

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2010-0013

WASTE DISCHARGE REQUIREMENTS

FOR  
GRANT PARK DEVELOPMENT, INC.  
DUNNIGAN WATER WORKS WASTEWATER TREATMENT FACILITY  
YOLO COUNTY

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

1. On 30 July 2007, Grant Park Development, Inc. submitted a Report of Waste Discharge (RWD) for expansion of an existing privately owned wastewater treatment facility (WWTF), which serves a mobile home park and a recreational vehicle park in Dunnigan. A revised RWD was submitted on 12 August 2008.
2. Grant Park Development, Inc. (hereafter "Discharger") owns and operates the Dunnigan Water Works WWTF and is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The WWTF is at 5011 Road 7 in Dunnigan (Section 26, T12N, R1W, MDB&M). The WWTF occupies Assessor's Parcel Numbers (APN) 052-050-25 and 052-050-251, as shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. WDRs Order No. 93-176, adopted by the Regional Water Board on 17 September 1996, prescribes requirements for the WWTF. Order No. 93-176 allows an average dry weather flow of up to 54,000 gallons per day (gpd). The Discharger proposes to expand and upgrade the WWTF to improve the treatment system and increase capacity to accommodate new development. Therefore, Order No. 93-176 will be rescinded and replaced with this Order.

**Existing Facility and Discharge**

5. The existing WWTF serves a 186-unit mobile home park and a 67-space recreational vehicle (RV) park with two restroom/shower facilities and a laundry room. Although the WWTF has been operated since 1974, the Discharger only began monitoring influent flows in May 2007. The following table summarizes recent influent flow rates.

Flow Parameter	Daily Influent Flow, gallons per day (gpd)
Range of Monthly Average Flows (June 2007 through April 2009)	15,000 to 22,000
2008 Average Daily Flow	18,000
2007 Average Dry Weather Flow	20,400

Flow Parameter	Daily Influent Flow, gallons per day (gpd)
2008 Average Dry Weather Flow	18,100

<sup>1</sup> Average daily flow for the months of June through September.

There is not sufficient flow monitoring data to evaluate seasonal variations or potential sewer inflow/infiltration (I/I) problems.

6. The sewer system consists of 4, 6 and 8 inch pipes that flow by gravity to a wet well duplex lift station near the entrance of the RV park. The pumps, which are operated in alternation, are activated by a float switch. An 8-inch force main conveys the raw wastewater to a series of four unlined ponds. The waste receives passive treatment and is allowed to percolate and evaporate. Attachment B, which is attached hereto and made part of this Order by reference, is a site plan that depicts both the existing and proposed wastewater treatment plants.
7. Although required to do so by the March 2007 Revised Monitoring and Reporting Program (MRP) No. 93-176, the Discharger does not regularly monitor influent quality. Influent samples were submitted for analytical testing to support the RWD in May and July 2007. The influent wastewater analytical results are summarized below.

Parameter	Units	Number of Samples	Mean Result
Biochemical oxygen demand (BOD)	mg/L	2	120
Total suspended solids (TSS)	mg/L	2	245
Total dissolved solids (TDS)	mg/L	1	992
Nitrate	mg/L	1	ND
Nitrite	mg/L	1	ND
Ammonia	mg/L	1	28.5
Total Kjeldahl nitrogen	mg/L	1	31.7

8. The Discharger regularly monitors effluent in the ponds for pH and electrical conductivity (EC) using hand held meters pursuant to Revised Monitoring and Reporting Program No. 93-176, which was issued on 2 April 2007. Effluent monitoring data for the two ponds in use through April 2009 are summarized below.

Effluent Monitoring Results					
Parameter	Units	Pond No. 1		Pond No. 3	
		Range	Mean	Range	Mean
pH	std.	6.5 to 9.1	7.2	7.0 to 7.5	7.1
EC	umhos/cm	300 to 1,170	650	330 to 970	628

9. Additional effluent samples were submitted for analytical testing to support the RWD in May and June July 2007. The influent wastewater analytical results are summarized below.

Parameter	Units	Number of Samples	Mean Result
Total dissolved solids (TDS)	mg/L	1	635
Electrical conductivity	mg/L	1	1,160
Hardness	mg/L	3	269
Nitrate	mg/L	4	0.48
Ammonia	mg/L	1	28.5
Total Kjeldahl nitrogen	mg/L	4	26
Boron	mg/L	3	0.89
Iron	mg/L	3	0.21
Magnesium	mg/L	3	44
Manganese	mg/L	3	0.042
Sodium	mg/L	3	100
Chloride	mg/L	3	123
Sulfate	mg/L	3	17

10. The Discharger accepts wastewater from RV holding tanks which may contain formaldehyde, zinc, and/or phenol due to the use of holding tank deodorants. The Discharger has never monitored its wastewater for these constituents, but they may be present in the waste at concentrations that pose a threat to groundwater quality. Monitoring for these constituents in the effluent and groundwater is therefore required in this Order.

**Planned Changes in the Facility and Discharge**

11. The Discharger plans to improve and expand the WWTF to accommodate flows from two planned development projects: the North Valley Depot near the existing WWTF and the Dunnigan Truck and Travel Center on the west side of Interstate 5 (see Attachment A).
12. The 9.75-acre North Valley Depot development will include:
- a. A gas station with a convenience store and car wash;
  - b. Another gas station with a convenience store and a fast-food restaurant;
  - c. A 60-room hotel with restaurant;
  - d. A 7,000-square foot retail building; and
  - e. A 10,000-square foot office building.

13. The 45-acre Dunnigan Truck and Travel Center development will include:
  - a. A travel center with truck and automobile fueling, showers, a convenience/truck supply store, a truck driver’s lounge, a fast-food restaurant, and overnight truck parking;
  - b. A 60-room motel and restaurant;
  - c. A 12-acre retail area for a tire shop, truck wash, retail stores, truck driver’s lounge, restaurant, and overnight parking;
  - d. A 10-acre area for commercial truck and tractor sales, parts, and service.
  
14. The new developments will be constructed in four phases with the first phase scheduled to begin construction in 2009. Projected wastewater flows from each element of the developments are summarized below.

Project Component	Design Flow, gpd
Mobile Home and RV Parks (full build out)	21,810
North Valley Depot	
Phase I	1,581
Phase 2	29,037
Phase 3	2,003
Phase 4	1,476
Subtotal	34,097
Dunnigan Truck and Travel Center	
Phase I	1,396
Phase 2	29,585
Phase 3	7,463
Phase 4	5,369
Subtotal	43,813
Total flow at full build out	99,720

The design peak flow rate for the treatment plant is 294 gpm, or approximately 420,000 gpd.

15. The WWTF expansion project will consist of:
  - a. A new sewer network consisting of 8- and 10-inch gravity pipes to convey wastewater from the North Valley Depot and Dunnigan Truck and Travel Center to a new lift station with duplex pumps.
  - b. The force main from the existing lift station in the RV park will be reconfigured to discharge into the North Valley Depot gravity sewer.

- c. A headworks influent screen and three parallel treatment trains. Each treatment train will be constructed as dictated by the pace of development and will consist of a primary pond with a central anaerobic zone and a facultative partially mixed aerated zone, and two aerated ponds in series (see Attachment B). The design treatment capacity of each treatment train is 35,000 gpd.
- d. A disinfection system utilizing sodium hypochlorite injection and a contact chamber.
- e. Two new effluent recycling sites that will be used to grow fodder crops such as alfalfa. An 11-acre effluent recycling site will be constructed at the current WWTF site (see Attachment B), and a 30-acre effluent recycling site will be constructed south of the Dunnigan Truck and Travel Center on APN 052-050-251 (see Attachment A).
- f. A 55-acre-foot unlined storage pond for undisinfected effluent at the WWTF site.
- g. The existing unlined wastewater ponds will be regraded to create a single unlined storage pond with a capacity of 15 acre-feet for undisinfected effluent.
- h. Shallow earthen berms around both effluent recycling sites to provide an additional 26 acre-feet of unlined emergency storage for undisinfected effluent only.

16. Design data for the new WWTF ponds are summarized in the following table.

Pond Type	Surface Area (acres)	Volume <sup>1</sup> (acre-feet)	Total Depth <sup>2</sup> (feet)	Operating Depth <sup>3</sup> (feet)
Each Treatment Train:				
Primary Pond	0.83	--	10	5
Second Pond	0.39	--	8	3
Third Pond	0.39	--	8	3
Effluent Storage Pond No. 1	11 <sup>4</sup>	55	9	7
Effluent Storage Pond No. 2	2 <sup>4</sup>	15	11	9
<u>Emergency Effluent Storage</u>	40 <sup>4</sup>	26.4	3	1

-- Data not provided.

<sup>1</sup> Total volume at two feet freeboard.

<sup>2</sup> Depth from berm crest to pond bottom.

<sup>3</sup> Design operating depth with two feet of freeboard.

<sup>4</sup> Nominal areas based on draft design. Total available storage will be at least 32 acre-feet for each treatment train and 96.4 acre-feet at full build out.

17. The RWD estimated effluent character as follows:

Parameter	Units	Mean Result
Biochemical oxygen demand (BOD)	mg/L	30
Total suspended solids (TSS)	mg/L	30
Total dissolved solids (TDS)	mg/L	1,000 <sup>1</sup>
Total nitrogen	mg/L	30

Parameter	Units	Mean Result
Total coliform organisms	MPN/100 mL	23 <sup>2</sup>
<sup>1</sup> Based on the water supply character plus 360 mg/L.		
<sup>2</sup> As a 7-day median.		

