent (NOI) and obtain coverage under the Recycling General Order prior to initiating wastewater recycling operations.

### **Sanitary Sewer Overflow**

28. The sanitary sewer collection system will consist of sewer pipes, manholes, and/or other conveyance system elements to direct raw sewage to the WWTF. A "sanitary sewer overflow" (SSO) is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the WWTF.
29. On 2 May 2006, the State Water Board adopted a General Sanitary Sewer System Order (Water Quality Order 2006-0003, *Statewide General Waste Discharge Requirements for*

*Sanitary Sewer Systems*) (the “General Order”). The General Order requires that all public agencies that own or operate sanitary sewer systems greater than one mile in length comply with the General Order. The collection system for the Development will be greater than one mile in length; therefore, the District will need to apply for coverage under the General Order.

### **Site-Specific Conditions**

30. Climate in the Central Valley is characterized by dry summers and mild winters. The rainy season generally extends from November through April. Occasional rains occur during the spring and fall months, but summer months are dry. Based on publications from the Department of Water Resources and the Western Regional Climate Center, annual rainfall for the Fresno and Madera area is about 14.4 inches, with a 100-year-return-period wet year rainfall of about 21.6 inches. From the California Irrigation Management System (CIMIS), the mean reference evapotranspiration rate (ET<sub>o</sub>) for the nearby station at Fresno State University is about 61.3 inches per year.
31. According to Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation Service, soils in the vicinity of the Riverstone WWTF site are predominately Whitney and Rocklin sandy loams, Ramona sandy loam, and San Joaquin sandy loam. These soil types contain hardpan inclusions and have very low to moderate permeabilities. Permeability tests conducted by Technicon Engineering Services, Inc., in the vicinity of the Riverstone WWTF ranged from 7.4 to 605 minutes per inch. Soils in the vicinity of the Effluent Storage Pond Complex consist predominantly of Atwater loamy sand. This soil type is characterized by moderate permeability. Permeability tests conducted by Technicon Engineering Services, Inc., in the vicinity of the Effluent Storage Pond Complex ranged from 4 to 52 minutes per inch.
32. According to the Federal Emergency Management Agency maps (Map Number 06039C1215 E) the Riverstone WWTF, Effluent Storage Pond Complex, and Use Areas lie in Zone X, areas determined to be outside the 500-year floodplain, with less than a 0.2% annual chance of flooding.
33. The site is generally undeveloped and consists primarily of rural residential and agricultural lands. The Rolling Hills development and Children’s Hospital of Central California are to the south and east of the proposed Development, and the Madera Ranchos development is approximately one mile to the northwest. Primary crops grown in the area include nut and citrus orchards, olives, vineyards, grain, and row crops. Currently groundwater is the primary source for irrigation water in the area. As discussed in the Environmental Impact Report and Infrastructure Master Plan for the Project, Root Creek Water District will import surface water from outside the District’s boundaries, and set up a groundwater recharge program through the use of direct and in-lieu recharge for use in mitigating the estimated groundwater overdraft within the District of approximately 3,400 acre-feet per year. In

addition, the District has a contractual agreement with Paramount Land Company to purchase up to 7,000 acre-feet of surface water annually from supplies controlled by Paramount and banked in Kern County as a back-up supply to ensure the Project's ability to meet its commitments including its groundwater recharge program.

### Groundwater Considerations

34. According to the Department of Water Resources (DWR) Groundwater Elevation Maps (Spring 2010), first encountered groundwater in the vicinity of the proposed Development occurs at about 200 feet below ground surface (bgs). Regional groundwater flow in the area is to the northwest away from the San Joaquin River.
35. The RWD includes a groundwater investigation conducted in 2014 to evaluate groundwater quality beneath the proposed WWTFs, disposal areas, and Use Areas. As part of this investigation, five monitoring wells were installed around the proposed WWTFs (monitoring wells MW-4 and MW-5), Effluent Storage Pond Complex (monitoring well MW-3), and Use Areas (monitoring wells MW-1 and MW-2).
36. Groundwater samples were collected in April 2014 to characterize shallow groundwater quality in the area. The results of the groundwater sampling are presented in Table 2 below.

TABLE 2. Groundwater Quality							
Constituent	Units	MW-1	MW-2	MW-3	MW-4	MW-5	MCL <sup>1</sup>
DTW <sup>2</sup>	Feet	136	163	217	218	218	
pH	pH units	7.4	6.9	7.5	7.0	7.1	
EC	umhos/cm	406	218	427	226	233	900/1600 <sup>3</sup>
TDS	mg/L	290	149	294	147	159	500/1000 <sup>3</sup>
NO <sub>3</sub> -N	mg/L	6.2	4.2	17.4	9.4	9.2	10 <sup>4</sup>
Bicarbonate	mg/L	130	70	80	40	50	
Calcium	mg/L	30	15	28	11	14	
Magnesium	mg/L	12	7	13	5	6	
Potassium	mg/L	5	4	7	5	5	
Sodium	mg/L	36	16	30	22	19	
Chloride	mg/L	19	11	22	16	14	250 <sup>5</sup>
Sulfate	mg/L	30	8	37	7	10	250 <sup>5</sup>
Iron	mg/L	<0.05	<0.05	0.08	<0.05	<0.05	0.3 <sup>5</sup>
Manganese	mg/L	<0.01	<0.01	0.06	<0.01	0.03	0.05 <sup>5</sup>

1. Maximum Contaminant Levels.
2. Depth-to-groundwater.
3. Recommended/Upper Secondary MCLs.
4. Primary MCL.
5. Secondary MCL.



37. Based on the groundwater investigation, groundwater quality in the vicinity of the proposed WWTFs, and effluent disposal and reclamation areas is of good quality. MW-3 in the vicinity of the proposed Effluent Storage Pond Complex contains nitrate as nitrogen ( $\text{NO}_3\text{-N}$ ) in excess of the primary MCL of 10 mg/L, as well as manganese at 0.06 mg/L, just slightly above its respective secondary MCL of 0.05 mg/L. This is likely the result of existing agricultural activities or natural conditions in the area.
38. With the proposed treatment and nitrification/denitrification to reduce nitrogen concentrations in the effluent to <10 mg/L, the discharge from the proposed WWTFs is not expected to exacerbate existing groundwater conditions.

### **Basin Plan, Beneficial Uses, and Water Quality Objectives**

39. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised October 2011* (the "Basin Plan") designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. In accordance with Water Code section 13263(a), these waste discharge requirements implement the Basin Plan.
40. The WWTFs and Use Areas are within the Berenda Hydrologic Area (No. 545.30) of the San Joaquin Valley Floor Hydrologic Unit, as depicted on interagency hydrologic maps prepared by State Water Board and Department of Water Resources, revised in August 1986. Local drainage is to the San Joaquin River. The beneficial uses of the San Joaquin River from Friant Dam to the Mendota Pool, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial process supply; water contact recreation; non-contact water recreation; warm and cold freshwater habitat; migration of warm and cold aquatic organisms; warm water spawning; and wildlife habitat.
41. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
42. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
43. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any 7-day period shall be less than

2.2 MPN per 100 mL in groundwater with a beneficial use of municipal and domestic supply.

44. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum requires waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
45. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses.
46. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
47. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC of less than 700  $\mu\text{mhos/cm}$ . There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000  $\mu\text{mhos/cm}$  if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.
48. Many surface waters and local groundwater supplies have been degraded with salt. In some areas, the high salinity is naturally occurring, but in many areas it is due to the acts of man. In 2006, the Central Valley Water Board, the State Water Board, and stakeholders began a joint effort to address salinity and nitrate problems in the region and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program.

### **Antidegradation Analysis**

49. State Water Board Resolution No. 68-16 (*“Policy with Respect to Maintaining High Quality Water of the State”*) (the “Antidegradation Policy”) prohibits degradation of groundwater unless it has been shown that:
- a. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
  - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
  - c. The discharger employs Best Practicable Treatment or Control (BPTC) to minimize degradation; and
  - d. The degradation is consistent with the maximum benefit to the people of the State.
50. The RWD included an antidegradation analysis that evaluated the potential for the discharge to impact groundwater quality. The antidegradation analysis looked at EC, TDS, nitrate, chloride, sodium, iron, manganese, total coliform organisms, and trihalomethanes. Concentrations of these constituents in infiltrated water were estimated by performing a site-wide water balance, taking into account contributions from precipitation, treated wastewater, and supplemental irrigation water. The antidegradation analysis found there would be some degradation with respect to EC, TDS, and chloride; however, the degradation would not affect beneficial uses or cause EC, TDS, and chloride levels in groundwater to exceed applicable water quality objectives.
51. Degradation of groundwater by some of the typical waste constituents of concern (e.g., EC and nitrate) released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of the State. The technology, energy, and waste management advantages of a municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impacts on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore provides sufficient reason to accommodate planned growth and allow for limited groundwater degradation.

