

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0133

WASTE DISCHARGE REQUIREMENTS

FOR  
PLACER UNION HIGH SCHOOL DISTRICT  
FORESTHILL HIGH SCHOOL WASTEWATER TREATMENT FACILITY  
PLACER COUNTY

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

1. On 8 April 2004, Placer Union High School District (hereafter Discharger) submitted a Report of Waste Discharge (RWD) for a proposed Wastewater Treatment Facility to treat and dispose of domestic wastewater generated by the new Foresthill High School. Additional information pertaining to the RWD was submitted on 4 May and 14 June 2004.
2. Foresthill High School will be located approximately 25 miles north-east of Auburn in the town of Foresthill, in Section 14, T14N, R10E, MDB&M (Assessors Parcel Number 007-043-096 and 007-030-011) as shown on Attachment A, which is attached hereto and made part of this Order by reference.
3. The Foresthill High School is situated on approximately 107 acres that was previously owned by Georgia Pacific Lumber Company. Historically, Georgia Pacific personnel reported that portions of the area had been used for raw log storage (prior to being placed on the log deck), dry lumber storage, bark reclamation and wood chip disposal.
4. The Discharger will own and operate the wastewater treatment and disposal system. The system will be constructed prior to the school's opening in September 2004.
5. The term "Wastewater Treatment Facility" (WWTF) includes the effluent collection system, the septic tank system, and the leachfield.

**Wastewater System and Discharge**

6. The collection system consists of a 6-inch gravity sewer line that collects wastewater from two modular classrooms at the south end of the site and from the core building to the north and flows into a dual compartment 15,000 gallon septic tank.
7. From the septic tank, effluent flows through an effluent filter into a 10,000 gallon dosing tank/pump vault and then through two alternating high head pumps prior to discharge to the leachfield. The pumps are capable of pumping a 500-gallon dose of wastewater through a 2-inch diameter schedule 40 PVC discharge main to the leachfield.
8. The leachfield is beneath the football/soccer field, and will encompass approximately 63,000 square feet and provides 9,000 square feet of infiltration, as shown on Attachment B, which is attached hereto and made part of this Order by reference. The leachfield is split into six zones

with five 100-foot laterals per zone. The laterals consist of five 1 ¼-inch distribution lines that are controlled by an automatic distribution ball valve system. The disposal trenches are approximately 36 inches wide and between 25 to 34 inches below ground surface. Each of the trenches are spaced 9-feet on center. The leachfield is dosed at 50 gpm at 8 minute cycles, which is equivalent to 400 gallons per dose.

9. The replacement disposal field consists of a 100,000 square foot baseball field west of the football/soccer field as shown on Attachment B.
10. Monitoring of wastewater depth in disposal trenches can aid in estimating the condition of leachfield and in adjusting the distribution of wastewater within the leachfield. It is also key to determining when replacing a leachfield is necessary. Each individual leachfield lateral has an inspection riser tube at each end to monitor the drainage capabilities of the disposal line. Each lateral also has a flow control valve to distribute an equal volume of effluent to each disposal trench. The inspection risers are located in utility boxes at the edge of the football/soccer field near the running track.
11. The design flow of the WWTF is 10,000 gallons per day, which is based on 400 students and staff, and a flow rate of 25 gallons per person per day.
12. The design flow of the WWTF is limited by the leaching rate of the leachfield. The design leaching rate of the system is approximately 79.8 gallons per day (gpd) per lineal foot of leachline based on a percolation rate of 15.7 minutes per inch (mpi). The infiltration area along the bottom of the disposal trenches based on 10,000 gpd of disposal is 9,000 square feet. This infiltration area includes 9,000 square feet of 9-inch trench.
13. Slopes at the site range from nearly level at the disposal field to approximately 10 percent on the north-western side of the site in a drainage area where there is no proposed development.