18. Raw wastewater will be mechanically screened and then conveyed to a splitter to divide the flows equally to each of the three treatment trains at full build out. The first pond in each treatment train will have a central anaerobic fermentation pit to enhance solids settling and digestion. Effluent will flow from the first pond to the second and third facultative ponds in sequence. All of the ponds will have aerators, and the third pond will have a Hypalon<sup>®</sup> baffle curtain to promote solids settling. All of the wastewater treatment ponds will be lined with a single layer of 60-mil high density polyethylene (HDPE). The RWD included a Construction Quality Assurance Plan for the lining system.
19. Effluent from the third pond will flow by gravity into the chlorine contact chamber where sodium hypochlorite will be added by a metering pump and mixed by a jet mixing system. The design hydraulic residence time within the chlorine contact chamber is 30 minutes. Disinfected secondary effluent will be pumped from the chlorine contact chamber directly to the water recycling areas.
20. The new WWTF site will include an 11-acre water recycling area. The second water recycling area is a 30-acre area immediately south of the Dunnigan Truck and Travel Center site. Both effluent recycling areas will be surrounded by three-foot earthen berms to completely contain tailwater and storm water runoff. These areas may also be used to store up to one foot of excess disinfected effluent during extreme wet weather years.
21. Recycled water will be applied by sprinkler irrigation year round as needed to support the crops. The irrigation system will consist of above-ground metal pipe and impact-type sprinkler heads. Application rates and frequencies will vary during the year depending on weather. The Discharger will not irrigate within two days before a forecasted storm, during precipitation, or within two days after precipitation. Precipitation that falls on the recycled water irrigation areas during the rainy season will be allowed to percolate, and will not be discharged off-site.
22. According to the RWD, the new WWTF and water recycling areas will provide a firm treatment, storage and disposal capacity of 0.105 mgd as an average annual flow at full build out. The water balance presented in the RWD used reasonable estimates of normal influent flows, precipitation, evaporation, and evapotranspiration. However, no allowance for seasonal I/I was made. Therefore, the RWD did not provide sufficient information to set flow limits for wet weather months.

The water balance was used to model storage and disposal capacity during the 100-year, 365-day precipitation event with at least two feet of freeboard in every pond. The model, which is based on the specific design geometry of the effluent storage ponds, water recycling areas, and emergency wastewater storage within the water recycling areas shown on Attachments A and B, indicates that the new WWTF will provide the following capacities at full build out:

<u>Condition</u>	<u>Capacity</u>
Average daily dry weather flow <sup>1</sup>	0.105 mgd
<u>Total annual flow</u>	38.3 MG

<sup>1</sup> Based on the months of June through September, inclusive.

The RWD did not include separate water balances for each phase of WWTF build out, but the engineer of record states that each treatment train will have a firm hydraulic capacity of 0.035 mgd as an average dry weather flow when combined with at least 13.3 acres of recycling area and 32 acre-feet of effluent storage capacity if the new WWTF is built to be consistent with the drawings provided in the RWD.

Because the engineering design is not final, and the draft design does not discuss phased construction of the effluent recycling areas and effluent storage facilities in detail, it is appropriate to require that the Discharger submit a water balance for each phase of WWTF construction as it is completed to verify that the as-built hydraulic capacity of the system is consistent with the flow limits set forth in this Order, including a reasonable estimate of I/I flows during the 100-year, 365-day precipitation event.

23. The RWD estimates that sludge will accumulate in the primary treatment ponds at a rate of 68 cubic yards per year for each treatment train. This is equivalent to approximately 1.1 inches per year. Based on this estimate, the RWD states that sludge removal will be required approximately every 10 to 15 years. When necessary, sludge will be removed from the lined ponds by portable dredge and/or suction hose to portable dewatering equipment. The resulting biosolids cake will be disposed of at an unspecified permitted site such as a landfill.
24. The headworks will generate approximately three cubic feet of screenings per day. The screenings will be temporarily stored on site and disposed of at an offsite permitted disposal facility.
25. The RWD states that the following design features will be incorporated into the sewer system and wastewater treatment plant to prevent treatment system bypass and unauthorized discharges to surface waters:
  - a. Under a *Terms of Service Agreement*, all restaurants and food service facilities that discharge to the sewer system will be required to install a grease interceptor to prevent sewer blockages that might cause sanitary sewer overflows. The Discharger will monitor the grease interceptors monthly and ensure that they are cleaned out as needed.
  - b. Likewise, all truck wash and vehicle service areas will be required to install sediment and grease interceptors, which will be monitored monthly by the Discharger and cleaned out as needed. Nevertheless, it is appropriate to require effluent monitoring for common petroleum fuel constituents to verify the effectiveness of both the pretreatment program and the WWTF at removing residual concentrations.

- c. The main lift station will be equipped with a standby generator with an automatic transfer switch to ensure continuous power to the pumps.
- d. The lift station wet well will have a high level alarm system that will be wired to automatically alert operations staff of pump failure.
- e. A gravity overflow pipe will be installed at the headworks to divert influent directly to the primary treatment ponds in the event of power failure or a clogged screen.
- f. In the event of a power failure at the plant, both the disinfectant and recycled water pumps will stop, so undisinfected effluent will not be discharged to the recycling areas. Upon power restoration, the operator will return some of the effluent from the chlorine contact chamber to the third ponds until there is an acceptable residual chlorine concentration in the disinfected effluent.

### **Wastewater Collection System**

- 26. The sanitary sewer system collects wastewater and consists of sewer pipes, manholes, and/or other conveyance system elements that direct raw sewage to the treatment facility. 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 treatment facility. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered SSOs, provided that the waste is fully contained within these temporary storage/conveyance facilities. Sanitary sewer overflow is also defined in State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*.
- 27. SSOs consist of varying mixtures of domestic and commercial wastewater, depending on land uses in the sewage collection system. The chief causes of SSOs include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and/or contractor caused blockages.
- 28. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. SSOs can cause temporary exceedance of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.
- 29. The Discharger is not required to obtain coverage under State Water Board Order No. 2006-0003-DWQ because neither the sewer system nor the wastewater treatment plant is publicly owned. Therefore, the Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent overflows from its sanitary sewer system, and to comply with this Order with regard to responding to and reporting all SSOs.



**Site-Specific Conditions**

- 30. The potable water supply for the existing and proposed developments comes from a 390-foot well owned and operated by the Discharger. A second water supply well is available for supplemental irrigation water. This well does not have a sanitary seal.
- 31. Based on water supply monitoring events in 2005 and 2007, the chemical character of the potable water supply is summarized below.

Parameter	Units	Water Supply Analytical Results	
		October 2005	February 2007
Total dissolved solids	mg/L	283	597
Electrical conductivity	umhos/cm	4,670 <sup>1</sup>	1,080
Total hardness	mg/L	1,110 <sup>1</sup>	183
Bicarbonate alkalinity	mg/L	--	366
Chloride	mg/L	17.6	42.4
Sodium	mg/L	--	90
Nitrate (NO <sub>3</sub> )	mg/L	9.3 <sup>1</sup>	14.5
Sulfate	mg/L	1.88	<5
Calcium	mg/L	--	14.7
Iron	mg/L	<0.10	<0.03
Magnesium	mg/L	--	36.1
Manganese	mg/L	<0.015	<0.01

-- Not analyzed.

<sup>1</sup> Data accuracy suspect (discussed further below)

The October 2005 results for electrical conductivity and total hardness are suspect because the electrical conductivity far exceeds the expected EC:TDS ratio for any natural water and both the EC and hardness results are far greater than would be expected given the results for individual ions that constitute salinity and hardness. Therefore, the 2005 data set is not considered reliable.

Based on the February 2007 analytical results, the water supply is hard and moderately saline. The prevalence of self-regenerating water softeners, which can contribute excess salinity to the WWTF influent, is not known. The effluent monitoring data summarized in Finding Nos. 8 and 9 indicate that there is no appreciable difference in salinity between the water supply and the WWTF effluent, which would be extremely unusual. It is possible that the EC results provided in the Discharger’s self monitoring reports are incorrect due to improper calibration or use of the field instrument used to measure EC. It is also possible that the February 2007 water supply monitoring results are not representative of the water supply quality, which may vary during the year. Additional study is needed to determine whether the incremental increase in salinity due to consumptive use is reasonable.

32. The WWTF is at an elevation of approximately 50 feet above mean sea level (MSL), and the area around the site is relatively flat with drainage to the northeast towards the Colusa Basin Drainage Canal. The off-site water recycling area is mildly sloped at an elevation of approximately 65 feet MSL. It drains to Bird Creek at the southeastern corner of the site, and Bird Creek is tributary to the Colusa Basin Drainage Canal.
33. The 1980 Flood Insurance Rate Map for the area indicates that a small portion of the southeastern corner of the offsite water recycling area is within Flood Zone A. Base flood elevations have not been estimated for Flood Zone A, but the minimal encroachment of Flood Zone A into the water recycling area is not expected to significantly affect operation of the WWTF or significantly impact the quality of any flood waters that may flow over the site.
34. Surrounding land uses are primarily agricultural. Annual precipitation in the vicinity averages approximately 23 inches, the 100-year total annual precipitation is approximately 41 inches, and the reference evapotranspiration rate is approximately 53 inches per year.

### **Groundwater Considerations**

35. According to the National Resource Conservation Service, surface soils at the wastewater treatment plant site are predominantly Rincon silty clay loam, which is characteristic of alluvial fans derived from sedimentary rock. The Rincon silty clay loam is a well drained, non-saline soil. Surface soils at the off-site water recycling area are the Arbuckle gravelly loam, Rincon silty clay loam and Yolo silty loam, which are also characterized as well-drained alluvial soils.
36. The Discharger installed three groundwater monitoring wells at the existing wastewater treatment plant in May 2007. The monitoring well locations are shown on Attachment B. Based on the *Monitoring Well Installation Report* included in the RWD, soils at the existing WWTF are typically interbedded silts and clays from the ground surface to depths ranging from 23 to 41 feet below ground surface (bgs). Interbedded sands and gravels were encountered in two of the borings beginning at 23 and 35 feet, respectively. The coarse grained material continued to the bottom of the borings at approximately 40.5 feet bgs. Static groundwater levels were 23 to 25 feet bgs prior to well installation. All of the monitoring wells have 20-foot screens. MW-1 and MW-3 are screened primarily in fine-grained materials, whereas MW-2 is screened primarily in sands and gravels.
37. The Discharger has performed groundwater monitoring three times since the wells were installed: in June, July, and December 2007. During that period, shallow groundwater levels in all wells declined by approximately two feet; the groundwater gradient was very low (0.0003 to 0.0006); and the flow direction switched from northwestward in June and July to southeastward in December. Historical groundwater monitoring data for two private WWTFs within 2,000 feet of this site<sup>1</sup> indicate that the low gradient and seasonal flow direction variability are typical of the area. Based on local topography and drainage features, the local groundwater flow direction should be consistently towards the east-northeast, but local groundwater use may be causing the directional variability in the

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<sup>1</sup> The Pilot Travel Center and the Ritchie Brothers Auctioneers sites (see Attachment A).

shallow groundwater gradient. However, it is noted that the very low gradient combined with the directional variability may indicate that there is little net movement of shallow groundwater within the fine-grained soils below the existing WWTF.