### **Treatment and Control Practices**

52. The WWTFs described in Findings 8 through 21 will provide treatment and control of the discharge that incorporates:

- a. Use of advanced activated sludge treatment systems with nitrification/denitrification to reduce total nitrogen concentrations in the effluent to 10 mg/L or less;
- b. Application of disinfected tertiary treated wastewater for irrigation at rates that will not exceed reasonable agronomic demand in the areas where effluent will be recycled;
- c. Certified operators to ensure proper operation and maintenance of the treatment systems;
- d. A prohibition on the use of residential water softeners within the Riverstone Development boundaries;
- e. Proper sludge handling and off-site disposal; and
- f. Source water, discharge, and groundwater monitoring.

These treatment and control practices can be considered BPTC for these discharges.

### **Antidegradation Conclusions**

53. The discharge and the potential for groundwater degradation allowed in this Order is consistent with Resolution 68-16 since: (a) the limited degradation allowed by this Order will not unreasonably affect present and anticipated beneficial uses or result in water quality less than water quality objectives, (b) the Discharger will implement BPTC to minimize degradation, and (c) the limited degradation is of maximum benefit to the people of the State.
54. This Order establishes groundwater limitations that allow some degradation, but that will not unreasonably threaten present and future anticipated beneficial uses of groundwater or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.
55. This Order requires groundwater monitoring to evaluate potential groundwater impacts from the discharge and confirm that the BPTC measures are sufficiently protective of groundwater.

### **CEQA**

56. The proposed WWTFs and Riverstone Development (formerly Gateway Village) was reviewed as part of the Gateway Village Specific Plan Environmental Impact Report (the "EIR"), which was certified by the Madera County Board of Supervisors in accordance with the California Environmental Quality Act (CEQA) on 11 September 2007 (SCH #2005091071). The Central Valley Water Board was consulted as a responsible

agency during the development of the EIR, and has considered the final EIR and the significant environmental effects described therein and has reached its own conclusions on whether and how to approve the aspects of the project that fall within its jurisdiction.

57. Since the EIR was certified, the Discharger made minor changes to the proposed wastewater treatment, handling, and disposal facilities. These changes include the following:
  - a. A switch from an initial-phase WWTF that discharges secondary disinfected effluent directly to food crops to an initial-phase WWTF that discharges secondary undisinfectated effluent to evaporation/percolation ponds;
  - b. Accelerating the timeline under which the Discharger has committed to build a tertiary WWTF (the threshold was lowered from 550,000 gallons per day to 300,000 gallons per day); and
  - c. Recognition that the initial-phase WWTF will produce Class B biosolids rather than Class A biosolids; no impact is expected, since the EIR proposed shipping these biosolids to a classified facility that is able to handle both types of biosolids.
58. The Central Valley Water Board prepared an Addendum to the EIR for the Board's files that concluded that the minor changes in wastewater treatment, handling, and disposal will be insignificant and will not result in any potential environmental impacts that have not already been fully analyzed in the EIR.
59. The Central Valley Water Board finds that none of the circumstances set forth in Public Resources Code section 21166 or California Code of Regulations, title 14, section 15162(a) that would require the preparation of a subsequent EIR are present for this Project. Specifically, technical review of the Project finds that:
  - i. No substantial changes are proposed that will require major revision in the previous CEQA analysis due to the involvement of new significant environmental effects of a substantial increase in the severity of previously identified significant effects;
  - ii. No substantial changes have occurred with respect to the circumstances under which the Project is to be undertaken that will require major revisions to the previous CEQA analysis due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; and
  - iii. There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time

the CEQA analysis were adopted, that shows new significant effects, substantially more severe significant effects, or additional feasible mitigation measures.

60. This Order includes effluent limitations for flow, total nitrogen, BOD, TSS, total coliform organisms, and turbidity. Compliance with these limitations and the associated monitoring and reporting program will mitigate any potentially significant impacts to water quality to a less than significant level. This Order is being issued in conjunction with a monitoring and reporting program issued pursuant to Water Code section 13267 that will require the Discharger to report to the Board regarding the implementation of mitigation measures related to water quality. Mitigation of potentially significant effects unrelated to water quality falls within the responsibility or jurisdiction of other public agencies.

### **Other Regulatory Considerations**

61. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
62. Based on the threat and complexity of the discharge, the Riverstone WWTF is determined to be classified as 2B as defined below:
  - a. Category 2 threat to water quality: “ Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”
  - b. Category B complexity: “Any discharger not included in Category A that has physical, chemical , or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.”
63. California Code of Regulations, title 27 (“Title 27”) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste, which includes designated waste, as defined by Water Code section 13173. However, Title 27 exempts certain activities from its provisions. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

\* \* \*

(b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) The applicable regional water quality control board has issued WDRs, reclamation requirements, or waived such issuance;
- (2) The discharge is in compliance with applicable water quality control plan; and
- (3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

64. The discharge authorized herein (except for the discharge of residual sludge and solid waste), is exempt from the requirements of Title 27, section 20090(b) because:
- a. The Central Valley Water Board is issuing WDRs.
  - b. The discharge is in compliance with the Basin Plan, and;
  - c. The treated effluent discharged to evaporation/percolation ponds and the Use Area does not need to be managed as hazardous waste.
65. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. At build out the WWTF has a design capacity of greater than 1.0 mgd, but all storm water from the WWTF will be collected in an on-site storm water retention basin. Therefore, the District is not required to obtain coverage under NPDES General Permit CAS000001.
66. Water Code section 13267(b) states that:

In conducting an investigation specified in subdivision (a), the Central Valley Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region...that could affect the quality of waters within its region ...shall furnish, under penalty of perjury, technical or monitoring program reports which the Central Valley Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Central Valley Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order and monitoring reports required by the attached MRP R5-2015-0018 are necessary to assure compliance with these waste discharge requirements. The District operates the wastewater treatment facilities that discharge the waste subject to this Order.

67. DWR set standards for the construction and destruction of groundwater wells, as described in California Well Standards Bulletin 74-90 (June 1991). These standards, and any more stringent standards adopted by the State or county pursuant to California Water Code section 13801, apply to all monitoring wells.
68. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 Code of Federal Regulations (CFR) part 503, Standards for the Use or Disposal of Sewage Sludge, which establish management criteria for protection of ground and surface waters, sets limits and application rates for heavy metals, and establishes stabilization and disinfection criteria. However, the Central Valley Water Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to EPA.
69. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
70. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

### **Public Notice**

71. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the conditions of discharge of this Order.
72. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
73. All comments pertaining to the discharge were heard and considered in a public meeting.

**IT IS HEREBY ORDERED** that pursuant to Water Code sections 13263 and 13267, Root Creek Water District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

#### **A. Discharge Prohibitions**

1. Discharge of waste to surface waters or surface water drainage courses is prohibited.



2. Bypass or overflow of untreated wastes, except as allowed by Standard Provisions E.2 in *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991, is prohibited.
3. Discharge of waste classified as 'hazardous', as defined in California Code of Regulations, title 23, section 2521(a), is prohibited.
4. Discharge of wastewater in a manner or location other than that described herein or in the RWD is prohibited.
5. Discharge of toxic substances into the wastewater treatment system such that biological treatment mechanisms are disrupted is prohibited.
6. Discharge of recycled water for reuse within the Use Areas is prohibited until the District has provided an approved Title 22 Engineering Report and obtained coverage under the Recycling General Order as specified in Provision H.18

## B. Flow Limitations

1. The average dry weather flow from the Initial Plant to percolation/evaporation ponds shall not exceed 0.3 mgd. [Monitored at EFF-001]
2. After satisfying Provision H.18 and H.19, the average dry weather flow from the Tertiary Plant shall not exceed 0.9 mgd. [Monitored at EFF-002].
3. After satisfying Provision H.20, the average dry weather flow from the Tertiary Plant shall not exceed 1.8 mgd. [Monitored at EFF-002]

## C. Effluent Limitations

1. Effluent from the Initial Plant, monitored at EFF-001, shall not exceed the following limitations:

Constituent	Units	Average Monthly	Maximum Daily
BOD <sub>5</sub> <sup>1</sup>	mg/L	40	80
TSS <sup>2</sup>	mg/L	40	80
TN <sup>3</sup>	mg/L	10	---

1. 5-day Biochemical Oxygen Demand at 20°C.
2. Total Suspended Solids
3. Total Nitrogen

2. Effluent from the Tertiary Plant, monitored at EFF-002, shall not exceed the following limitations:

Constituent	Units	Average Monthly	Maximum Daily
BOD <sub>5</sub> <sup>1</sup>	mg/L	10	20
TSS <sup>2</sup>	mg/L	10	20
TN <sup>3</sup>	mg/L	10	- - -

1. 5-day Biochemical Oxygen Demand at 20°C.