### **Influent and Effluent Characteristics**

14. Potable water for the school is provided by Placer Union High School District. Selected results from samples collected on 22 March 2004 are as follows:

<u>Parameter</u>	<u>Units</u>	<u>Results</u>
Nitrate as Nitrogen	mg/L	<0.1
Nitrite as Nitrogen	mg/L	<0.05
Sulfate	mg/L	<0.2
Total Dissolved Solids	mg/L	43
Total Recoverable Sodium	mg/L	3.6
Specific Conductivity	µmhos/cm	72.1
Turbidity	NTU	0.20
pH	pH units	8.8

15. As the system is not yet operational, untreated and treated wastewater quality is predicted from published sources and is presented below:

<u>Parameters</u>	<u>Septic Tank Influent</u>	<u>Septic Tank Effluent</u>	<u>Units</u>
Suspended Solids	200-290	47-62	mg/L
Biochemical Oxygen Demand	200-290	130-174	mg/L
Total Nitrogen	36-94	26-60	mg/L
Total Phosphorous	18-29	11-17	mg/L
Total Coliform	10 <sup>9</sup> -10 <sup>11</sup>	1,000,000	MPN/100 mL
Fecal Coliform	10 <sup>7</sup> -10 <sup>9</sup>	1,000,000	MPN/100 mL
pH	7.4	6.5-7.2	pH Units
Temperature	50-98	45-75	°F
Dissolved Oxygen	0.5-6.5	0.5-1.0	mg/L
Greases/Oils	37	10-20	mg/L

Source: Civil Engineering Reference Manual for Sewage Disposal, Michael R. Lindeburg, P.E.

16. Septic tanks will provide primary treatment of the wastewater. Wastes that pass through the septic tanks are discharged to the soil underlying the leach lines; the soil then treats some of the remaining wastes. However, the amount of treatment depends on the waste type and concentrations, soil type and depth, percolation rates, wastewater application rates, and depth to groundwater. Under the best of circumstances, some waste constituents may migrate through the soil column to the underlying groundwater.

### **Sanitary Sewer Overflows**

17. A collection system “overflow” is a discharge to ground surface or to surface water from the effluent collection system at any point upstream of the dosing tanks. Temporary storage or collection facilities may be utilized during maintenance operations and discharges to these facilities are not considered overflow events, provided that the waste is fully contained and properly disposed.
18. Potential causes of overflows within this system include grease blockages, root blockages, debris blockages, sewer line flood damage, air relief/vacuum valve failures, vandalism, storm or groundwater inflow/infiltration, lack of capacity, and contractor caused blockages.
19. Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, nutrients, oxygen demanding organic compounds, oil and grease, and other wastes. Sanitary sewer overflows can cause temporary exceedences 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.

20. The Discharger is expected to take all necessary steps to adequately maintain and operate, and thereby prevent overflows from, its effluent collection system. A reasonable means to accomplish this is to prepare and implement an operation and maintenance manual that includes overflow prevention and response features.

**Soil and Groundwater Conditions**

21. In September 2000, seven geotechnical soil borings were drilled to depths ranging from 16.5 to 31.5 feet below ground surface (bgs) in proposed building areas. Soils consisted of varying amounts of fill material underlain by stiff silty clay, clayey silt with rock fragment, and silts. Groundwater was encountered at depths ranging from approximately 19 to 31 feet bgs.
22. In December 2002, eight backhoe trenches were excavated to depths not exceeding 15.8 feet within portions of the football field to determine if the area was suitable for a subsurface disposal system. Soils consisted primarily of fill material within the upper 2 to 3 feet, underlain by firm gravelly clay and clay loam to depths of 15.8 feet. Results of the percolation tests conducted at depths ranging from 6 to 9 feet below grade ranged from 5.1 minutes per inch (mpi) to 44.6 mpi with an average of 15.7 mpi. No groundwater was encountered in any of the backhoe trenches.
23. In December 2002, four percolation tests were conducted in the baseball field at depths ranging from 5 to 8 feet bgs. Percolation test results ranged from 15.2 mpi to 31.2 mpi with an average of 20.9 mpi.
24. In June 2004, the Discharger installed three groundwater monitoring wells (MW-1 through MW-3) around the disposal field. These wells were completed with 2-inch PVC casing at depths of 55 feet bgs and were screened from 30 to 55 feet bgs. The location of each well is shown on Attachment B.
25. Hydrologic data collected from the monitoring wells show that the depth to water is from 43 to 49 feet bgs and the groundwater flow direction was toward the northwest at a magnitude of 0.042 ft/ft.
26. In June 2004, following well development, groundwater samples were collected from the monitoring wells and analyzed for a number of constituents. Selected results are presented in the table below. It is noted that all samples represent ambient background conditions, as waste had not yet been discharged to the leachfield.