38. Groundwater analytical data from the three groundwater sampling events are summarized below.

Constituent/Parameter	Units	Range of Analytical Results		
		MW-1	MW-2	MW-3
Total coliform org.	MPN/100 mL	2 to 350	<2 to 80	2 to 4
pH	Std.	7.3 to 7.7	7.1 to 7.3	7.2 to 7.5
Electrical conductivity	umhos/cm	660 to 690	950 to 1,300	950 to 1,200
Total dissolved solids	mg/L	489 to 523	683 to 856	600 to 796
Total Kjeldahl nitrogen	mg/L	1.2 to 1.9	0.6 to 2.2	1.2 to 3.4
Ammonia nitrogen	mg/L	0.23 to 0.98	0.12 to 1.35	0.15 to 1.41
Nitrate nitrogen	mg/L	13.2 to 26.6	10.4 to 15.9	25.5 to 29.3
Chloride	mg/L	9.8 to 42.3	69.6 to 96.7	74.4 to 147
Sodium	mg/L	29 to 44.6	35.6 to 59.7	38.7 to 64.3

These data, when considered with the shallow groundwater flow regime discussed above, may indicate that the existing WWTF has degraded groundwater quality with respect to coliform organisms, nitrogen, and salinity constituents. The nitrate nitrogen concentrations exceed the primary maximum concentration limit (MCL). However, the data are very limited. Additional monitoring wells, further hydrogeologic assessment, additional monitoring data, and statistical analysis of the data are required to determine background concentrations and whether the degradation, if confirmed, has caused exceedance of applicable water quality limits.

### **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*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
40. Surface water drainage is to the Colusa Basin Drainage Canal, which is tributary to the Sacramento River at Knights Landing. The beneficial uses of the Colusa Basin Drain are agricultural supply (AGR); water contact recreation; canoeing and rafting; warm and cold freshwater habitat; warm water migration; warm water spawning, reproduction, and/or early development; and wildlife habitat.
41. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, and industrial 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 objectives for total coliform organisms
43. The Basin Plan's narrative water quality objective for chemical constituents, at a minimum, requires waters designated as domestic or municipal supply to meet the MCLs specified in 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.
44. In summary, 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. 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.
45. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater. The applicability of this objective to groundwater designated as MUN has been affirmed by State Water Board Order No. WQO-2003-0014 and by subsequent decisions of the Sacramento County Superior Court and California Court of Appeal, 3rd Appellate District.
46. The Basin Plan encourages water recycling where practicable. When the proposed project is complete, the Discharger will recycle all treated effluent for beneficial reuse.

#### **Antidegradation Analysis**

47. State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
  - a. The degradation is consistent with the maximum benefit to the people of the State;
  - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
  - c. 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; and
  - d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
48. There has been a wastewater treatment facility at the current site since 1974, when the first WDRs were issued. There is no data with which to evaluate shallow groundwater quality at the site prior to that date, and there is not sufficient groundwater data to statistically determine current background groundwater quality.
49. When the new WWTF is complete, the facility will provide the following treatment and control measures:
  - a. Full secondary treatment;

- b. Disinfection;
- c. Recycling of all treated effluent for beneficial reuse;
- d. Geosynthetic liners for all wastewater treatment ponds; and
- e. A certified wastewater treatment plant operator.

However, the Discharger has not implemented any source control and the proposed unlined effluent storage ponds do not incorporate any specific measures to reduce the potential for groundwater degradation. This Order requires the Discharger to submit a Background Groundwater Quality Study and Antidegradation Analysis Report and continue groundwater monitoring at the WWTF. If groundwater monitoring data shows that the discharge has violated the groundwater limitations of this Order, this Order may be reopened to add additional requirements that address the violations.

Additionally, although the WWTF is not publicly owned, the complexity of the system and the potential threat to water quality and public health provide sufficient reason to require that a certified wastewater treatment plant operator be retained operate and maintain the WWTF, to perform wastewater sampling and other monitoring required by this Order. Therefore, this Order requires that the Discharger provide the correct grades of certified operators and appropriate supervision for any OITs to ensure proper operation and maintenance of the WWTF.

- 50. Surrounding land uses are primarily irrigated agriculture, and these land uses predate the existing WWTF. Based on the limited data available and historic land uses, it is reasonable to expect that agricultural practices have degraded groundwater quality at both sites, and that it will not be possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.
- 51. The Discharger cannot fully evaluate existing and potential future impacts to groundwater quality until completion of WWTF improvements and additional hydrogeologic studies. The limited antidegradation analysis below indicates that the proposed discharge may comply with the Basin Plan. However, this Order includes interim groundwater limitations that are effective immediately and do not allow exceedance of Basin Plan water quality objectives. Final Groundwater Limitations, which will become effective on 30 January 2015, are the Basin Plan water quality objectives or existing background groundwater concentrations, whichever is greater.
- 52. Constituents of concern that have the potential to degrade groundwater include salts (primarily EC, sodium, and chloride), nutrients and coliform organisms, as discussed below:
  - a. The RWD did not provide sufficient high quality data for the water supply, treated effluent, or shallow groundwater to assess whether the discharge poses an unreasonable threat of groundwater degradation due to salinity constituents. Therefore, it is appropriate for this order to require further monitoring to determine the threat posed by salinity, and to require that the Discharger submit and implement a *Salinity Evaluation and Minimization Plan*.

- b. For nutrients such as nitrate, the potential for unreasonable degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the effluent storage/disposal ponds to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. Groundwater monitoring data for the wastewater treatment plant site indicate that the discharge may have caused significant degradation due to nitrate. However, the new wastewater treatment ponds will have geosynthetic liners and the crops grown at the water recycling areas should remove most of the nitrogen in the applied wastewater. These two changes will minimize the threat to groundwater quality and allow the existing degradation, if confirmed, to attenuate over time.
  - c. For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the treatment plant and effluent storage ponds and saturated soils within the shallow water bearing zone to provide adequate filtration. Groundwater monitoring data for the wastewater treatment plant indicates that the shallow soils beneath the treatment ponds may not provide sufficient filtration. However, the new WWTF's treatment ponds will have geosynthetic liners and the treated effluent will be disinfected prior to recycling.
53. The Discharger has not completed an antidegradation analysis to determine whether unreasonable groundwater degradation has, or likely will, result from the discharge. It is the responsibility of the Discharger to provide information for the Central Valley Water Board to evaluate whether any degradation caused by the discharge is consistent with Resolution No. 68-16.

Although this Order allows expansion of the WWTF, the new treatment plant will improve effluent quality, reduce the potential for continued percolation of wastewater to groundwater, and provide recycled water for beneficial reuse. Sufficient reason exists to accommodate this growth as long as the Discharger completes an antidegradation analysis and selects and implements appropriate salinity reduction and BPTC measures within a reasonable timeframe. It is also appropriate to allow some groundwater degradation as long as it is consistent with the Basin Plan and Resolution No. 68-16 because economic prosperity of local communities and associated industry is of benefit to the people of California.

In keeping with the intent of Resolution 68-16, there should no significant increase in influent flows before the Discharger completes the WWTF improvements that will provide better groundwater quality protection than the existing WWTF. Therefore, this Order limits influent flows to the existing WWTF to a small increment above current flows.

This Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater and includes groundwater limitations that apply water quality objectives established in the Basin Plan to protect beneficial uses. This Order also establishes effluent limitations that are protective of the beneficial uses of the underlying groundwater; requires a groundwater quality evaluation and determination of the need for salinity reduction; and requires groundwater monitoring to quantify any water quality impacts. Following completion of the work

required by the time schedule contained in the Provisions, this Order will be reopened, if necessary, to reconsider effluent limitations and other requirements to comply with Resolution 68-16. Based on the existing record, the discharge is consistent with the antidegradation provisions of Resolution 68-16.

### **Water Recycling**

54. State Water Board Resolution No. 77-1, *Policy with Respect to Water Recycling in California*, encourages recycling projects that replace or supplement the use of fresh water, and *The Water Recycling Law* (CWC Sections 13500-13529.4) declares that utilization of recycled water is of primary interest to the people of the State in meeting future water needs.
55. The California Department of Public Health (DPH) has established statewide water recycling criteria in Title 22 CCR Section 60301 et. seq. (hereafter Title 22). A 1988 Memorandum of Understanding between DPH (which was then the Department of Health Services) and the State Water Board on the use of recycled water establishes basic principles relative to the two agencies and the regional water boards. The Memorandum allocates primary areas of responsibility and authority between the agencies and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to use of recycled water.
56. Section 60323(a) of Title 22 states that no person shall produce or supply recycled water for direct reuse from a proposed water recycling plant unless an engineering report is submitted for review and approval by DPH and the Central Valley Water Board. Irrigation of crops is considered a beneficial reuse. In September 2008, the Discharger submitted the required Title 22 Engineering Report to DPH and the Central Valley Water Board.
57. On 4 March 2009, DPH approved the Discharger's Title 22 Engineering Report subject to the following conditions:
  - a. New water mains shall not be installed within 100 feet of any wastewater pond or effluent recycling area.
  - b. Groundwater wells within 1,000 feet of the WWTF shall be monitored monthly for bacteriological quality.
  - c. WWTF effluent shall be sampled and analyzed daily for total coliform organisms.
  - d. The Discharger is required to have an ordinance or Rules of Service to prevent unauthorized connections to the recycled water pipeline.
  - e. Air gaps shall be used for backflow prevention where potable water is used at sewer lift stations unless approved by DPH.

With the exception of Item c. above, verifying compliance with those conditions is outside the scope of this Order.

58. DPH requires that the American Water Works Association (AWWA) Guidelines for Distribution of Non-Potable Water and Guidelines for the On-site Retrofit of Facilities be implemented in design and construction of recycling systems. The approved Title 22

Engineering Report describes specific design details for the irrigation system that comply with Title 22.

### Other Regulatory Considerations

59. The State Water Board adopted Order No. 97-03-DWQ (NPDES General Permit No. 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. The wastewater treatment facility has a design capacity of less than 1.0 mgd and does not have a pretreatment program, and is therefore not required to obtain coverage under NPDES General Permit No. CAS000001.
60. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order No. 2006-0003-DWQ (SSO General Order). The SSO General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system is privately owned, and therefore is not subject to regulation under the SSO General Order.
61. Section 13267(b) of the California Water Code provides that: *"In conducting an investigation specified in subdivision (a), the regional 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, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of 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 regional 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 regional 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 the attached "Monitoring and Reporting Program No. \_\_\_" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

62. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to CWC Section 13801, apply to all monitoring wells.
63. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with Title 14 CCR, Section 15301.