2. Total Suspended Solids.

3. Total Nitrogen.

3. When coagulation is used, the turbidity of filtered effluent from the Tertiary Plant, prior to disinfection, shall not exceed:
- An average of 2 NTU during a 24 hour period;
  - 5 NTU more than 5 percent of the time during a 24-hour period; and
  - 10 NTU at any time.
4. If coagulation is not used:
- The influent turbidity to the filtration unit shall not exceed 5 NTU for more than 15 minutes or 10 NTU at any time.
  - The effluent turbidity from the filtration unit, prior to disinfection shall not exceed 2 NTU at any time.
5. The median concentration of total coliform organisms in the disinfected tertiary recycled water from the Tertiary Plant shall not exceed the following:
- A most probable number (MPN) of 2.2 total coliform bacteria per 100 milliliters utilizing the bacteriological results of the last seven days for which the analyses have been completed;
  - An MPN of 23 total coliform bacteria per 100 milliliters in more than one sample in any 30-day period; and
  - An MPN of 240 total coliform bacteria per 100 milliliters at any one time.

#### D. Discharge Specifications

- No waste constituent shall be released, discharged, or placed where it will cause violation of the Groundwater Limitations of this Order.
- Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

3. The discharge shall remain within the permitted waste treatment/containment structures and Use Areas at all times.
4. The District shall operate all systems and equipment to optimize the quality of the discharge.
5. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
6. Public contact with effluent (treatment works, percolation ponds, etc.) shall be precluded through such means as fences, signs, or acceptable alternatives.
7. Objectionable odors shall not be perceivable beyond the limits of the WWTF property and Effluent Storage Pond Complex at an intensity that creates or threatens to create nuisance conditions.
8. The treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
9. Wastewater discharged to any unlined pond shall not have a pH less than 6.0 or greater than 9.0 at the time of discharge.
10. On or about **1 October** of each year, available pond storage capacity shall be at least equal to the volume necessary to comply with Discharge Specification D.8.
11. All ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
  - c. Dead algae, vegetation and other debris shall not accumulate on the water surface.
  - d. The District shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

## **E. Ultraviolet Disinfection System Operating Specifications**

The following specifications apply to operation of the Ultraviolet (UV) disinfection system at the Tertiary Plant:

1. Prior to the initial discharge from the Tertiary Plant, the District shall submit to the Executive Officer a copy of a letter from DDW stating that all the UV disinfection system pre-operation acceptance conditions specified by DDW have been satisfied.
2. The Tertiary Plant shall be operated in accordance with an Operations Plan approved by DDW, which specifies clearly the operational limits and responses required for critical alarms. A copy of the approved operations plan shall be maintained at the site and be readily available to operations personnel and regulatory agencies.
3. The District shall operate the UV disinfection system to provide a minimum UV dose per channel of 100 milijoules per square centimeter ( $\text{mJ}/\text{cm}^2$ ) at peak daily flow, and shall maintain an adequate dose for disinfection at all times.
4. The District shall provide continuous, reliable monitoring of UV dose, flow, UV transmittance, UV power, UV intensity, lamp age, and turbidity.
5. UV transmittance meters, UV intensity sensors, and flow meters must be properly calibrated to ensure proper disinfection.
6. At least monthly, all UV transmittance meters, UV intensity sensors, and flow meters must be properly calibrated in accordance with the frequency and parameters specified in the approved Operations Plan.
7. Flow meters measuring flows through the UV reactor must be verified to determine accuracy at least monthly via checking the flow reading against other flow determination methods.
8. The quartz sleeves and cleaning system components shall be visually inspected per the manufacturer's operations manual for physical wear (e.g., scouring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.
9. The lamp sleeves shall be cleaned or replaced periodically, as necessary, to comply with these and DDW requirements, or sooner, if there are indications that the lamps are failing to provide adequate disinfection. Lamp age and replacement records shall be maintained on-site.
10. The UV system must be operated with a built-in automatic reliability feature that must be triggered by critical alarm setpoints. Conditions that shall initiate shut down of the Plant

and divert flow include: UV operational dose lower than 100 mJ/cm<sup>2</sup>, UV transmittance lower than 55% at 254 nm, effluent total coliform organisms greater than 240 MPN/100 ml, turbidity prior to disinfection greater than 10 NTU, UV transmittance meter failure, intensity sensor failure, multiple lamp failure, or reactor failure. Central Valley Water Board staff shall be notified within 24 hours of WWTF shut down or flow diversion.

11. A quick reference Operation Data Sheet shall be posted at the Plant and include the following information:
  - a. The alarm set points for tertiary turbidity, high flow, and UV dose;
  - b. The volumes for high turbidity, high flow, and low UV dose, when flow must be diverted;
  - c. The required frequency of calibration for all monitoring equipment measuring turbidity, flow, UV transmittance, and UV intensity;
  - d. The required frequency of mechanical cleaning/wiping and equipment inspection; and
  - e. The UV lamp age tracking procedures and replacement intervals.
12. Equipment substitutions are not acceptable without an adequate demonstration of equivalent disinfection performance.

## **F. Solids Disposal Specifications**

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advance wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially used as soil amendment for agriculture, silviculture, horticulture, and land reclamation activities pursuant to federal and state regulations.

1. Sludge and solid waste shall be removed from screens, sumps, aeration basins, ponds, clarifiers, etc., as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWTFs shall be confined to the WWTF property.
3. Any handling and storage of residual sludge, solid waste, and biosolids on property of the WWTFs shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.

4. Residual sludge, solid waste, and biosolids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, and soil amendment sites) operated in accordance with valid waste discharge requirements will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water board or the State Water Board or a local (e.g., county) program authorized by a regional water board. In most cases, this means the General Biosolids Order (State Water Board Water Quality Order No. 2004-12-DWQ, "*General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*"). For a biosolids use project to be authorized by the General Biosolids Order, the Discharger must file a complete Notice of Intent for each project.
6. Any proposed change in sludge use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

#### **G. Groundwater Limitations**

Release of waste constituents from any treatment, reclamation or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or in excess of natural background quality, whichever is greater:

1. Nitrate (as N) of 10 mg/L.
2. EC of 900 umhos/cm.
3. Total coliform organisms level of 2.2 MPN/100 mL over any 7-day period.
4. For constituents identified in Title 22 of the California Code of Regulations, the MCLs quantified therein.

#### **H. Provisions**

1. The District shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions), which are part of this Order.

2. The District shall comply with MRP R5-2015-0018, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer.
3. The District shall keep at the WWTF a copy of this Order, including its MRP, Information Sheet, attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.
4. The District shall provide certified WWTF operators in accordance with Title 23, division 3, chapter 26.
5. The District must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the District shall submit to the Central Valley Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the District will be in compliance. The District shall notify the Central Valley Water Board by letter when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
6. The District must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the District to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed, when necessary to achieve compliance with the conditions of this Order.
7. The District shall not allow pollutant-free wastewater to be discharged into the WWTF collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.
8. The District shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
9. A discharger whose waste flows have been increasing, or is projected to increase, shall estimate when flows will reach the hydraulic and treatment capacity of its treatment,

collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows, and total annual flows, as appropriate. When a projection shows that capacity of any part of the facilities may be exceeded within four years, the District shall notify the Central Valley Water Board by **31 January**.