<u>Constituents</u>	<u>Units</u>	<u>MW-1</u> <u>(upgradient)</u>	<u>MW-2</u> <u>(downgradient)</u>	<u>MW-3</u> <u>(downgradient)</u>
pH	pH units	4.7	4.8	4.9
Specific Conductivity	$\mu$ mhos/cm	44	71	130
Total Dissolved Solids	mg/L	30	43	44
Sodium	mg/L	5.6	11	17
Calcium	mg/L	1.9	2.1	4.8
Magnesium	mg/L	0.91	1.4	2.9
Boron	mg/L	<0.05	0.06	0.07
Nitrate as Nitrogen	mg/L	0.21	0.20	0.52

<u>Constituents</u>	<u>Units</u>	<u>MW-1 (upgradient)</u>	<u>MW-2 (downgradient)</u>	<u>MW-3 (downgradient)</u>
Fecal Coliform	MPN/100 mL	<1,600	<1,600	<1,600

The data show that the groundwater beneath the leachfield is of high quality, with the possible exception of pH. It is assumed that the low pH values may be due to well installation issues or sampling error, and are expected to increase to the normal range of 6 to 8 over time.

**Site Specific Conditions**

- 27. The average annual rainfall for the Foresthill area is approximately 52 inches per year.
- 28. All portions of the leachfield are outside of the 100-year flood zone.
- 29. Soils in the area are classified by the Soil Conservation Service as consisting of Aiken Loam (silt) which is characterized as a very deep, well drained soil overlying weathered andesitic rock.
- 30. The Foresthill High School leachfield is within the North Fork American Hydrologic Area No. 514.5, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

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

- 31. 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 Resources Control Board. Pursuant to Section 13263(a) of the CWC, waste discharge requirements must implement the Basin Plan.
- 32. Surface water drainage from the Foresthill High School leachfield area is to Owl Creek, a tributary to the North Fork of the American River.
- 33. The beneficial uses of the North Fork of the American River are municipal and domestic supply; agricultural supply; water contact recreation; noncontact water recreation; warm and cold freshwater habitat; cold water spawning, reproduction, and/or early development; and wildlife habitat.
- 34. The designated beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
- 35. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater that waste discharge requirements must implement. Implementation procedures are governed by the *Policy for Application of Water Quality Objectives* in Chapter IV of the Basin Plan. To implement narrative water quality objectives, relevant water quality criteria and guidelines are to be considered on a case-by-case basis to determine the appropriate numerical limitation.

36. The Chemical Constituent objective in the Basin Plan requires, at a minimum, compliance with California maximum contaminant levels (MCLs) for waters designated as municipal and domestic supply. More stringent criteria than MCLs may be necessary to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
37. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity that are relevant to groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life associated with beneficial uses. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain taste or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
38. The Basin Plan allows the use of septic tank/leachfield systems where a conventional municipal sewerage system is not available provided construction guidelines referenced in the Basin Plan are met and provided a properly empowered entity assumes responsibility for the systems. This entity must assure proper operation and maintenance, and assure system replacement as necessary to preclude nuisance, pollution, and health impacts. In addition to the requirements of CWC section 13282, the Basin Plan requires that the public entity be empowered to finance its actions and empowered to issue permits, conduct monitoring and surveillance, and maintain control of pumping and disposal of septage, as well as to abandon properly, if necessary, any leachfield. This Order requires that Placer Union High School District be empowered with these actions in relation to the Foresthill High School Wastewater Treatment Facility.

### **Groundwater Degradation**

39. State Water Resources Control Board (State Board) Resolution No. 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution No. 68-16) requires a regional board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than as described in plans and policies (e.g. violation of any water quality objective). The discharge is required to meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and highest water quality consistent with maximum benefit to the people will be maintained.
40. Some degradation of groundwater in the leachfield area is consistent with Resolution No. 68-16 provided that degradation:
  - a. is confined to a reasonable area;
  - b. is minimized by means of full implementation, regular maintenance, and optimal operation of best practicable treatment and control (BPTC) measures;
  - c. is limited to waste constituents typically encountered in domestic wastewater; and

- d. does not result in water quality less than that prescribed in the applicable basin plan, including violation of any water quality objective.