64. A Tiered Initial Study and Mitigated Negative Declaration for the North Valley Depot, Dunnigan Truck and Travel Center, and WWTF expansion project was approved by the Yolo County Planning and Public Works Department on 4 June 2003 in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.). No potentially significant impacts to water quality were identified and no mitigation measures to prevent such impacts were imposed. Compliance with these waste discharge requirements will avoid significant impacts to water quality.
65. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.
66. The Central Valley Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but 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 the EPA.
67. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the wastewater treatment facility is exempt from Title 27, the data analysis methods of Title 27 are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
68. The treatment and effluent recycling facilities associated with the discharge authorized herein, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, Section 20005 et seq. The exemption is based on the following:
  - a. The reuse of treated wastewater at the water recycling areas is unconditionally exempt from Title 27 pursuant to Section 20090(h) because it constitutes recycling of material produced by waste treatment.
  - b. Based on current influent quality and projected effluent quality, wastewater in the treatment ponds and treated effluent discharged to the effluent storage ponds and emergency storage ponds do not need to be managed as Hazardous Waste and may qualify for an exemption under Title 27 pursuant to Section 20090(b). However, the applicability of this exemption also depends on whether the discharge is in compliance with the Basin Plan. This will not be known until the first phase of the new WWTF is constructed and the Discharger provides additional groundwater monitoring data and a Background Groundwater Quality Study. These will be used to determine appropriate final groundwater limitations to protect the beneficial uses of groundwater and to determine whether additional treatment and/or improved containment are needed to ensure compliance with the Basin Plan. Because compliance with the Basin Plan cannot be determined immediately, this Order includes a compliance schedule for completion of those tasks.
69. Pursuant to California 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.

### Public Notice

70. All of the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
71. 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.
72. All comments pertaining to the discharge were heard and considered in a public meeting.

**IT IS HEREBY ORDERED** that, pursuant to Sections 13263 and 13267 of the California Water Code, Order No. 93-176 is rescinded and Grant Park Development, Inc., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

#### Note:

Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.

#### A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of storm water runoff from the effluent recycling areas to surface waters or surface water drainage courses is prohibited.
3. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
4. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of the California Water Code is prohibited.
5. Bypass or overflow of untreated or partially treated waste is prohibited.
6. Discharge of treated effluent to any site other than the emergency overflow storage ponds or the effluent recycling areas described in the Findings is prohibited.
7. Application of recycled water in a manner or location other than that described herein is prohibited.
8. The use of recycled water for purposes other than those set forth in this Order and Title 22 CCR Sections 60304(c) through 60304(e) is prohibited.

**B. Discharge Specifications**

1. **Effective immediately and continuing until the Executive Officer issues written approval** of the first *Wastewater Treatment Facility Phase Completion Report* required pursuant to Provision G.1.d, influent flows to the existing WWTF shall not exceed the following limits:

<u>Influent Flow Measurement</u>	<u>Influent Flow Limit</u>
Total Annual Flow	9.1 MG
Average Daily Dry Weather Flow <sup>1,2</sup>	0.025 mgd
Maximum Monthly Flow <sup>3</sup>	0.032 mgd

- <sup>1</sup> Dry weather is defined as the months of July through September, inclusive.
- <sup>2</sup> As determined by the total influent flow for the dry weather period divided by 92.
- <sup>3</sup> As determined by the total influent flow for the month divided by the number of days in that month.

2. Upon approval of each successive *Wastewater Treatment Facility Phase Completion Report* submitted pursuant to Provision G.1.d, the Executive Officer will approve revised influent flow limitations up to the limits specified in the following table. Approval is dependent on submittal of a water balance capacity analysis demonstrating that the as-built hydraulic capacity of the WWTF is consistent with the flow limits.

<u>Influent Flow Measurement</u>	<u>Influent Flow Limit</u>		
	<u>Phase I</u>	<u>Phase 2</u>	<u>Phase 3</u>
Total Annual Flow	12.8 MG	25.6 MG	38.3 MG
Average Daily Dry Weather Flow	0.035 mgd	0.070 mgd	0.105 mgd
Maximum Monthly Flow <sup>1</sup>	0.045 mgd	0.091 mgd	0.136 mgd

<sup>1</sup> These are estimated limits based on conservative assumptions of I/I contribution during the 100-year, 365-day precipitation event. Final limits will depend on the I/I analysis provided with the water balance.

3. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.
4. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Section 13050 of the California Water Code (CWC).
5. The Discharger shall operate all systems and equipment to optimize the quality of the treated effluent.
6. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.

7. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the wastewater treatment ponds, storage pond or effluent recycling site at an intensity that creates or threatens to create nuisance conditions.
8. As a means of discerning compliance with Discharge Specification B.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive daily sampling events. If the DO in any single pond is below 1.0 mg/L during a weekly sampling event, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in all affected ponds until the problem has resolved. If unpleasant odors originating from affected ponds are noticed in developed areas, or if the Discharger receives one or more odor complaints, the Discharger shall report the findings to the Central Valley Water Board in writing within 5 days of that date and shall include a specific plan to resolve the low DO results within 10 days of that date.
9. Wastewater and tailwater ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
10. All treatment, storage, and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
11. The WWTF shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter months. 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.
12. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment levees and prevent overtopping and/or structural failure. 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 in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond permanent staff gauges with calibration marks that indicate the water level at design capacity and enable determination of available operational freeboard.
13. On or about **15 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications B.10 and B.11.

**C. Recycled Water Specifications**

1. The Discharger shall treat the wastewater so that it complies with Title 22 CCR, Section 60301.225 (“Disinfected Secondary-23 Recycled Water”).
2. Recycled water shall be used in compliance with Title 22, Article 3 (“Uses of Recycled Water”).
3. Application of recycled water shall comply with the following setback requirements:

<u>Setback Definition</u> <sup>1</sup>	<u>Minimum Irrigation Setback (feet)</u>
Edge of recycled water recycling areas to property boundary	25
Edge of recycled water recycling areas to public roads	50
Edge of recycled water recycling areas to irrigation wells	100
Edge of recycled water recycling areas to domestic wells	100
Edge of recycled water recycling areas to manmade or natural surface water drainage course <sup>2</sup> or spring	25

<sup>1</sup> As defined by the wetted area produced during irrigation.

<sup>2</sup> Excluding ditches used exclusively for tailwater return.

4. Public contact with recycled effluent at the recycling areas shall be controlled through use of fences and cautionary signs, and/or other appropriate means. Perimeter warning signs indicating that recycled water is in use shall be posted at adequate intervals along the property boundary and at each access road entrance. The size and content of these signs shall be as described in Section 60310 of Title 22.
5. Recycled water controllers, valves, and similar appurtenances shall be affixed with recycled water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering. The contents of the signs shall conform to Section 60310 of Title 22, and the DPH District Engineer’s requirements. Each sign shall be in English and Spanish languages.
6. Quick couplers and sprinkler heads, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibs and other unlocked valves shall not be accessible to the public.
7. Any connection between the recycled water conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source for the purpose of supplementing recycled water shall be equipped with a DPH-approved backflow prevention device.

8. Direct or windblown spray of recycled water shall be confined to the recycling areas, and shall not enter surface watercourses.
9. Spray irrigation of recycled water is prohibited when wind velocities exceed 30 mph.
10. Crops shall be grown on the recycling areas, and cropping activities shall be sufficient to take up all of the nitrogen applied, including any fertilizers.
11. Grazing of milking animals within the recycling areas is prohibited.
12. The volume of recycled water applied to the recycling areas on any single day shall not exceed reasonable agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions.
13. Hydraulic loading of recycled water and supplemental irrigation water shall be at reasonable agronomic rates designed to maximize uptake and breakdown of waste constituents in the root zone and minimize the percolation of waste constituents below the root zone.
14. Irrigation of the recycling areas shall occur only when appropriately trained personnel are on duty, and the recycling areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.
15. Irrigation using recycled water shall not be performed within 24 hours of a forecasted storm, during a storm, within 24 hours after any measurable precipitation event, or when the ground is saturated.
16. The discharge of recycled water shall remain within the designated recycling areas (as described in Finding No. 15 and depicted on Attachments A and B) at all times.
17. The discharge of recycled water shall be managed to minimize erosion.
18. The recycled water areas shall be managed to prevent breeding of mosquitoes. In particular:
  - a. There shall be no standing water 48 hours after irrigation ceases;
  - b. Tailwater ditches must be maintained essentially free of emergent, marginal, and floating vegetation; and
  - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled effluent.
19. Any tailwater ditch used to contain runoff shall be designed and maintained so that all tailwater flows to a single collection point.

**D. Effluent Limitations**

1. Effluent discharged to the water recycling areas shall not exceed the following limits:

Constituent	Units	Annual Average	Monthly Average	Monthly Maximum
BOD <sub>5</sub>	mg/L	--	30	80
Total suspended solids	ml/L	--	30	80
Total coliform organisms	MPN/100 mL	--	23	240
Electrical conductivity	umhos/cm	Water supply + 500		

2. No wastewater contained in any pond shall have a pH less than 6.5 or greater than 10.5.

**E. General Solids Disposal Specifications**

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings 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 and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
3. Any storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
4. Residual sludge, biosolids, and solid waste 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 disposal sites (i.e., landfills, WWTFs, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. In most cases, this will

mean the General Biosolids Order (State Water Resources Control 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 covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

6. Use and disposal of biosolids shall comply with the self-implementing federal regulations of Title 40, Code of Federal Regulations (CFR), Part 503, which are subject to enforcement by the U.S. EPA, not the Central Valley Water Board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, the Central Valley Water Board may also initiate enforcement where appropriate.