10. As a means of discerning compliance with Discharge Specification D.7, the dissolved oxygen (DO) content in the upper one-foot of any wastewater storage or percolation pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the District shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
11. The District shall maintain and operate ponds sufficiently to protect the integrity of containment levees and prevent overtopping or overflows. Unless a California registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard shall never be less than two feet (measured vertically). As a means of management and to discern compliance with this Provision, the District shall install and maintain permanent markers with calibration that indicates the water level at the design capacity and enables determination of available operational freeboard.
12. The District shall submit the technical reports and work plans required by this Order for Central Valley Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate. The Discharger shall proceed with all work required by the following provisions by the due dates specified.
13. All technical reports and work plans required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work. All reports required herein are required pursuant to Water Code section 13267.
14. The District shall comply with the requirements of the Water Quality Order 2006-0003 *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems* (General WDRs), the Revised General WDRs Monitoring and Reporting Program (Water Quality Order 2008-0002-EXEC), and any subsequent revisions thereto. Water Quality Order 2006-0003 and Order 2008-0002-EXEC require the District to



notify the Central Valley Water Board and take remedial action upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow.

15. **At least 90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the District shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
16. In the event of any change in control or ownership of land or waste treatment and storage facilities owned or controlled by the District, the District shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
17. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
18. **At least 90 days** prior to initiating discharge from the Tertiary Plant to the recycled Use Areas, the District shall submit a Notice of Intent (NOI) for coverage under Water Quality Order 2014-0090 *Statewide General Waste Discharge Requirements for Recycled Water Use* (Recycling General Order) or any subsequent revisions. At a minimum the NOI needs to include: (a) type and level of wastewater treatment; (b) description on where and how the recycled water will be applied; (c) contact information for recycled water producers and users; (d) rules and regulations for recycled water use, and responsibilities of personnel involved in the recycling water program; and (e) a copy of the approved Title 22 Engineering Report prepared in accordance with Title 22, section 60323 with approval letter from DDW. This provision shall be considered satisfied when the Executive Officer issues a Notice of Applicability for coverage under the Recycling General Order.
19. **At least 60 days** prior to initiating discharge from the Tertiary Plant, the District shall submit an engineering certification showing that the Tertiary Plant and application areas have sufficient treatment, storage, and disposal capacity to handle an average dry

weather flow of 0.9 mgd and can comply with the terms and conditions of this Order. This provision will be considered satisfied following written acknowledgement from the Executive Officer that this criteria has been met.

20. **At least 60 days** prior to increasing the average dry weather flow above 0.9 mgd, the District shall submit an engineering certification showing that the Tertiary Plant and Use Areas have sufficient treatment, storage, and disposal capacity to handle an average dry weather flow of 1.8 mgd and can comply with the terms and conditions of this Order. This provision will be considered satisfied following written acknowledgement from the Executive Officer that this criteria has been met.
21. **At least 120 days prior to initiating construction of the Initial Plant**, the District shall submit a Work Plan for construction of the sludge drying beds, or alternatively a letter, certifying that sludge drying beds will not be used at the WWTF. At a minimum the Work Plan shall include a copy of the design parameters, liner specifications including a demonstration that the proposed liner will be protective of groundwater, and a quality assurance/quality control plan.
22. If the Central Valley Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of an objective for groundwater, this Order may be reopened for consideration of addition or revision of appropriate numerical effluent or groundwater limitations for potential constituents.
23. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plant for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.
24. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filling petitions may be found on the Internet at:

[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality/](http://www.waterboards.ca.gov/public_notices/petitions/water_quality/)

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 16 April 2015.

Original signed by

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PAMELA C. CREEDON, Executive Officer

Order Attachments:

- A Site Location Map
- B Initial Plant Flow Schematic
- C Tertiary Plant Flow Schematic

Monitoring and Reporting Program R5-2015-0018  
Information Sheet  
Standard Provisions (1 March 1991)



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2015-0018

FOR

ROOT CREEK WATER DISTRICT  
RIVERSTONE WASTEWATER TREATMENT FACILITY  
MADERA COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code (CWC) section 13267.

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the State Water Resources Control Board, Division of Drinking Water Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

A glossary of terms used within this MRP is included on page 10.

The District shall monitor the following locations to demonstrate compliance with the requirements of this Order:

<b>Monitoring Location Name</b>	<b>Monitoring Location Description</b>
<b>INF-001</b>	Location where a representative sample of the influent to the Wastewater Treatment Facility (WWTF) can be collected prior to any WWTF return flows or treatment processes.
<b>EFF-001</b>	Location where a representative sample of the effluent from the Initial Plant can be obtained prior to discharge to the evaporation/percolation ponds.
<b>EFF-002</b>	Location where a representative sample of the effluent from the Tertiary Plant can be obtained after all treatment, prior to discharge to the Effluent Storage Pond Complex or Use Areas.
<b>PND-001 through PND-00X</b>	Effluent storage ponds (includes evaporation/percolation ponds for the Initial Plant, and ponds at the Effluent Storage Pond Complex).
<b>SPL-001</b>	Source water supply
<b>UVS-001</b>	Ultraviolet light disinfection system
<b>GW-001 through GW-00X</b>	Groundwater monitoring wells
<b>BIO-001</b>	Sludge monitoring

### **INFLUENT MONITORING**

The District shall monitor domestic influent to the WWTF at INF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Monthly	BOD <sub>5</sub> <sup>1</sup>	mg/L	Grab
Monthly	TSS <sup>2</sup>	various	Grab

1. 5-day Biochemical Oxygen Demand.
2. Total Suspended Solids.

### **INITIAL PLANT EFFLUENT MONITORING**

The District shall monitor treated effluent from the Initial Plant at EFF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Weekly	pH	pH Units	Grab
Weekly	EC	umhos/cm	Grab

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	BOD <sub>5</sub>	mg/L	24-hour composite
Weekly	TSS	mg/L	24-hour composite
Monthly	Total Dissolved Solids	mg/L	Grab
Monthly	Nitrate as nitrogen	mg/L	Grab
Monthly	Nitrite as nitrogen	mg/L	Grab
Monthly	Ammonia as nitrogen	mg/L	Grab
Monthly	Total Kjeldahl Nitrogen	mg/L	Grab
Monthly	Total Nitrogen	mg/L	Computed
Annually	General Minerals <sup>1</sup>	mg/L	Grab
Annually	Metals <sup>2</sup>	various	Grab

1. General minerals analysis shall include, alkalinity (as CaCO<sub>3</sub>), bicarbonate (as CaCO<sub>3</sub>), boron, calcium, carbonate (CaCO<sub>3</sub>), chloride, hardness, iron, magnesium, manganese, nitrate as nitrogen, potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.
2. Metals analysis shall include; antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, mercury, molybdenum, silver, thallium, vanadium, and zinc. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

### TERTIARY PLANT EFFLUENT MONITORING

The Discharger shall monitor treated effluent from the Tertiary Plant at EFF-002 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Continuous	Turbidity	NTU	Grab
Daily	Total Coliform	MPN/100 mL	Grab
Weekly	pH	pH Units	Grab
Weekly	EC	umhos/cm	Grab
Weekly	BOD <sub>5</sub>	mg/L	24-hour composite
Weekly	TSS	mg/L	24-hour composite
Monthly	Total Dissolved Solids	mg/L	Grab
Monthly	Nitrate as nitrogen	mg/L	Grab
Monthly	Nitrite as nitrogen	mg/L	Grab
Monthly	Ammonia as nitrogen	mg/L	Grab
Monthly	Total Kjeldahl Nitrogen	mg/L	Grab
Monthly	Total Nitrogen	mg/L	Computed
Annually	General Minerals <sup>1</sup>	various	Grab
Annually	Metals <sup>2</sup>	various	Grab

1. General minerals analysis shall include, alkalinity (as CaCO<sub>3</sub>), bicarbonate (as CaCO<sub>3</sub>), boron, calcium, carbonate (CaCO<sub>3</sub>), chloride, hardness, iron, magnesium, manganese, nitrate as nitrogen, potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.
2. Metals analysis shall include; antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, mercury, molybdenum, silver, thallium, vanadium, and zinc. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

### POND MONITORING

The District shall monitor the effluent evaporation/percolation and storage ponds at PND-001 through PND-00X as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	Dissolved Oxygen	mg/L	Grab <sup>1</sup>
Weekly	Freeboard	Feet <sup>2</sup>	Grab

1. Samples shall be collected at a depth of one foot from the surface of the pond, opposite the inlet. Samples shall be collected between 0700 and 0900 hours.
2. Freeboard shall be monitored to the nearest tenth of a foot.

In addition, the District shall inspect the condition of the ponds once per week and write visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water, along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating in the pond; and color of water in the pond (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.) A **summary** of the entries made in the log during each month shall be submitted along with the quarterly monitoring report.