### **Antidegradation Analysis**

41. The leachfield provides minimal treatment of wastewater and is highly dependent upon proper management and waste constituent attenuation in the disposal field to prevent pollution of groundwater and to protect beneficial uses. While the Basin Plan conditionally allows septic tanks with leachfield systems for rural development, it includes the expectation of optimal site selection and conservative design which meet minimum guidelines, and attentive and judicious operation and maintenance. This Order requires the discharger to prevent pollution, nuisance, or contamination, and requires the discharger to appropriately operate and maintain the systems consistent with CWC section 13282. In addition, this Order include provisions to implement Resolution 68-16.
42. Since this is a new WWTF, there are no effluent samples to show whether TDS concentrations are below 450 mg/L. The concentration of 450 mg/L is the relevant numerical water quality limit used through Basin Plan procedures to apply the narrative water quality objective for chemical constituents that requires protection of agricultural supply (the beneficial use most sensitive to TDS). The individual salt components can safely be assumed to be proportionately low such that TDS can be an effective indicator parameter in their regulation. Restricting the use of water softeners should make these components unimportant in regulating water quality. The threat of toxic chemicals can reasonably be controlled through a periodic education program.
43. The incremental addition of dissolved salts though water usage (about 275 mg/L) is within the normal range for domestic use, and is reasonable considering modern water conservation practices. A TDS effluent limitation of 325 mg/L (275 mg/L plus the TDS concentration of 43 mg/L for the potable water) represents no cost or change in practice for the Discharger, and limits salt degradation to a reasonable amount while providing some protection of the groundwater beneath the leachfield.
44. Waste constituents in effluent that represent the greatest risk of exceeding a water quality objective and may be used as indicator parameters regarding the performance of the leachfield are nitrogen and coliform. As demonstrated from effluent samples, both must be effectively attenuated within the soil to assure water quality objectives are met. The constraining water quality limit for nitrogen prescribed by the Basin Plan, pursuant to the chemical constituent objective, is the MCL for nitrate, which is equivalent to 10 mg/L when expressed as nitrogen. The Basin Plan numeric water quality objective for total coliform less than 2.2 MPN/100 mL.
45. Groundwater limitations equal to water quality objectives for indicator waste constituents and parameters are appropriate, as is a more restrictive TDS groundwater limitation, and consistent with maximum benefit to the people of the State for this leachfield. Accordingly, the discharge as authorized is consistent with the antidegradation provisions of Resolution 68-16.
46. As data are insufficient to establish that the discharge complies with all conditions of authorization, a schedule of tasks to evaluate the leachfield and characterize groundwater for

indicator waste constituents is appropriate and necessary. Completion of these tasks may show that some conditions are not met and necessitate modifications to the leachfield (e.g., sand filters, disinfection) to allow continued discharge.

47. Section 13241 of the CWC requires that various factors, including economic considerations, be considered when adopting water quality objectives into a Basin Plan. Water Code Section 13263 requires that factors in Section 13241 be considered in adopting waste discharge requirements. The State Board has held that factors of section 13241 need not be specifically addressed when implementing existing numerical and narrative water quality objectives in waste discharge requirements because the factors were already considered in adopting the objectives through amendments to the Basin Plan. Although there is no obvious cost to the TDS limitation, cost savings in life of the leachfield and less degradation of groundwater should be realized. No additional analysis of Section 13241 factors is required.

#### **Other**

48. The State Water Resources Control Board adopted Order No. 97-03-DWQ (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 collection system and leachfield are underground and are not exposed to stormwater runoff. Because there is no stormwater discharge, the Discharger is not required to obtain coverage under General Permit No. CAS000001.
49. On 31 August 1995, in accordance with the California Environmental Quality Act (Title 14, California Code of Regulations, section 15261 et seq.), the Placer County Planning and Community Development Department issued a final Environmental Impact Report for the Foresthill Elementary and High Schools.
50. The project, as approved by Placer County, may degrade water quality, possibly to the degree that water quality objectives will be violated, beneficial uses impaired, and pollution, contamination, or nuisance created. However, Prohibitions A.5, A.6, Discharge Specification B.8, Effluent Limitation C, Groundwater Limitation E, and Provisions F.1c, F.1d, and F.1.f, among others, should mitigate or avoid pollution, nuisance, contamination, exceedance of water quality objectives, impairment of beneficial uses.
51. Section 13267(b) of the CWC 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” are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges waste subject to this Order.

52. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, 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.
53. 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, CCR, section 20005, et seq. (hereafter Title 27). While the WWTF is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
54. The discharge authorized herein and the treatment and storage facilities associated with the discharge, except for discharges to land of residual sludge and solid waste, are exempt from the requirements of Title 27. The exemption, pursuant to Title 27 section 20090(a), is based on the following:
  - a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and
  - c. The treatment and storage facilities described herein are comparable in function to a municipal wastewater treatment plant.
55. Pursuant to CWC 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**

56. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
57. The Discharger and interested agencies and persons were notified of the intent to prescribe waste discharge requirements for this discharge, and provided an opportunity to submit written views and recommendations and to be heard in a public meeting.
58. In a public meeting, all comments pertaining to the discharge were heard and considered.

**IT IS HEREBY ORDERED** that, pursuant to CWC sections 13263 and 13267, the Placer County Union High School District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, 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. Bypass or overflow of untreated or partially treated waste is prohibited.
3. Discharge of sewage from the sanitary sewer system at any point upstream of the dosing tanks, including septic tanks, is prohibited. Discharge of treated wastewater outside of the leachfield area is prohibited.
4. Surfacing of waste within or downgradient of the leachfield is prohibited.
5. Discharge of waste classified as 'hazardous' under Title 23, CCR, Section 2521, or as 'designated' under of CWC section 13173 is prohibited, including any discharge of sludge.
6. The presence of leachate within one foot of the lowest finished disposal field grade is prohibited.
7. Discharge of waste at this new facility is prohibited until the Discharger has submitted the report required by Provision No. F.1.a.

**B. Discharge Specifications**

1. The monthly average inflow shall not exceed 10,000 gpd.
2. The WWTF shall not cause a condition of pollution or a nuisance as defined by Section 13050 of the CWC.
3. Public contact with wastewater in the leachfield area shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.
4. 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.
5. Objectionable odor originating from the leachfield area shall not be perceivable beyond the limits of the leachfield area.
6. All treatment, storage, and disposal areas shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

7. Disposal of wastewater shall be confined to the leachfield area defined in this Order.
8. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge. In particular, the Discharger shall comply with the following items, and shall describe their implementation in the Operation and Maintenance Plan required by the Provisions. The frequency of each task may be modified upon written request by the Discharger and written approval by the Executive Officer. The written request must clearly show that the reduction in frequency will not have the potential to impact water quality. The Discharger shall:
  - a. Inspect the septic tank at least annually.
  - b. Cut vegetation in the leachfield area as needed to prevent threat of root intrusion into the leachlines and drainage rocks, and remove the vegetative litter.
  - c. Annually evaluate whether wastewater is evenly distributed to all the disposal trenches and make modifications to the distribution system as necessary to optimize distribution and preclude the depth of wastewater in any disposal trench within 12 inches of the ground surface.
  - d. Annually inspect, and if necessary, clean the leachfield's distribution piping.
  - e. Properly maintain the septic tank, including pumping the tank when any one of the following conditions exist, or can be reasonably projected to occur before the next inspection of the tank:
    1. The combined thickness of sludge and scum exceeds one-third of the tank depth of the second compartment,
    2. The scum layer is within three inches of the outlet device; or,
    3. The sludge layer is within eight inches of the outlet device.
  - f. Require septic tanks that are cracked or otherwise damaged be promptly repaired or replaced.
  - g. Require that the septic tank filter be cleaned on a regular basis.
9. The leachfield shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, inflow and infiltration, and design seasonal precipitation 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.
10. A 100-foot buffer zone shall be maintained between the nearest point of the leachfield and any spring, domestic well, or irrigation well. A 50-foot buffer zone shall be maintained between the nearest point of the leachfield and any seasonal drainage course.

11. A 50-foot buffer zone shall be maintained between the leachfield and the nearest property boundary.
12. When it appears that any portion of the leachfield is showing signs of failure (sustained wastewater in disposal trenches at or near the maximum design depth), then the Discharger shall increase the frequency of observation well monitoring and shall initiate construction of the replacement leachfield when this condition cannot be mitigated by distribution system adjustments and the surfacing of effluent will be otherwise unavoidable.