**F. Groundwater Limitations**

1. **Effective immediately** as interim groundwater limitations, the discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than existing background water quality. Background groundwater quality shall be calculated using the methods provided in Title 27 Section 20415(e)(10). Background values must be updated annually as described in the MRP.
2. **Effective 30 January 2015**, the final groundwater limitations will be the Basin Plan water quality objectives or the background groundwater quality (as determined by required studies approved by the Executive Officer), whichever is greater. If background values are not determined, the groundwater water quality objectives listed below will be the final groundwater limitations. If the Discharger determines that it cannot meet the final groundwater limitations without WWTF improvements, the Discharger shall provide a proposed time schedule to bring the discharge into compliance before the effective date. The water quality objectives are presented below:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Dissolved Solids	mg/L	450 <sup>1</sup>
Total Nitrogen	mg/L	10
Nitrate (as N)	mg/L	10
Ammonia (as NH <sub>4</sub> )	mg/L	1.5
Bromoform	ug/L	4
Bromodichloromethane	ug/L	0.27



<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Chloroform	ug/L	1.1
Dibromochloromethane	ug/L	0.37

<sup>1</sup> A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

## G. Provisions

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision G.5:
  - a. By **30 April 2010**, the Discharger shall submit the name, contact information, and a copy of current certification for the certified wastewater treatment plant operator that will be responsible for operation, maintenance, and monitoring of the WWTF.
  - b. By **30 June 2010**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan* that proposes at least four additional monitoring wells to ensure adequate monitoring upgradient and downgradient of all unlined ponds (existing and proposed) as wells as the proposed effluent recycling areas. The workplan shall be prepared in accordance with, and include the items listed in, the first section of Attachment C: "Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports", which is attached hereto and made part of this Order by reference. The groundwater monitoring wells shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the ponds and effluent recycling areas.
  - c. **Upon completion** of the monitoring well installation workplan **and at least 180 days** prior to discharges to the WWTF from any new development, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* for any new groundwater monitoring wells constructed to comply with Provision G.1.b. The report shall be prepared in accordance with, and include the items listed in, the second section of Attachment C. The report shall describe the installation and development of all new monitoring wells, explain any deviation from the approved workplan, and report the analytical results of the first groundwater sampling event completed within 7-days of the well installation.
  - d. **Upon completion** of each successive phase of WWTF expansion **and at least 120 days** prior to discharges to the WWTF from any new development, the Discharger shall submit a *Wastewater Treatment Facility Phase Completion Report* that certifies construction and start-up testing of the new wastewater treatment system has and recycling site(s) have been completed, and certifies that the WWTF can comply with the applicable effluent limitations. Each report shall include as-built drawings of the WWTF and recycling site improvements and a detailed water balance model that provides the following hydraulic capacity information:
    - i. Average daily dry weather flow for the months of July through September, inclusive.

- ii. Maximum monthly average flow based on a reasonable allowance for sewer system I/I during the 100-year, 365-day precipitation event.
- iii. Total annual flow volume.

The water balance shall include documentation of, and technical support for, all data inputs used and shall consider at least the following.

- i. The as-built geometry of all ponds and effluent recycling areas;
  - ii. A minimum of two feet of freeboard in each pond at all times;
  - iii. Historical local pan evaporation data (monthly average values) used to estimate pond evaporation rates;
  - iv. Local precipitation data (for the 100-year 365-day event distributed in accordance with mean monthly precipitation patterns) applied as direct precipitation to all ponds and effluent recycling areas;
  - v. Proposed wastewater generation rates based on historical flows and new development to be served by the expansion distributed monthly in accordance with expected seasonal variations;
  - vi. Estimated I/I flows for the 100-year 365-day event based on historical flows, new development, and age and type of sewer pipes;
  - vii. Recycling area crop evapotranspiration rates, including consideration of the required setbacks; and
  - viii. Projected long-term percolation rates (including consideration of percolation from unlined ponds and the effects of solids plugging on all ponds).
- a. By **30 January 2012**, the Discharger shall submit and implement a *Salinity Evaluation and Minimization Plan* to address the sources of salinity discharged to the wastewater treatment system. At a minimum, the plan shall meet the following requirements outlined in CWC Section 13263.3(d)(3) Pollution Prevention Plans:
- i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of salinity in the treatment plant influent including water supply, water softeners, and other residential, commercial and industrial salinity sources.
  - ii. An analysis of the methods that could be used to prevent the discharge of salinity into the facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the facility. The analysis shall also identify sources, or potential sources, not within the ability or authority of the Discharger to control.
  - iii. An estimate of salinity load reductions that may be identified through the methods identified in CWC Section 13263.3(d)(3)(ii).
  - iv. A plan for monitoring the results of the salinity pollution prevention program.

- v. A description of the tasks, costs, and time required to investigate and implement various elements in the salinity pollution prevention plan.
- vi. A statement of the Discharger's salinity pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.
- vii. A description of the Discharger's existing salinity pollution prevention programs.
- viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
- ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.
- x. Progress to date in reducing the concentration and/or mass of salinity in the discharge.

If this report is required, progress in implementation of the plan shall be reported each year in the Annual Monitoring Report required pursuant to Monitoring and Reporting Program No. R5-2010-0013.

- b. By **30 January 2013**, the Discharger shall submit a *Background Groundwater Quality Study and Antidegradation Analysis Report* for the wastewater treatment plant and effluent disposal sites. The report shall present a summary of all historical monitoring data for each groundwater monitoring parameter/constituent identified in the MRP and calculation of the background groundwater concentration for electrical conductivity, total dissolved solids, nitrate nitrogen, total coliform organisms, sodium, chloride, and boron. Determination of background quality shall be made using the methods described in Title 27 CCR, Section 20415(e)(10), and shall be based on all groundwater monitoring events. The report shall compare the calculated background concentration with the concentration in each downgradient well.
2. If the *Background Groundwater Quality Study* shows that the discharge of waste is causing groundwater to contain waste constituents (other than electrical conductivity, total dissolved solids, sodium and chloride) in concentrations statistically greater than background water quality then, by **30 June 2013**, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed **one year** after receipt of comments on the workplan.

3. **At least 180 days prior** to any sludge removal and disposal, the Discharger shall submit a *Sludge Cleanout Plan*. The plan shall include a detailed plan for sludge removal, drying, and disposal. The plan shall specifically describe the phasing of the project, measures to be used to control runoff or percolate from the sludge as it is drying, and a schedule that shows how all dried biosolids will be removed from the site prior to the onset of the rainy season (1 October). If the Discharger proposes to land apply biosolids at the effluent recycling site, the report shall include a Report of Waste Discharge and filing fee to apply for separate waste discharge requirements.
4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities 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 any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.
5. All technical reports 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. To demonstrate compliance with Sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports 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.
6. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2010-0013, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
7. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
8. The Discharger shall submit to the Central Valley Water Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule.
9. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

10. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23 of the California Code of Regulations, Division 3, Chapter 26.
11. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
12. The Discharger 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."
13. Upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow, the Discharger shall immediately notify the Central Valley Water Board and the Yolo County Environmental Health Department in accordance with the Standard Provisions and Reporting Requirements and take any necessary remedial action to (a) control or limit the volume of sewage discharged, (b) terminate the sewage discharge as rapidly as possible, and (c) recover as much as possible of the sewage discharged (including wash down water) for proper disposal. The Discharger shall implement all applicable remedial actions including, but not limited to, the following:
  - a. Interception and rerouting of sewage flows around the sewage line failure;
  - b. Vacuum truck recovery of sanitary sewer overflows and wash down water;
  - c. Use of portable aerators where complete recovery of the sanitary sewer overflows are not practicable and where severe oxygen depletion is expected in surface waters; and
  - d. Cleanup of sewage-related debris at the overflow site.
14. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
15. In the event of any change in control or ownership of the WWTF, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger 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 name and 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

California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

16. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. 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 recession of this Order.
17. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
18. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

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 29 January 2010.

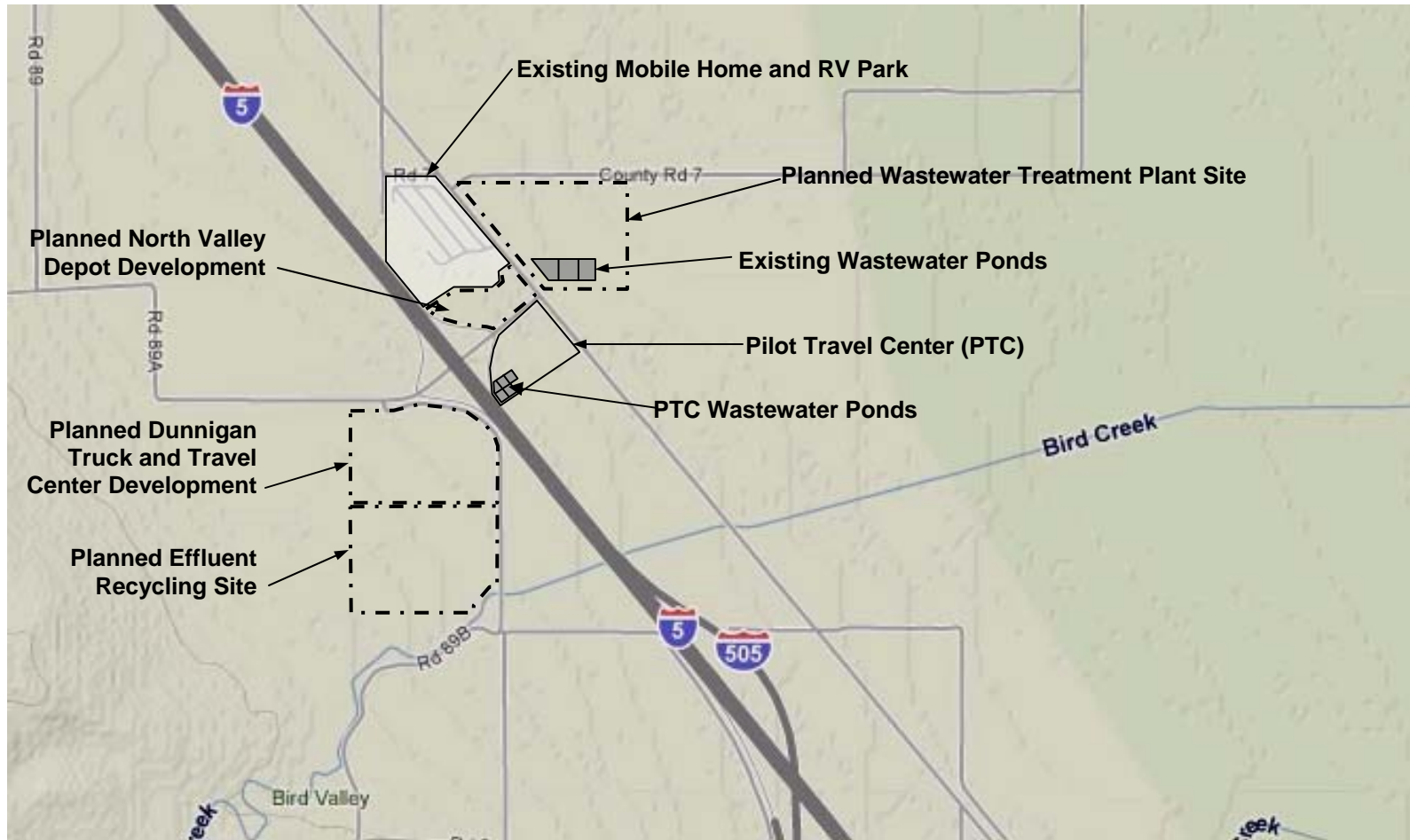
Original Signed by Kenneth D. Landau for;