### SOURCE WATER MONITORING

The District's source water supply shall be monitored at SPL-001. If the source water is from more than one source, the results shall be presented as a flow-weighted average of all sources.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	EC	mg/L	Grab
1/three years <sup>1</sup>	General Minerals <sup>2</sup>	various	Grab

1. Sample to be collected and analyzed for general minerals once following start up of the Initial Plant than once every three years.
2. General minerals analysis shall include, alkalinity (as CaCO<sub>3</sub>), bicarbonate (as CaCO<sub>3</sub>), boron, calcium, carbonate (CaCO<sub>3</sub>), chloride, hardness, iron, magnesium, manganese, nitrate as nitrogen, potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

### ULTRAVIOLET LIGHT DISINFECTION SYSTEM MONITORING

The District shall monitor the Ultraviolet (UV) disinfection system at UVS-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Continuous	Number of UV light banks in operation	Number	Meter
Continuous	UV Transmittance	Percent (%)	Meter
Continuous	UV Power setting	Percent (%)	Meter
Continuous	UV Intensity	mW-sec/cm	Meter
Continuous	UV lamp hours of operation	Hours	Meter
Continuous	UV Dose	mW-sec/cm <sup>2</sup>	Meter



In addition, the District shall monitor the following: status of each UV reactor (on/off); status of each UV lamp (on/off); cumulative number of reactor (on/off cycles); cumulative UV disinfection system power consumption; reactor power set point (if system has variable power inlet to lamps); liquid level in the UV disinfection reactor trains (if system has free water surfaces and where UV lamps can be exposed to air); and ground fault interruption.

The District shall also monitor the UV disinfection system for any additional parameters in accordance with a UV Disinfection System Operations Plan approved by the State Water Resources Control Board, Division of Drinking Water (DDW).

### **GROUNDWATER MONITORING**

After measuring water levels and prior to collecting samples, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 well casing volumes.

The District shall monitor the wells in its monitoring well network GW-001 through GW-00X and any subsequent additional monitoring wells as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly/Semiannually <sup>1</sup>	Depth-to-Water	Feet <sup>2</sup>	Measured
Quarterly/Semiannually <sup>1</sup>	Groundwater Elevation	Feet <sup>3</sup>	Calculated
Quarterly/Semiannually <sup>1</sup>	pH	pH units	Grab
Quarterly/Semiannually <sup>1</sup>	EC	umhos/cm	Grab
Quarterly/Semiannually <sup>1</sup>	TDS	mg/L	Grab
Quarterly/Semiannually <sup>1</sup>	Nitrate as nitrogen (NO <sub>3</sub> -N)	mg/L	Grab
Quarterly/Semiannually <sup>1</sup>	General Minerals <sup>4</sup>	various	Grab
Quarterly/Semiannually <sup>1</sup>	Total Organic Carbon	mg/L	Grab

1. Monitoring wells to be sampled quarterly the first year following adoption of this Order and then semiannually.
2. To the nearest hundredth foot.
3. Groundwater elevation shall be calculated based on depth-to-water measurements from a surveyed measuring point.
4. General minerals analysis shall include, alkalinity (as CaCO<sub>3</sub>), bicarbonate (as CaCO<sub>3</sub>), boron, calcium, carbonate (CaCO<sub>3</sub>), chloride, hardness, iron, magnesium, manganese, nitrate as nitrogen, potassium, sodium, sulfate, and TDS. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

The District shall maintain its groundwater monitoring well network. If a groundwater monitoring well(s) is dry for more than four consecutive sampling events, the District shall submit a work plan and proposed time schedule to replace the well(s). The well(s) shall be replaced following Executive Officer approval of the work plan and time schedule.

## SLUDGE MONITORING

To ensure that industrial and other discharges to the WWTF are not interfering with treatment processes, the District shall collect a composite sample of the sludge annually, as set forth by Title 40 CFR Part 503.16. Any Notice of Necessary Information (NANI) form prepared for submittal to the United States Environmental Protection Agency shall be forwarded to the Central Valley Water Board.

Composite samples shall be collected at BIO-001 in accordance with the Environmental Protection Agency's *POTW Sludge Sampling and Analysis Guidance Document* (EPA/ 833B89100, August 1989) and tested for the following metals:

Arsenic	Lead	Nickel
Cadmium	Mercury	Selenium
Copper	Molybdenum	Zinc

The control of pathogens and the reduction of vector attraction shall be achieved in accordance with the Environmental Protection Agency's *Control of Pathogens and Vectors in Sewage Sludge* (EPA/625-R-92/013, July 2003).

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling, application, and disposal activities. The frequency of entries is discretionary; however, a log should be complete enough to serve as a basis for part of the annual reporting requirements.

## REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports**, which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

- First Quarter Monitoring Report: **1 May**
- Second Quarter Monitoring Report: **1 August**
- Third Quarter Monitoring Report: **1 November**
- Fourth Quarter Monitoring Report: **1 February.**

The Central Valley Water Board has gone to a Paperless Office System. All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to: [centralvalleyfresno@waterboards.ca.gov](mailto:centralvalleyfresno@waterboards.ca.gov). Documents that are 50MB or larger should be transferred to a disk and mailed to the appropriate regional water board office, in this case 1685 E Street, Fresno, CA, 93706.

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any email used to transmit documents to this office:

Program: Non-15, WDID: 5B10NC00072, Facility Name: Riverstone WWTF, Order: R5-2015-0018

In reporting monitoring data, the District shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the discharge complies with waste discharge requirements, and shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

In the future, the State or Central Valley Water Board may notify the District to electronically submit and upload monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site <http://www.waterboards.ca.gov/ciwqs/index.html> or similar system.

**A. All Quarterly Monitoring Reports** shall include the following:

**Wastewater Reporting:**

1. The results of influent and effluent monitoring specified on pages 2 and 3. For the Tertiary Plant, effluent monitoring will also include the running 7-day median total coliform calculation, maximum coliform detection, maximum turbidity, and 95<sup>th</sup> percentile turbidity.

2. For each month of the quarter, calculation of the maximum daily flow, monthly average flow, and cumulative annual flow.
3. For each month of the quarter, calculation of the average monthly effluent BOD, TSS, and EC.

**Pond Reporting:**

1. The results of the routine monitoring specified on page 4.

**Source Water Reporting:**

1. The results of the source water monitoring specified on page 4. If multiple sources are used the Discharger, shall calculate the flow-weighted average concentrations for the specified constituents. Results must include supporting calculations, if required.

**Ultraviolet Light Disinfection Reporting:**

1. The results of the routine monitoring specified on pages 4 and 5. For each day of the month include the minimum UV operations dose, and minimum UV transmittance.
2. Provide table with results of daily total coliform testing, running 7-day median calculation for total coliform, maximum daily total coliform reading for previous month(s), results of four hour turbidity readings, average daily effluent turbidity reading, and maximum daily effluent turbidity reading.

**Groundwater Reporting:**

1. The results of groundwater monitoring specified on page 5. If there is insufficient water in the well(s) for sampling, the monitoring well(s) shall be reported as dry for that quarter.
2. For each monitoring well, a table showing groundwater depth, elevation, and constituent concentrations for the five previous years, up through the present quarter.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow. The map shall also include locations of all monitoring wells and wastewater storage and application areas.

**B. Fourth Quarter Monitoring Reports**, in addition to the above, shall include the following:

**Facility Information:**

1. The names and general responsibilities of all persons in charge of wastewater treatment and disposal, include telephone numbers of persons to contact regarding the discharge for emergency and routine situations.
2. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).

3. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

**Sludge Monitoring Reporting:**

1. Annual production totals in dry tons or cubic yards.
2. A description of disposal methods, including location, and Order number of regulatory permit (if appropriate). If more than one method is used, include the percentage disposed of by each method.
3. Include results of monitoring specified on page 6.
4. Include a demonstration that off-site disposal of biosolids is consistent with Title 27, division 2.

The Discharger shall implement the above monitoring program following start up of the WWTF.