**C. Effluent Limitations**

1. Effluent discharged from the dosing tanks shall not have a pH less than 6.5 or greater than 8.4.
2. Effluent discharged from the dosing tanks shall not have a monthly average TDS exceeding 325 mg/L.

**D. General Solids Disposal Specifications**

Sludge means the solid, semisolid, and liquid residues removed during the wastewater treatment processes.

1. Sludge shall be removed from septic tank and dosing tanks as needed to ensure optimal operation and optimal life of the leachfield, but no less frequent than as specified in Discharge Specification B.8.
2. Sludge that accumulates in the dosing tanks shall be removed as needed to ensure the protection and optimal life of the leachfield.
3. Sludge removal shall be by a licensed liquid waste hauler and documented by copies of manifests.
4. Disposal of residual sludge and solid waste must be to a facility operated in accordance with valid waste discharge requirements issued by a regional water quality control board.

**E. Groundwater Limitations**

1. Release of waste constituents from the leachfield shall not cause groundwater, as determined by an approved monitoring well network, to:
  - a. Contain any of the following constituents in concentration greater than as listed or greater than natural background quality, whichever is greater:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Total Coliform Organisms	MPN/100 mL	Less than 2.2
Total Dissolved Solids <sup>a</sup>	mg/L	450
Nitrate as Nitrogen	mg/L	10

- b. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
- c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

## F. Provisions

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared by a registered professional as described by Provision F.3.
  - a. **At least 10 days prior to start-up of the WWTF**, the Discharger shall submit a report certifying completion of the WWTF and that the system is ready to begin treating wastewater. The report shall show the treatment plant and disposal area layout, and shall clearly document any significant deviation from the system design as presented in the RWD.
  - b. **Within 30 days of start-up of the WWTF**, the Discharger shall submit as-built drawings which are signed and stamped by a California registered engineer.
  - c. By **1 November 2004**, the Discharger shall submit a *Groundwater Sampling and Analysis Plan* (SAP) that describes detailed instructions and procedures for proper purging and sampling of monitoring wells; equipment decontamination; sample handling, storage and shipment; and completing the chain of custody. The SAP shall include all items in Subsection G of the first section of Attachment C, which is attached hereto and made part of this Order by reference.
  - d. By **1 December 2004**, the Discharger shall submit and implement an *Operation and Maintenance (O&M) Plan* for the Foresthill High School WWTF. The O&M Plan shall instruct field personnel on how to manage the day-to-day discharge operations to comply with the terms and conditions of this Order and how to make field adjustments, as necessary, to optimize the effectiveness and life of the leachfield and preclude nuisance conditions (e.g., surfacing wastewater). It shall also include a troubleshooting flowchart with recommend remedial actions and a description of notification requirements. The O&M Plan shall address management of the WWTF in sufficient detail to optimize compliance with this Order, and most particularly Discharge Specification B.8, including the following:
    - i. An inspection procedure for checking the integrity of the septic tank.



the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2004-0133, which is part of this Order, and any revisions thereto as ordered by the Executive Officer in accordance with terms prescribed by this Order.
5. 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)."
6. The Discharger shall use the best practicable treatment and control techniques, including proper operation and maintenance, to assure compliance with terms of this Order.
7. In event of overflow from the effluent collection system, the Discharger shall take all necessary remedial action to control and limit the volume of sewage discharged, and terminate the overflow as rapidly as possible. Necessary remedial actions may include, but are not limited to, the following:
  - a. Interception and rerouting of sewage flows around the collection line failure;
  - b. Vacuum truck recovery to the extent practical of sanitary sewer overflows and wash down water;
  - c. Use of portable aerators in surface waters where complete recovery of the spilled sewage is not feasible and severe oxygen depletion is expected; and
  - d. Cleanup of sewage-related debris at the overflow site;
  - e. Disinfection and posting of the area.
8. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
9. The Discharger shall not allow waste-free wastewater to be discharged into the wastewater collection, treatment, and disposal system. Waste-free wastewater means rainfall (roof

gutters, yard drainage), groundwater, cooling waters, and condensates that are essentially free of wastes.

10. The Discharger shall submit to the Regional 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 Regional Board in writing when it returns to compliance with the time schedule.
11. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall 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.
12. The Discharger must 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 Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.
13. A copy of this Order shall be kept at the site for reference by operating personnel. Key operating personnel shall be familiar with its contents.
14. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, 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 10 September 2004.