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PAMELA C. CREEDON, Executive Officer

ALO: 2/22/10

ATTACHMENT A



Drawing Reference:  
Google Maps, google.com

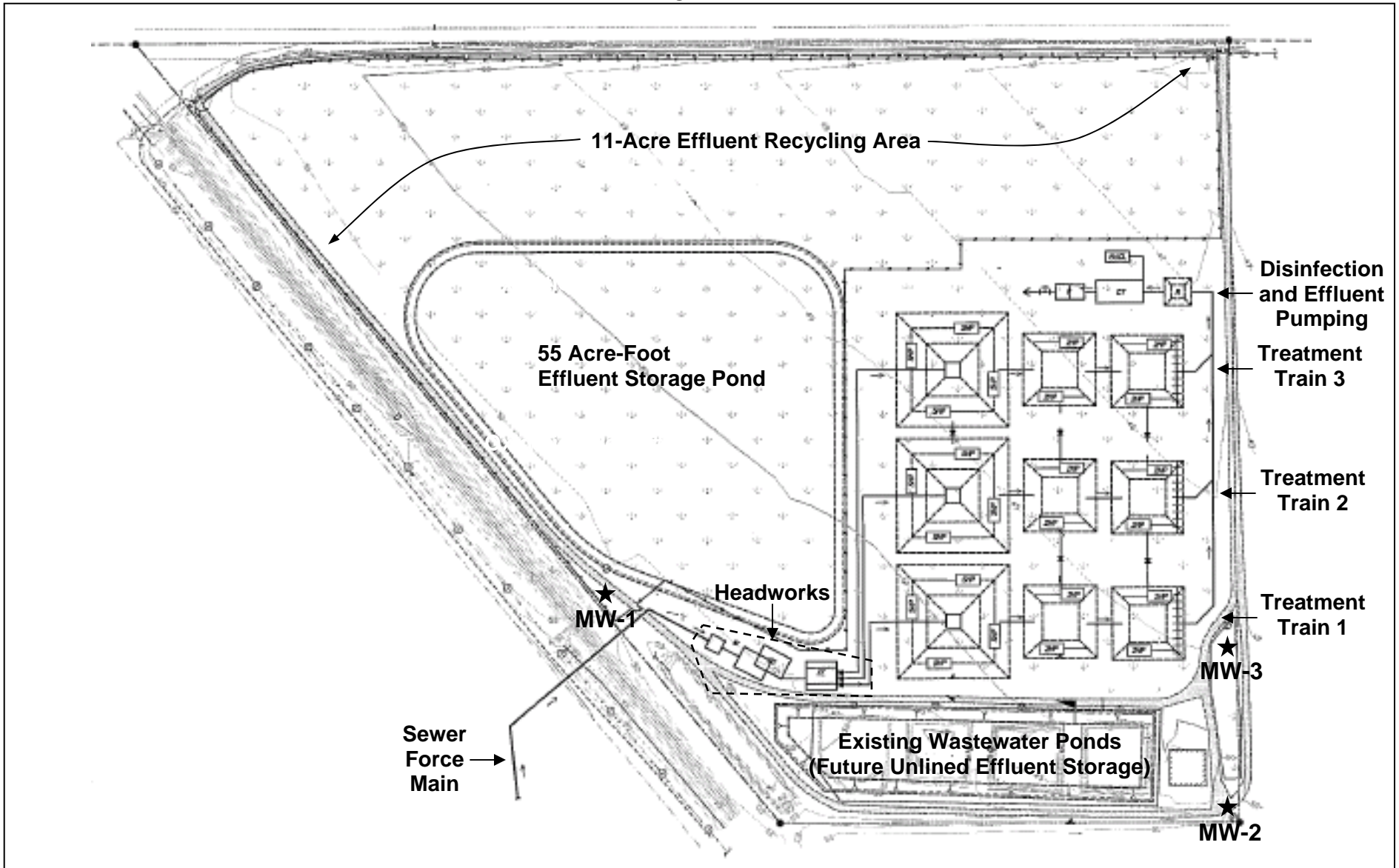
**SITE LOCATION MAP**  
GRANT PARK DEVELOPMENT, INC.  
DUNNIGAN WATER WORKS WASTEWATER TREATMENT FACILITY  
YOLO COUNTY

ORDER NO. R5-2010-0013



Approx. Scale:  
1" = 2,000 feet

**ATTACHMENT B**




Drawing Reference:  
 RWD Addendum, Water Resources  
 Engineering Associates, August 2008

**EXISTING WASTEWATER TREATMENT PLANT**  
 GRANT PARK DEVELOPMENT, INC.  
 DUNNIGAN WATER WORKS WASTEWATER TREATMENT FACILITY  
 YOLO COUNTY

ORDER NO. R5-2010-0013

N



Approx. Scale:  
 1" = 200'



## R5-2010-0013 ATTACHMENT C

### REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report that includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

#### **SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan**

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details:
  - Borehole diameter
  - Casing and screen material, diameter, and centralizer spacing (if needed)
  - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
  - Anticipated depth of well, length of well casing, and length and position of perforated interval
  - Thickness, position and composition of surface seal, sanitary seal, and sand pack
  - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.)
- Parameters to be monitored during development and record keeping technique
- Method of determining when development is complete

*California Environmental Protection Agency*

Disposal of development water

- E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):  
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey  
Datum for survey measurements  
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)
- F. Schedule for Completion of Work
- G. Appendix: Groundwater Sampling and Analysis Plan (SAP)  
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

## **SECTION 2 - Monitoring Well Installation Report**

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

- A. General Information:  
Purpose of the well installation project  
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells  
Number of monitoring wells installed and copies of County Well Construction Permits  
Topographic map showing facility location, roads, surface water bodies

Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log:

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements

Describe the measuring points (i.e. ground surface, top of casing, etc.)

Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-0013  
FOR  
GRANT PARK DEVELOPMENT, INC.  
DUNNIGAN WATER WORKS WASTEWATER TREATMENT FACILITY  
YOLO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the wastewater treatment facility (WWTF) influent and effluent, wastewater treatment and storage ponds, effluent reuse areas, groundwater, water supply, and sludge/biosolids disposal. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Regional Water Board staff shall approve specific sampling locations prior to any sampling activities. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test dissolved oxygen, pH, and electrical conductivity) may be used provided that:

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

**NOTE: Certain monitoring and reporting requirements are effective immediately upon adoption of this Order and some become effective when the first phase of new WWTF construction becomes operational.**

## INFLUENT MONITORING

**Effective immediately upon adoption of this Order**, the Discharger shall monitor influent wastewater in accordance with the following. Samples shall be representative of the influent to the first treatment pond. Grab samples are considered representative of the influent. Influent monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Local precipitation	inches	Rain Gauge Observation <sup>1</sup>	Daily	Monthly
Flow	gpd	Flow Meter Observation	Daily	Monthly
BOD <sup>1</sup>	mg/L	Grab	Monthly	Monthly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Total suspended solids	mg/L	Grab	Monthly	Monthly

<sup>1</sup> Using either a properly calibrated and maintained on-site rain gauge or daily results from an appropriately sited precipitation observation station operated by others (specify station name; location; owner; and data source contact information, e.g., internet address).

<sup>2</sup> Five-day, 20° Celsius biochemical oxygen demand.

## EFFLUENT MONITORING

**Effective immediately upon adoption of this Order**, the Discharger shall monitor effluent wastewater in accordance with the following. Samples shall be representative of the wastewater discharged to the wastewater ponds. Grab samples taken from the pipeline just prior to discharge to the pond in use are considered representative. Effluent monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Electrical conductivity	umhos/cm	Grab	Weekly	Monthly
Total dissolved solids	mg/L	Grab	Weekly	Monthly
Formaldehyde	ug/L	Grab	Monthly	Monthly
Zinc	ug/L	Grab	Monthly	Monthly
Phenol	ug/L	Grab	Monthly	Monthly
Standard Minerals <sup>2</sup>	mg/L	Grab	Quarterly	Monthly <sup>1</sup>
Metals <sup>3</sup>	ug/L	Grab	Quarterly	Monthly <sup>1</sup>

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO<sub>3</sub>.

<sup>3</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc. Samples tested for metals shall be filtered prior to preservation to ensure that analytical results report dissolved concentrations.

**Effective on the first day that the first phase of new WWTF construction becomes operational**, the Discharger shall monitor effluent wastewater in accordance with the following. Samples shall be representative of the effluent discharged from the treatment plant to the effluent storage pond after full chlorine contact has been achieved. Grab samples taken from the effluent pipeline just prior to discharge to the effluent storage pond are considered representative. Effluent monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Total coliform organisms	MPN/100 mL	Grab	Daily	Monthly
BOD	mg/L	Grab	Weekly	Monthly
Settleable solids	ml/L	Grab	Weekly	Monthly
Electrical conductivity	umhos/cm	Grab	Weekly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
Formaldehyde	ug/L	Grab	Monthly	Monthly
Zinc	ug/L	Grab	Monthly	Monthly
Phenol	ug/L	Grab	Monthly	Monthly
Petroleum hydrocarbons, diesel	mg/L	Grab	Quarterly	Monthly <sup>1</sup>
Petroleum hydrocarbons, gasoline	mg/L	Grab	Quarterly	Monthly <sup>1</sup>
BTEX <sup>2</sup>	mg/L	Grab	Quarterly	Monthly <sup>1</sup>
Standard Minerals <sup>3</sup>	mg/L	Grab	Quarterly	Monthly <sup>1</sup>
Metals <sup>4</sup>	ug/L	Grab	Quarterly	Monthly <sup>1</sup>

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Benzene, toluene, ethylbenzene, xylene (total).

<sup>3</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO<sub>3</sub>.

<sup>4</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, and nickel. Samples tested for metals shall be filtered prior to preservation to ensure that analytical results report dissolved concentrations.

## POND MONITORING

**Effective immediately upon adoption of this Order**, the Discharger shall monitor all ponds in accordance with the following. Samples shall be collected from permanent monitoring locations that will provide samples representative of the wastewater in each pond. Freeboard shall be measured vertically from the water surface to the lowest elevation of the pond berm, and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard	0.1 feet	Staff Gauge Observation	Weekly	Monthly
Dissolved Oxygen <sup>1</sup>	mg/L	Grab	Weekly <sup>2</sup>	Monthly
pH	pH units	Grab	Weekly	Monthly
Pond berm condition	--	Observation	Weekly	Monthly

<sup>1</sup> Samples shall be collected opposite each pond inlet at a depth of one foot between 0700 and 0900 hours.