Ordered by:

Original signed by

\_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

16 April 2015

\_\_\_\_\_  
(Date)

## GLOSSARY

BOD <sub>5</sub>	Five-day biochemical oxygen demand
CBOD	Carbonaceous BOD
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-Hour Composite	Unless otherwise specified or approved, samples shall be a flow-proportioned composite consisting of at least eight aliquots.
Daily	Samples shall be collected every day.
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.
Weekly	Samples shall be collected at least once per week.
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.
Monthly	Samples shall be collected at least once per month.
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in March and September.
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.
mg/L	Milligrams per liter
mL/L	Milliliters [of solids] per liter
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
General Minerals	Analysis for General Minerals shall include at least the following:
	Alkalinity (as CaCO <sub>3</sub> )      Carbonate (as CaCO <sub>3</sub> )      Magnesium      Sodium
	Bicarbonate (as CaCO <sub>3</sub> ) Chloride      Manganese      Sulfate
	Boron      Hardness      Nitrate      TDS
	Calcium      Iron      Potassium
	General Minerals analyses shall be accompanied by documentation of cation/anion balance.

## INFORMATION SHEET

ORDER R5-2015-0018  
ROOT CREEK WATER DISTRICT  
RIVERSTONE WASTEWATER TREATMENT FACILITY  
MADERA COUNTY

### **Background**

The Root Creek Water District, in conjunction with Riverstone Development, LLC, and San Joaquin River Ranch, LLC submitted a Report of Waste Discharge (RWD), dated 20 June 2014, and applied for Waste Discharge Requirements (WDRs) to discharge secondary and tertiary treated wastewater from the new wastewater treatment facilities to be constructed for the proposed Riverstone Development Project (formerly Gateway Village).

The Riverstone Development Project (hereafter Riverstone or Development) is a proposed mixed use master-planned community, in southeastern Madera County, consisting of approximately 6,578 residential dwelling units and 191 acres of land designated for commercial and mixed use development. No industrial or heavy commercial businesses are to be included in the proposed Development.

As described in the RWD, Riverstone Development, LLC, the project developer, will undertake development obligations for Riverstone including construction of the wet utilities related to the sewer collection system and proposed wastewater treatment facilities. Riverstone Development, LLC, shall transfer ownership and operation of these facilities to the Root Creek Water District at the time of startup.

Root Creek Water District (District), created in 1996, will be the public agency responsible for providing potable water along with wastewater collection, treatment, and disposal services for Riverstone, and will have a long-term contractual relationship with Riverstone Development, LLC, to provide water and sewer service to the new development as it is built. A portion of the proposed Development is currently within the Madera Irrigation District. This area will be annexed by the Root Creek Water District when the area is developed.

### **Wastewater Treatment and Disposal**

Wastewater treatment facilities for the proposed Development will be constructed in phases on a 20 acre parcel, west of Road 40 just south of Avenue 11. For the first phase, wastewater treatment and disposal will be handled by an Initial Plant, which will be designed to treat and dispose of up to 0.3 million gallons per day (mgd) of secondary undisinfected wastewater to evaporation/percolation ponds. At build out, wastewater treatment and disposal for the Development will consist of a Tertiary Plant designed to treat and dispose of up to 1.8 mgd of disinfected tertiary treated wastewater for irrigation of crops and landscaping.

The Initial Plant, built to handle the first phase of development, will incorporate a Biolac® extended aeration activated sludge biological treatment system, with nitrification/denitrification to reduce nitrogen concentrations in the effluent to less than 10 mg/L. The Initial Plant will produce an undisinfected secondary treated effluent, which will be discharged to a series of evaporation/percolation ponds constructed adjacent to the Initial Plant and at the Effluent Storage Pond Complex on Avenue 10 and Road 39.

When flows to the Initial Plant approach 80% capacity, construction will begin on a new tertiary wastewater treatment facility (hereafter Tertiary Plant). The Tertiary Plant will be constructed adjacent to the Initial Plant and include a sequencing batch reactor system with secondary equalization storage, tertiary filtration, and Ultraviolet (UV) disinfection. The Tertiary Plant will also include nitrification/denitrification steps to reduce effluent nitrogen concentrations to less than 10 mg/L. The Tertiary Plant will produce a disinfected tertiary treated effluent for Title 22 unrestricted reuse and will provide recycled water for crop and landscape irrigation. According to the RWD, the Tertiary Plant will be constructed in two equal phases. Phase 1 will be designed to treat up to 0.9 mgd. Phase 2, with an additional capacity of 0.9 mgd will be constructed as demand warrants, to bring the total treatment capacity for the Tertiary Plant up to 1.8 mgd.

After treatment and disinfection, effluent from the Tertiary Plant will be discharged to the Effluent Storage Pond Complex at Avenue 10 and Road 39 for use as recycled water. The disinfected tertiary treated effluent will be used for irrigation of citrus and pistachio trees on land owned by San Joaquin River Ranch, LLC. The Root Creek Water District has an easement with San Joaquin River Ranch, LLC for wastewater reclamation on approximately 320 acres of land proposed for reclamation, and will contract with San Joaquin River Ranch, LLC for a similar easement on the remaining 320 acres once the Tertiary Plant is in operation. In addition, recycled water may also be applied to approximately 100 acres of landscaping within Root Creek Park, part of the development. Together these properties make up the "Use Areas" to be used for reclamation of recycled water. According to the water balance, submitted with the RWD, the 640 acres of pistachio and citrus orchards will have more than sufficient disposal capacity for flows at 1.8 mgd, not counting the 100 acres of landscaped areas within Root Creek Park.

Once the Tertiary Plant is in operation the Initial Plant will be decommissioned and the area redeveloped.

Because these are new wastewater treatment facilities (WWTFs), there is no existing effluent data available. Anticipated effluent quality for the Initial and Tertiary Plants based on the proposed treatment process and similar existing WWTFs is presented below:

Constituent	Units	Effluent Quality	
		Initial Plant	Tertiary Plant
pH	pH units	7.4	7.0
Electrical Conductivity (EC)	umhos/cm	600	600
Biochemical Oxygen Demand (BOD)	mg/L	40	<10
Total Suspended Solids (TSS)	mg/L	40	<10
Total Dissolved Solids (TDS)	mg/L	400	400
Ammonia as nitrogen	mg/L	<1	<1
Total Nitrogen (TN)	mg/L	<10	<10
Sodium	mg/L	45	45
Chloride	mg/L	80	80
Total Coliform Organisms	MPN/100mL	- - -	<2.2



## **Solids**

Wasted sludge from the Initial Plant will be discharged to on-site sludge drying beds. The dried sludge will then be taken to a nearby composting facility for use as a biofuel or delivered to the Madera County Landfill in Fairmead for disposal. Alternatively, the RWD states that the District may decide to load the sludge directly into bins to be hauled off rather than use on-site sludge drying beds.

For the Tertiary Plant, sludge handling facilities will include an aerobic digester, waste activated sludge storage, a centrifuge dewatering system, and covered storage bins. All sludge produced at the Tertiary Plant will be hauled off-site for disposal at an authorized facility.

**Source Water:** Source water for the Development will be provided by groundwater. Well locations for two supply wells to provide potable water for the first phase of development ("Village A") have been identified and tested. Samples of the source water reported an EC of 312 to 440 umhos/cm, TDS of 268 to 290 mg/L, and NO<sub>3</sub>-N of 1.2 to 4.6 mg/L.

## **Groundwater Conditions**

According to the Department of Water Resources Groundwater Elevation Maps (Spring 2010) first encountered groundwater in the vicinity of the proposed development occurs at about 200 feet below ground surface (bgs). Regional flow in the area is to the northwest away from the San Joaquin River.

A groundwater investigation was conducted in April 2014 to evaluate groundwater quality beneath the proposed WWTFs, disposal areas, and Use Areas. As part of this investigation five monitoring wells were installed around the proposed WWTFs (monitoring wells MW-4 and MW-5), Effluent Storage Pond Complex (monitoring well MW-3), and Use Areas (monitoring wells MW-1 and MW-2). Based on the groundwater investigation, groundwater quality beneath the area is relatively good with EC ranging from 218 umhos/cm in MW-2 to 427 umhos/cm in MW-3, TDS ranging from 147 mg/L in MW-4 to 294 mg/L in MW-3, and nitrate as nitrogen (NO<sub>3</sub>-N) ranging from 4.2 mg/L in MW-1 to 17.4 mg/L in MW-3.

MW-3 in the vicinity of the proposed Effluent Storage Pond Complex contains the highest concentrations for EC, and TDS, with nitrate as nitrogen in excess of the primary MCL of 10 mg/L, as well as manganese at 0.06 mg/L just slightly above its secondary MCL of 0.05 mg/L. This is likely the result of existing agricultural activities or natural conditions in the area. With the proposed treatment and nitrification/denitrification to reduce nitrogen concentrations in the effluent to <10 mg/L, the discharge from the proposed WWTFs is not expected to exacerbate existing groundwater conditions.