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THOMAS R. PINKOS, Executive Officer



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2004-0133

FOR

PLACER UNION HIGH SCHOOL DISTRICT  
FORESTHILL HIGH SCHOOL WASTEWATER TREATMENT FACILITY  
PLACER COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring domestic wastewater, treated effluent, the leachfield, and groundwater. 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 Board staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

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

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

### SEPTIC TANK MONITORING

The Discharger shall monitor the septic tank and report this information in the annual reports by **1 February** of each year. The septic tank shall be inspected annually and pumped as described below.

<u>Parameter</u>	<u>Units</u>	<u>Type of Measurement</u>	<u>Minimum Inspection</u>	<u>Reporting Frequency</u>
Sludge depth and scum thickness in the first compartment of each septic tank	Feet	Staff Gauge	Annually	Annually
Distance between bottom of the scum layer and bottom of outlet device	Inches	Staff Gauge	Annually	Annually
Distance between top of sludge layer and bottom of outlet device	Inches	Staff Gauge	Annually	Annually

The septic tank shall be pumped when any one of the following conditions exist or may occur before

the next inspection:

1. The combined thickness of sludge and scum extends one-third of the tank depth of the first compartment; or,
2. The scum layer is within three inches of the outlet device; or,
3. The sludge layer is within eight inches of the outlet device.

The Discharger shall retain records of each inspection, noting the date and measured readings and calculations. The Discharger will also record when cleaning is required, the condition of the tank, and the date that cleaning or repair occurred and by whom. Copies of the Liquid Waste Hauler manifests shall be retained for review as with any other record concerning documentation of compliance with the Order.

### EFFLUENT MONITORING

The Discharger shall conduct effluent monitoring of the wastewater entering the leachfield; samples shall be collected at a point prior to discharge into the leachfield dosing tanks. 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>
Flow	gpd	Meter	Daily	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Nitrates as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Standard Minerals <sup>1</sup>	mg/L	Grab	Annually	Annually

<sup>1</sup> Standard Minerals shall include, at a minimum, the following elements and compounds: Boron, Calcium, Iron, Magnesium, Manganese, Sodium, Potassium, Chloride, Sulfate, Total Alkalinity (including alkalinity series), and Hardness.

### LEACHFIELD AREA MONITORING

The Discharger shall conduct a visual inspection of the leachfield on a **weekly basis**. Results shall be recorded and submitted with the monthly monitoring report. Photocopies of entries into an operator's log are acceptable. Evidence of surfacing wastewater, erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. If surfacing water is found, then a sample shall be collected and tested for total coliform organisms and total dissolved solids. In addition to the visual inspections, monitoring of the leachfields shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Application Rate <sup>1</sup>	gal/acre•day	Calculated	Monthly	Monthly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Leachline Riser Inspection <sup>2</sup>	Inches	Measurement	Monthly	Monthly

<sup>1</sup> The application rate for the leachfield

<sup>2</sup> The Discharger shall measure and record the distance from the surface of the liquid in the observation port to the surface of the ground in the active lateral(s).

### GROUNDWATER MONITORING

The following program shall commence beginning with the fourth quarter 2004. Prior to construction and/or sampling of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged at least three well volumes until temperature, pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected using standard 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<sup>4</sup></u>
Groundwater Elevation <sup>1</sup>	0.01 Feet	Measurement	Quarterly	Quarterly
Depth to Groundwater	0.01 Feet	Calculated	Quarterly	Quarterly
Gradient	Feet/Feet	Calculated	Quarterly	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly	Quarterly
Total Coliform Organisms	MPN/100ml	Grab	Quarterly	Quarterly
pH	pH Units	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Nitrates as Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly	Quarterly
Standard Minerals <sup>3</sup>	mg/L	Grab	Annually	Annually

<sup>1</sup> Groundwater elevation shall be based on depth-to-water using a surveyed measuring point elevation on the well and a surveyed reference elevation.

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

<sup>3</sup> Standard Minerals shall include, at a minimum, the following elements and compounds: Boron, Calcium, Iron, Magnesium, Manganese, Sodium, Potassium, Chloride, Sulfate, Total Alkalinity (including alkalinity series), and Hardness.