<sup>2</sup> If the result for any pond is less than 1.0 mg/L, the sampling frequency shall be increased for a period sufficient to confirm the magnitude and duration of the problem and aid in identification and resolution of the problem in accordance with the Discharge Specifications.

In addition, the Discharger shall inspect the condition of the ponds once per week and document visual observations of the following:

- a. Presence of weeds in the water or along the berm;
- b. Accumulations of dead algae, vegetation, scum, or debris on the pond surface;
- c. Animal burrows in the berms;
- d. Evidence of seepage from the berms;
- e. Flies or mosquitoes in the water or at the water surface; and
- f. The color of the water (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.).

## EFFLUENT RECYCLING SITE MONITORING

**Effective on the first day that the first phase of new WWTF construction becomes operational,** the Discharger shall monitor effluent reuse activities at the effluent reuse areas in accordance with the following. Reuse area monitoring shall be performed daily and the results shall be included in the monthly monitoring report. Erosion, ground saturation, tailwater runoff, and nuisance conditions shall be noted in the report. Reclaimed water shall also be monitored to determine loading rates at the reuse areas.

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Flow from effluent storage pond to each reuse area <sup>1</sup>	gpd and inches/day	Flow Meter Observation	Daily	Monthly
Rainfall	inches	Measurement	Daily	Monthly

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Net Acreage Receiving Recycled Water <sup>1</sup>	acres	Calculated	Daily	Monthly
Nitrogen Loading Rate <sup>2</sup>	lbs/ac/month and cumulative lbs/ac/year	Calculated	Monthly	Monthly
Dissolved Solids Loading Rate	lbs/ac/month and cumulative lbs/ac/year	Calculated	Monthly	Monthly

<sup>1</sup> Specific reuse areas shall be identified.

<sup>2</sup> Including contributions from applied fertilizer.

## GROUNDWATER MONITORING

**Effective immediately**, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring.

These monitoring requirements apply to all existing monitoring wells, as well as those constructed after issuance of the WDRs. Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit a *Monitoring Well Installation Workplan* for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged of at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Depth to groundwater	0.01 feet	Measurement	Quarterly	Quarterly
Groundwater elevation <sup>1</sup>	0.01 feet	Calculated	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly
Gradient direction	Degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Electrical conductivity	umhos/cm	Grab	Quarterly	Quarterly
Total dissolved solids	mg/L	Grab	Quarterly	Quarterly



<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Nitrate nitrogen	mg/L	Grab	Quarterly	Quarterly
Ammonia nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly	Quarterly
Total coliform organisms <sup>2</sup>	MPN/100 ml	Grab	Quarterly	Quarterly
Formaldehyde	ug/L	Grab	Quarterly	Quarterly
Zinc	ug/L	Grab	Quarterly	Quarterly
Phenol	ug/L	Grab	Quarterly	Quarterly
Bromoform	ug/L	Grab	Quarterly <sup>3</sup>	Quarterly
Bromodichloromethane	ug/L	Grab	Quarterly <sup>3</sup>	Quarterly
Chloroform	ug/L	Grab	Quarterly <sup>3</sup>	Quarterly
Dibromochloromethane	ug/L	Grab	Quarterly <sup>3</sup>	Quarterly
Standard minerals <sup>4</sup>	mg/L	Grab	Quarterly <sup>5</sup>	Quarterly
Metals <sup>6</sup>	ug/L	Grab	Quarterly <sup>5</sup>	Quarterly

<sup>1</sup> Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed elevation reference point on the well casing.

<sup>2</sup> Using a minimum of 15 tubes or three dilutions.

<sup>3</sup> **Effective on the first day that the first phase of new WWTF construction becomes operational.**

<sup>4</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO<sub>3</sub>.

<sup>5</sup> Standard minerals and metals shall be analyzed for at least six consecutive quarters to support the Background Groundwater Quality Study. Following completion of that study, monitoring for standard minerals and metals is not required.

<sup>6</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, and nickel. Samples tested for metals shall be filtered prior to preservation to ensure that analytical results report dissolved concentrations.

## WATER SUPPLY MONITORING

The Discharger shall monitor the community water supply wells as required by the California Department of Public Health and shall report the following minimum monitoring data for each water supply well to the Regional Water Board:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Volume pumped to distribution system	MG	--	--	Annually
Total dissolved solids	mg/L	Grab	Annually	Annually

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Electrical Conductivity	umhos/cm	Grab	Annually	Annually
Nitrate nitrogen	mg/L	Grab	Annually	Annually
Standard minerals <sup>1</sup>	mg/L	Grab	Annually	Annually
Metals <sup>2</sup>	ug/L	Grab	Annually	Annually

<sup>1</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO<sub>3</sub>.

<sup>2</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc. Analytical methods shall be selected to provide reporting limits below the applicable water quality limit for each constituent.

## BIOSOLIDS MONITORING

The Discharger shall keep records regarding biosolids generated by the treatment processes, including any analytical test results; the quantity of biosolids removed for disposal; the quantity of biosolids removed from the ponds and temporarily stored on site; and steps taken to prevent nuisance conditions. Records shall be stored onsite and available for review during inspections.

If biosolids are transported off-site for disposal, then the Discharger shall submit records identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the disposal facility name and address, and copies of all analytical data required by the entity accepting the waste. These records shall be submitted as part of the Annual Monitoring Report.

## REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent, effluent, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Regional Water Board.

### A. Monthly Monitoring Reports

Monthly Monitoring Reports shall be submitted to the Regional Water Board on the **1<sup>st</sup> day of the second month following sampling** (i.e. the January Report is due by 1 March). Each report shall bear the certification and signature of the Discharger's authorized representative. At a minimum, the monthly monitoring reports shall include:

1. Results of the following monitoring:

- a. Influent monitoring (including calculation of monthly average flow, monthly total flow, and total precipitation);
  - b. Effluent monitoring;
  - c. Pond monitoring; and
  - d. Water reuse area monitoring.
2. A comparison of monitoring data to the discharge specifications and effluent limitations, disclosure of any violations of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format.
  3. Copies of current calibration logs for all field test instruments.
  4. Copies of laboratory analytical report(s).
  5. A summary pond condition inspection report that includes dates of inspection, problems identified, repairs recommended, repairs completed, and dates of completion.

#### **B. Quarterly Monitoring Reports**

The Discharger shall submit quarterly monitoring reports to the Regional Water Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarter is due by May 1<sup>st</sup>) each year.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Quarterly Monitoring Reports shall be prepared under the direct supervision of a registered Professional Engineer or Geologist and signed by the registered professional.

The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any.
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements.
6. Summary data tables of historical and current water table elevations and analytical results.
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.
8. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Report**

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular quarterly monitoring report for the last quarter of the year.
2. Analytical results for all water supply and other annual monitoring.
3. If requested by staff, tabular and graphical summaries of all data collected during the year.
4. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow (I/I) rates, pond sludge layer thickness, nuisance conditions, and a forecast of the flows anticipated in the next year.
5. An evaluation of the groundwater quality beneath the wastewater treatment facility.
6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
8. Summary of information on the disposal of biosolids as described in the "Biosolids Monitoring" section.
9. The names of all certified wastewater treatment plant operators and OITs employed to operate, maintain, and/or monitor the WWTF; the number of hours per day that each is actively engaged in those functions; and a copy of the current certification for each operator and OIT.
10. A discussion of the following:
  - a. As applicable, specific salinity reduction efforts implemented in accordance with the

approved *Salinity Evaluation and Minimization Plan*;

- b. As applicable, specific best practical treatment and control measures implemented pursuant to the approved *BPTC Evaluation Workplan* (if one was required by the Executive Officer); and
- c. As applicable, an evaluation of the effectiveness of the salinity reduction/BPTC measures that were implemented based on monitoring data.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agents, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: Original Signed by Kenneth D. Landau for;  
PAMELA C. CREEDON, Executive Officer

29 January 2010

(Date)

ALO:02/22/2010

## INFORMATION SHEET

ORDER NO. R5-2010-0013  
GRANT PARK DEVELOPMENT, INC.  
DUNNIGAN WATER WORKS WASTEWATER TREATMENT FACILITY  
YOLO COUNTY

### **Background**

Grant Park Development, Inc. owns and operates the Dunnigan Water Works wastewater treatment facility (WWTF), which serves a 186-unit mobile home park and a 67-space recreational vehicle (RV) park with two restroom/shower facilities and a laundry room.

The WWTF is currently regulated by WDRs Order No. 93-176. The treatment plant currently provides the equivalent of secondary treatment in unlined ponds, from which it is allowed to evaporate and percolate as the sole means of disposal. Current influent flows are approximately 20,000 gallons per day (gpd).

The Discharger plans to improve and expand the WWTF to accommodate flows from two planned development projects: the North Valley Depot near the existing WWTF and the Dunnigan Truck and Travel Center. The planned developments will include retail and office space, motels, gas stations, a truck stop, and restaurants. The new development will be constructed in phases.

The WWTF expansion project will provide a new treatment plant which will provide full secondary treatment in lined ponds. The effluent will be disinfected and used to irrigate crops at two effluent recycling areas totaling approximately 41 acres at full build out. Recycled water will be applied by sprinkler irrigation year round as needed to support the crops.

The new WWTF and water recycling areas will be designed to provide a firm treatment, storage and disposal capacity of 0.105 mgd as an average annual flow at full build out. The water balance presented in the RWD used reasonable estimates of normal influent flows, precipitation, evaporation, and evapotranspiration. However, no allowance for seasonal I/I was made. Therefore, the RWD did not provide sufficient information to set flow limits for wet weather months.

### **Groundwater Conditions**

Surface soils at the wastewater treatment plant site are predominantly silty clay loam, which is well drained and non-saline. Surface soils at the off-site water recycling area are gravelly loam, silty clay loam and silty loam, which are also well-drained.

The Discharger installed three groundwater monitoring wells at the existing wastewater treatment plant in May 2007. Soils at the existing WWTF are typically interbedded silts and clays from the ground surface to depths ranging from 23 to 41 feet below ground surface (bgs). Interbedded sands and gravels were encountered in to monitoring well borings.