## **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The WWTFs and Use Areas lie within the Berenda Hydrologic Area (545.3) of the San Joaquin Valley Floor Hydraulic Unit. Local drainage is to the San Joaquin River between Friant Dam and the Mendota Pool.

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, 4<sup>th</sup> Edition*, revised October 2011 (Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board. Beneficial uses often determine the water quality objectives that apply to a water body. The receiving water for this discharge is groundwater. The beneficial uses of groundwater in the area are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

### **Antidegradation**

State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (Anti-Degradation Policy), requires the regional water boards to maintain high quality waters of the State until it is demonstrated that any change in quality will not result in water quality less than that described in State and Regional Water Board policies or exceed water quality objectives, will not unreasonably affect beneficial uses and is consistent with the maximum benefit to the people of the State.

Degradation of groundwater by some of the typical waste constituents of concern (e.g., EC and nitrate) released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of the State. The technology, energy, and waste management advantages of a municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impacts on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore provides sufficient reason to accommodate planned growth and allow for limited groundwater degradation.

As discussed in the Findings in the WDRs the discharge as authorized by this Order is not expected to unreasonably affect present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives. The Discharger provides or will provide as a condition of this Order treatment and control measures intended to minimize degradation to the extent feasible. This Order establishes groundwater limitations that allow some degradation, but that will not unreasonably threaten present and future anticipated beneficial uses of groundwater or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan, and requires groundwater monitoring to evaluate potential groundwater impacts from the discharge and confirm that the BPTC measures are sufficiently protective of groundwater.

### **Title 27**

Title 27 of the California Code of Regulations, section 20005 et seq (Title 27) contains regulations to address certain discharges to land. Unless exempt, the release of designated waste is subject to full containment pursuant to Title 27 requirements. Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27 containment standards and other Title 27 requirements provided the following conditions are met:

- a. The applicable regional water board has issued waste discharge requirements, or waived such issuance;
- b. The discharge is in compliance with the applicable basin plan; and
- c. The waste is not hazardous waste and need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

The discharge meets the above requirements and is therefore exempt from Title 27.

### **CEQA**

The proposed WWTFs and Riverstone Development (formerly Gateway Village) was reviewed as part of the Gateway Village Specific Plan Environmental Impact Report (EIR), which was certified by the Madera County Board of Supervisors in accordance with the California Environmental Quality Act (CEQA) on 11 September 2007 (SCH #2005091071). Minor differences between the Project as proposed in the EIR and the Project as proposed in the RWD prompted the Central Valley Water Board to prepare an Addendum to the EIR for the Board's files.

The Addendum concludes that the minor changes in wastewater treatment, handling, and disposal will be insignificant and will not result in any potential environmental impacts that have not already been fully analyzed in the EIR. None of the circumstances set forth in Public Resources Code section 21166 or California Code of Regulations, title 14, section 15162(a) that would require the preparation of a subsequent EIR are present for this Project.

### **Proposed Order Terms and Conditions**

#### **Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**

The proposed Order would prohibit discharge to surface waters and surface water drainage courses.

The proposed Order sets effluent limits for flow, BOD, TSS, and total nitrogen for both the Initial and Tertiary Plants. In addition, the proposed Order includes additional effluent limits for the Tertiary Plant for turbidity, and total coliform organisms and sets specific specifications for operation of the UV disinfection system.

The proposed Order sets groundwater limitations at the primary and recommended secondary MCLs for nitrate as nitrogen, electrical conductivity, total coliform organisms, and the constituents identified in Title 22 of the California Code of Regulations, for which MCLs exist.

The proposed Order requires submittal of a copy of the approved Title 22 Engineering Report with approval letter from the State Water Board, Division of Drinking Water (DDW) and a Notice of Intent (NOI) for coverage under the Water Quality Order 2014-0090, *General Waste Discharge Requirements for Recycled Water Use* (Recycling General Order), prior to initiating wastewater recycling operations.

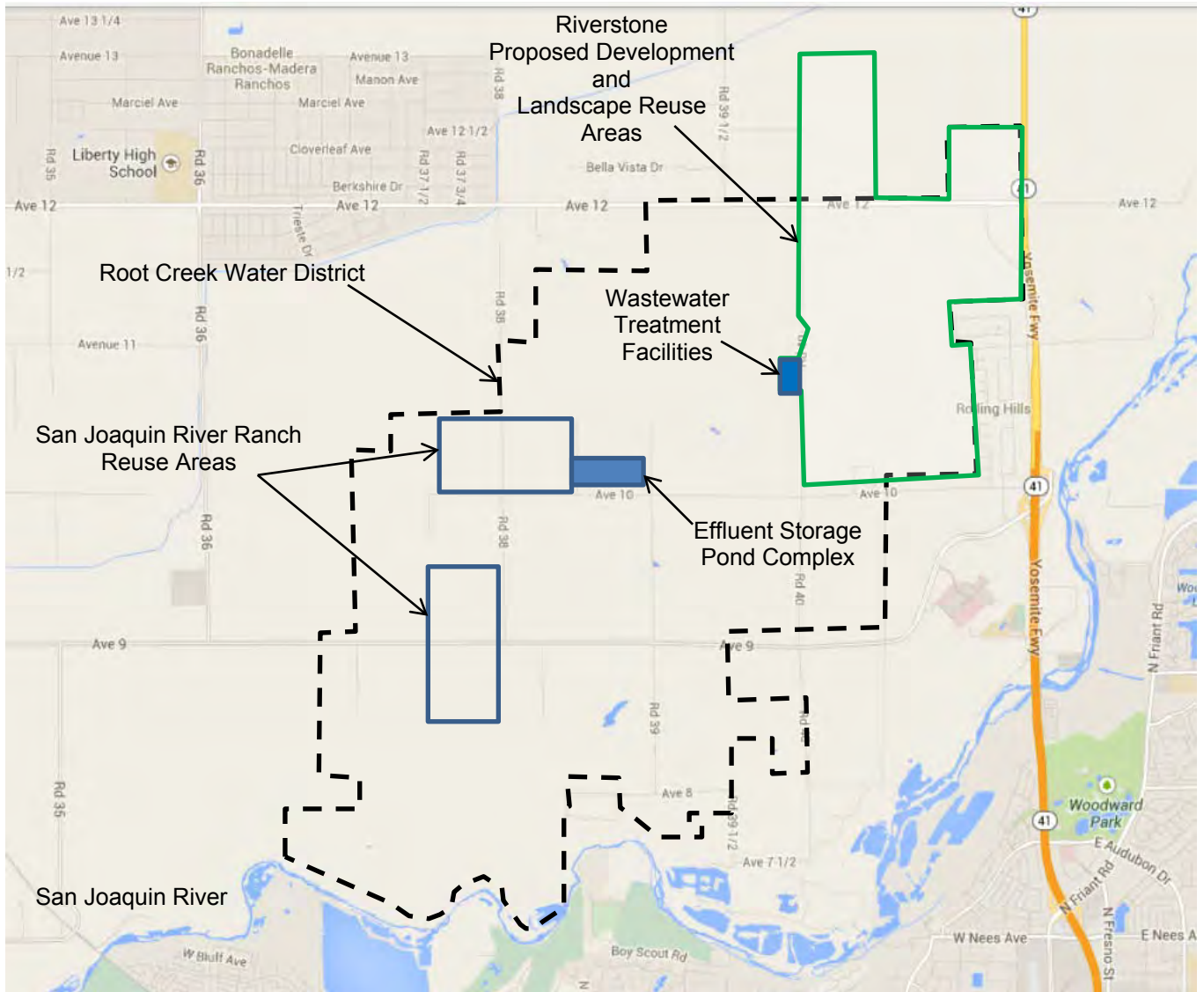
### **Monitoring Requirements**

Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of waste discharges on waters of the State. Water Code section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes influent, effluent, source water, groundwater, and sludge monitoring. This monitoring is necessary to evaluate the potential for degradation resulting from the discharge.