The Discharger has performed groundwater monitoring three times since the wells were installed: in June, July, and December 2007. During that period, shallow groundwater levels in all wells declined by approximately two feet; the groundwater gradient was very low (0.0003 to 0.0006); and the flow direction switched from northwestward in June and July to southeastward in December. Historical groundwater monitoring data for two private WWTFs

within 2,000 feet of this site<sup>1</sup> indicate that the low gradient and seasonal flow direction variability are typical of the area. Based on local topography and drainage features, the local groundwater flow direction should be consistently towards the east-northeast, but local groundwater use may be causing the directional variability in the shallow groundwater gradient. However, it is noted that the very low gradient combined with the directional variability may indicate that there is little net movement of shallow groundwater within the fine-grained soils below the existing WWTF.

The limited groundwater monitoring data, when considered with the shallow groundwater flow regime discussed above, may indicate that the existing WWTF has degraded groundwater quality with respect to coliform organisms, nitrogen, and salinity constituents. The nitrate nitrogen concentrations exceed the primary maximum concentration limit (MCL). However, the data are very limited. Additional monitoring wells, further hydrogeologic assessment, additional monitoring data, and statistical analysis of the data are required to determine background concentrations and whether the degradation, if confirmed, has caused exceedance of applicable water quality limits.

The Discharger has not evaluated the existing groundwater monitoring data to determine whether the wastewater treatment plant has unreasonably degraded the underlying groundwater. It is appropriate to require that the Discharger install additional monitoring wells as needed at the wastewater treatment plant and effluent recycling sites. It is also appropriate, after sufficient data have been collected, to require a formal determination of background groundwater quality and the degree to which degradation has occurred. This Order requires that the Discharger continue monitoring groundwater at the treatment plant and complete a formal determination of background groundwater quality and the degree to which degradation has occurred.

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

Surface water drainage is to the Colusa Basin Drainage Canal, which is tributary to the Sacramento River at Knights Landing. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board.

The Basin Plan encourages water recycling where practicable. Upon completion of the planned improvements, the Discharger will recycle all effluent for beneficial uses.

### **Antidegradation Analysis**

State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

1. The degradation is consistent with the maximum benefit to the people of the State;
2. The degradation will not unreasonably affect present and anticipated future beneficial uses;

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<sup>1</sup> The Pilot Travel Center and the Ritchie Brothers Auctioneers sites (see Attachment A).

3. 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; and
4. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.

Resolution 68-16 prohibits degradation of groundwater quality as it existed in 1968, or at any time thereafter that groundwater quality was better than in 1968, other than degradation that was previously authorized. An antidegradation analysis is required for a new discharge location, and/or an increased volume of waste and/or an increased concentration of waste constituents.

There has been a wastewater treatment facility at the current site since before 1974, when the first WDRs were issued. Although the Discharger has been monitoring groundwater quality at the current WWTF site since 2007, the available data are not sufficient to determine background groundwater quality.

When the new WWTF is complete, the facility will provide the following treatment and control measures:

- a. Full secondary treatment;
- b. Disinfection;
- c. Recycling of all treated effluent for beneficial reuse;
- d. Geosynthetic liners for all wastewater treatment ponds; and
- e. A certified wastewater treatment plant operator.

However, the Discharger has not implemented any source control and the proposed unlined effluent storage ponds do not incorporate any specific measures to reduce the potential for groundwater degradation. This Order requires the Discharger to submit a Background Groundwater Quality Study and Antidegradation Analysis Report and continue groundwater monitoring at the WWTF. If groundwater monitoring data shows that the discharge has violated the groundwater limitations of this Order, this Order may be reopened to add additional requirements that address the violations.

Additionally, although the WWTF is not publicly owned, the complexity of the system and the potential threat to water quality and public health provide sufficient reason to require that a certified wastewater treatment plant operator be retained operate and maintain the WWTF, to perform wastewater sampling and other monitoring required by this Order. Therefore, this Order requires that the Discharger provide the correct grades of certified operators and appropriate supervision for any OITs to ensure proper operation and maintenance of the WWTF.

Surrounding land uses are primarily irrigated agriculture, and these land uses predate the existing WWTF. Based on the limited data available and historic land uses, it is reasonable to expect that agricultural practices have degraded groundwater quality at both sites, and that it



will not be possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.

The Discharger cannot fully evaluate existing and potential future impacts to groundwater quality until completion of WWTF improvements and additional hydrogeologic studies. The limited antidegradation analysis below indicates that the proposed discharge may comply with the Basin Plan. However, this Order includes interim groundwater limitations that are effective immediately and do not allow exceedance of Basin Plan water quality objectives. Final Groundwater Limitations, which will become effective on 30 January 2015, are the Basin Plan water quality objectives or existing background groundwater concentrations, whichever is greater.

Constituents of concern that have the potential to degrade groundwater include salts (primarily EC, sodium, and chloride), nutrients and coliform organisms, as discussed below:

- a. The RWD did not provide sufficient high quality data for the water supply, treated effluent, or shallow groundwater to assess whether the discharge poses an unreasonable threat of groundwater degradation due to salinity constituents. Therefore, it is appropriate for this order to require further monitoring to determine the threat posed by salinity, and to require that the Discharger submit and implement a *Salinity Evaluation and Minimization Plan*.
- b. For nutrients such as nitrate, the potential for unreasonable degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the effluent storage/disposal ponds to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. Groundwater monitoring data for the wastewater treatment plant site indicate that the discharge may have caused significant degradation due to nitrate. However, the new wastewater treatment ponds will have geosynthetic liners and the crops grown at the water recycling areas should remove most of the nitrogen in the applied wastewater. These two changes will minimize the threat to groundwater quality and allow the existing degradation, if confirmed, to attenuate over time.
- c. For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the treatment plant and effluent storage ponds and saturated soils within the shallow water bearing zone to provide adequate filtration. Groundwater monitoring data for the wastewater treatment plant indicates that the shallow soils beneath the treatment ponds may not provide sufficient filtration. However, the new WWTF's treatment ponds will have geosynthetic liners and the treated effluent will be disinfected prior to recycling.

The Discharger has not completed an antidegradation analysis to determine whether unreasonable groundwater degradation has, or likely will, result from the discharge. It is the responsibility of the Discharger to provide information for the Central Valley Water Board to evaluate whether any degradation caused by the discharge is consistent with Resolution No. 68-16.

Although this Order allows expansion of the WWTF, the new treatment plant will improve effluent quality, reduce the potential for continued percolation of wastewater to groundwater, and provide recycled water for beneficial reuse. Sufficient reason exists to accommodate this growth as long as the Discharger completes an antidegradation analysis and selects and implements appropriate salinity reduction and BPTC measures within a reasonable timeframe. It is also appropriate to allow some groundwater degradation as long as it is consistent with the Basin Plan and Resolution No. 68-16 because economic prosperity of local communities and associated industry is of benefit to the people of California.

In keeping with the intent of Resolution 68-16, there should no significant increase in influent flows before the Discharger completes the WWTF improvements that will provide better groundwater quality protection than the existing WWTF. Therefore, this Order limits influent flows to the existing WWTF to a small increment above current flows.

This Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater and includes groundwater limitations that apply water quality objectives established in the Basin Plan to protect beneficial uses. This Order also establishes effluent limitations that are protective of the beneficial uses of the underlying groundwater; requires a groundwater quality evaluation and determination of the need for salinity reduction; and requires groundwater monitoring to quantify any water quality impacts. Following completion of the work required by the time schedule contained in the Provisions, this Order will be reopened, if necessary, to reconsider effluent limitations and other requirements to comply with Resolution 68-16. Based on the existing record, the discharge is consistent with the antidegradation provisions of Resolution 68-16.

### **Title 27**

Title 27, CCR, section 20005 et seq. (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge that will not be subjected to further treatment by the WWTF is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

The treatment and effluent recycling facilities associated with the discharge authorized herein, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, Section 20005 et seq. The exemption is based on the following:

- a. The reuse of treated wastewater at the water recycling areas is unconditionally exempt from Title 27 pursuant to Section 20090(h) because it constitutes recycling of material produced by waste treatment.
- b. Based on current influent quality and projected effluent quality, wastewater in the treatment ponds and treated effluent discharged to the effluent storage ponds and emergency storage ponds do not need to be managed as Hazardous Waste and may qualify for an exemption under Title 27 pursuant to Section 20090(b). However, the applicability of this exemption also depends on whether the discharge is in compliance with the Basin Plan. This will not be known until the first phase of the new WWTF is constructed and the Discharger provides additional groundwater monitoring data and a Background Groundwater Quality Study. These will be used to determine appropriate final groundwater limitations to protect the beneficial uses of groundwater and to determine whether additional treatment and/or improved containment are needed to ensure compliance with the Basin Plan. Because compliance with the Basin Plan cannot be determined immediately, this Order includes a compliance schedule for completion of those tasks.

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

The Discharger's water balance capacity analysis indicates that the upgraded WWTF will provide the following capacities:

<u>Condition</u>	<u>Capacity</u>
Average daily dry weather flow <sup>1</sup>	0.105 mgd
<u>Total annual flow</u>	38.3 MG

<sup>1</sup> Based on the months of June through September, inclusive.

The RWD did not include separate water balances for each phase of WWTF build out, but the engineer of record states that each treatment train will have a firm hydraulic capacity of 0.035 mgd as an average dry weather flow when combined with at least 13.3 acres of recycling area and 32 acre-feet of effluent storage capacity if the new WWTF is built to be consistent with the drawings provided in the RWD.

Because the engineering design is not final, and the draft design does not discuss phased construction of the effluent recycling areas and effluent storage facilities in detail, it is appropriate to require that the Discharger submit a water balance for each phase of WWTF construction as it is completed to verify that the as-built hydraulic capacity of the system is consistent with the flow limits set forth in this Order, including a reasonable estimate of I/I flows during the 100-year, 365-day precipitation event.

The effluent limits for BOD and TSS of 30 mg/L monthly average and 80 mg/L daily maximum are based on reasonable expectations of performance of the secondary treatment system.

The EC of the treated effluent is not currently known. This Order imposes an effluent limit of the water supply EC plus an increment of 500 umhos/cm as an annual average, which is a reasonable increment until the Discharger gathers sufficient data to determine whether another limit is more appropriate.

The proposed Order prescribes groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedance of these objectives or natural background water quality, whichever is greatest.

The Provisions require submittal of certain technical reports to verify completion of the improvements project and compliance with requirements to install monitoring wells, evaluate groundwater quality, and implement salinity reduction and/or BPTC measures as necessary to comply with the groundwater limitations.

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations, groundwater limitations, and operational requirements of the WDRs.

ALO:2/22/10