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

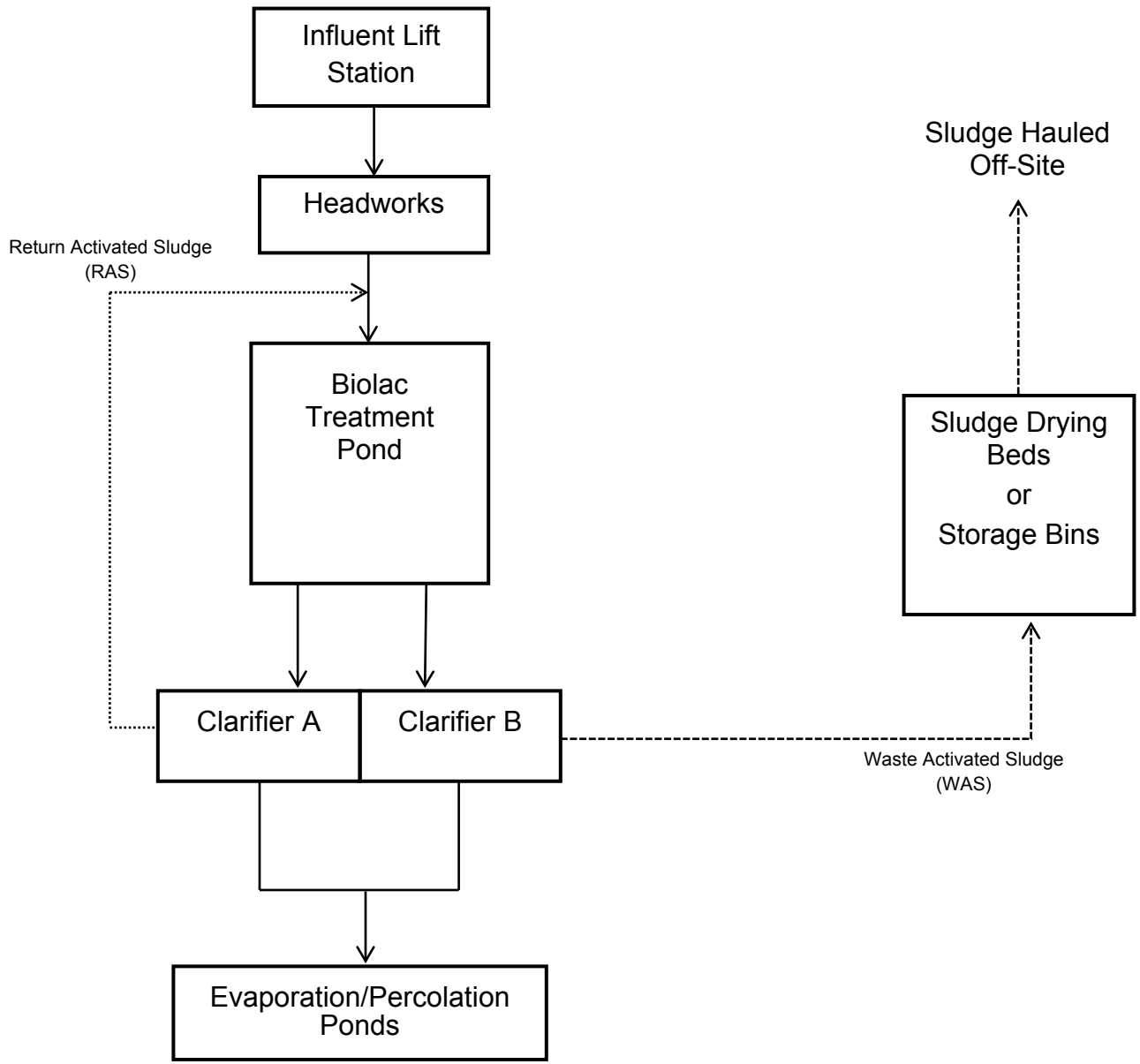


**SITE LOCATION MAP**

WASTE DISCHARGE REQUIREMENTS ORDER R5-2015-0018  
 FOR  
 ROOT CREEK WATER DISTRICT  
 RIVERSTONE WASTEWATER TREATMENT FACILITY  
 MADERA COUNTY

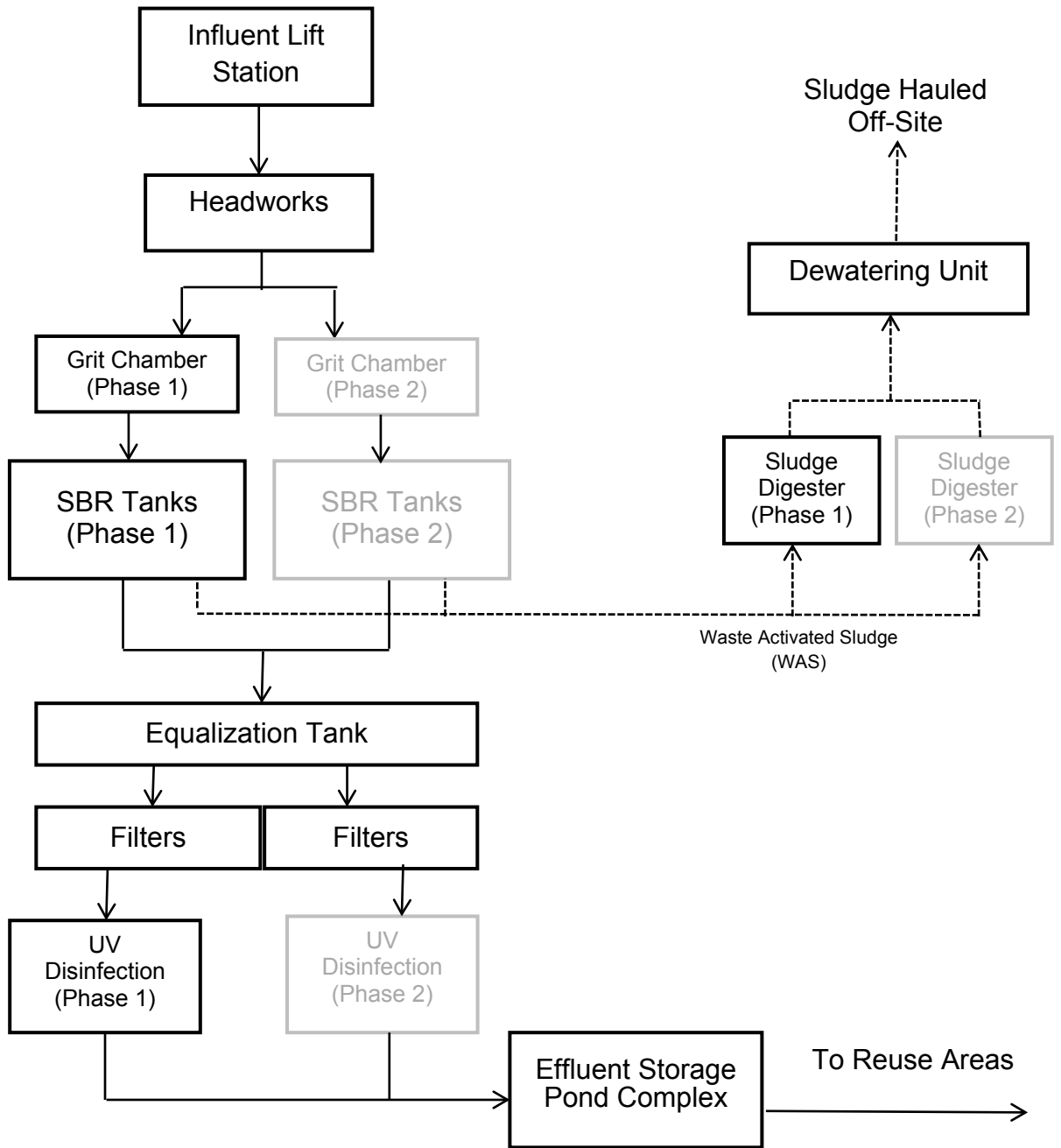
Scale 1" ≈ 1 mile

**ATTACHMENT A**



**INITIAL PLANT FLOW SCHEMATIC**

WASTE DISCHARGE REQUIREMENTS ORDER R5-2015-0018  
 FOR  
 ROOT CREEK WATER DISTRICT  
 RIVERSTONE WASTEWATER TREATMENT FACILITY  
 MADERA COUNTY



**TERTIARY PLANT FLOW SCHEMATIC**

WASTE DISCHARGE REQUIREMENTS ORDER R5-2015-0018  
 FOR  
 ROOT CREEK WATER DISTRICT  
 RIVERSTONE WASTEWATER TREATMENT FACILITY  
 MADERA COUNTY