<sup>4</sup> Beginning with the fourth quarter 2004.

### REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, leachfield, 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 in the next scheduled monitoring report.

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

### **A. Monthly Monitoring Reports**

Monthly reports shall be submitted to the Regional Board on the **1<sup>st</sup> day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Results of effluent and leachfield area monitoring;
2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
3. If requested by staff, copies of laboratory analytical report(s); and
4. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program.

### **B. Quarterly Report**

Beginning with the fourth quarter of 2004, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1<sup>st</sup>) and may be combined with the monthly report. The Quarterly Report shall include the following:

1. Results of the 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 WDR, 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 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 the 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; and
8. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Report**

An Annual Report shall be prepared as the December monthly monitoring report. The Annual Report will include all monitoring data required in the monthly schedule. The Annual Report shall be submitted to the Regional 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 monthly and quarterly monitoring report for the last month and quarter of the year, respectively;
2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. Results of the annual effluent and groundwater monitoring;
4. A description of any activity to control vegetation in the leachfield area;
5. Annual summary of the septic tank inspection for the year, including whether the tank was pumped and that waste was removed by a licensed hauler;
6. A statement of when the O&M Manual was last reviewed for adequacy, and a description of any changes made during the year;
7. A description of the annual evaluation of effluent distribution and adjustments made, if any;
8. A summary of maintenance and repairs activities which were performed on the effluent collection system;
9. A statement regarding whether the flow meter was calibrated during the year; and
10. A discussion of any compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

A letter transmitting the self-monitoring reports shall accompany each report. Such a 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 a statement by the discharger, or the discharger's authorized agent,

under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete.

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

Ordered by: \_\_\_\_\_  
THOMAS R. PINKOS, Executive Officer

\_\_\_\_\_ 10 September 2004  
(Date)

## INFORMATION SHEET

ORDER NO. R5-2004-0133  
PLACER UNION HIGH SCHOOL DISTRICT  
FORESTHILL HIGH SCHOOL WASTEWATER TREATMENT FACILITY  
PLACER COUNTY

The Foresthill High School Wastewater Treatment Facility is owned and operated by the Placer Union High School District and is located approximately 25 miles north-east of Auburn in the town of Foresthill. The school is situated on approximately 107 acres that was previously owned by Georgia Pacific Lumber Company. Historically, Georgia Pacific personnel reported that portions of the area had been used for raw log storage (prior to being placed on the log deck), dry lumber storage, bark reclamation, and wood chip.

The wastewater collection system consists of a 6-inch gravity sewer line that collects wastewater from two modular classrooms at the south end of the school and the core building to the north. The wastewater flows into a dual compartment 15,000 gallon septic tank and through an effluent filter into a 10,000 gallon dosing tank/pump vault. From the dosing tank/pump vault wastewater is pumped through two alternating high head pumps and discharged to the leachfield. The leachfield is located beneath the football/soccer field, and provides 9,000 square feet of infiltration. The leachfield is split into six zones with five 100-foot laterals per zone. The laterals consist of five 1 ¼-inch distribution lines that are controlled by an automatic distribution ball valve system. The disposal trenches are approximately 36 inches wide and between 25 to 34 inches below ground surface. Each of the trenches are spaced 9-feet on center. The leachfield is dosed at 50 gallons per minute at 8 minute cycles, which is equivalent to 400 gallons per dose. The design flow of the leachfield system is 10,000 gallons per day, which is based on 400 students and staff, and a flow rate of 25 gallons per person per day. This Order allows for a monthly average discharge of 10,000 gallons per day of wastewater to the leachfield.

This Order also requires the Discharger to submit a Groundwater Sampling and Analysis Plan, an Operations and Maintenance Plan, and a Background Groundwater Quality Study Report. The Discharger is also required to perform septic tank, effluent, leachfield and groundwater monitoring, and to submit monthly reports. Groundwater monitoring and reporting is required on a quarterly basis.

Surface water drainage from the Foresthill High School leachfield area is to Owl Creek, a tributary to the North Fork of the American River.

## INFORMATION SHEET

ORDER NO. R5-2004-0133  
PLACER UNION HIGH SCHOOL DISTRICT  
FORESTHILL HIGH SCHOOL WASTEWATER TREATMENT FACILITY  
PLACER COUNTY

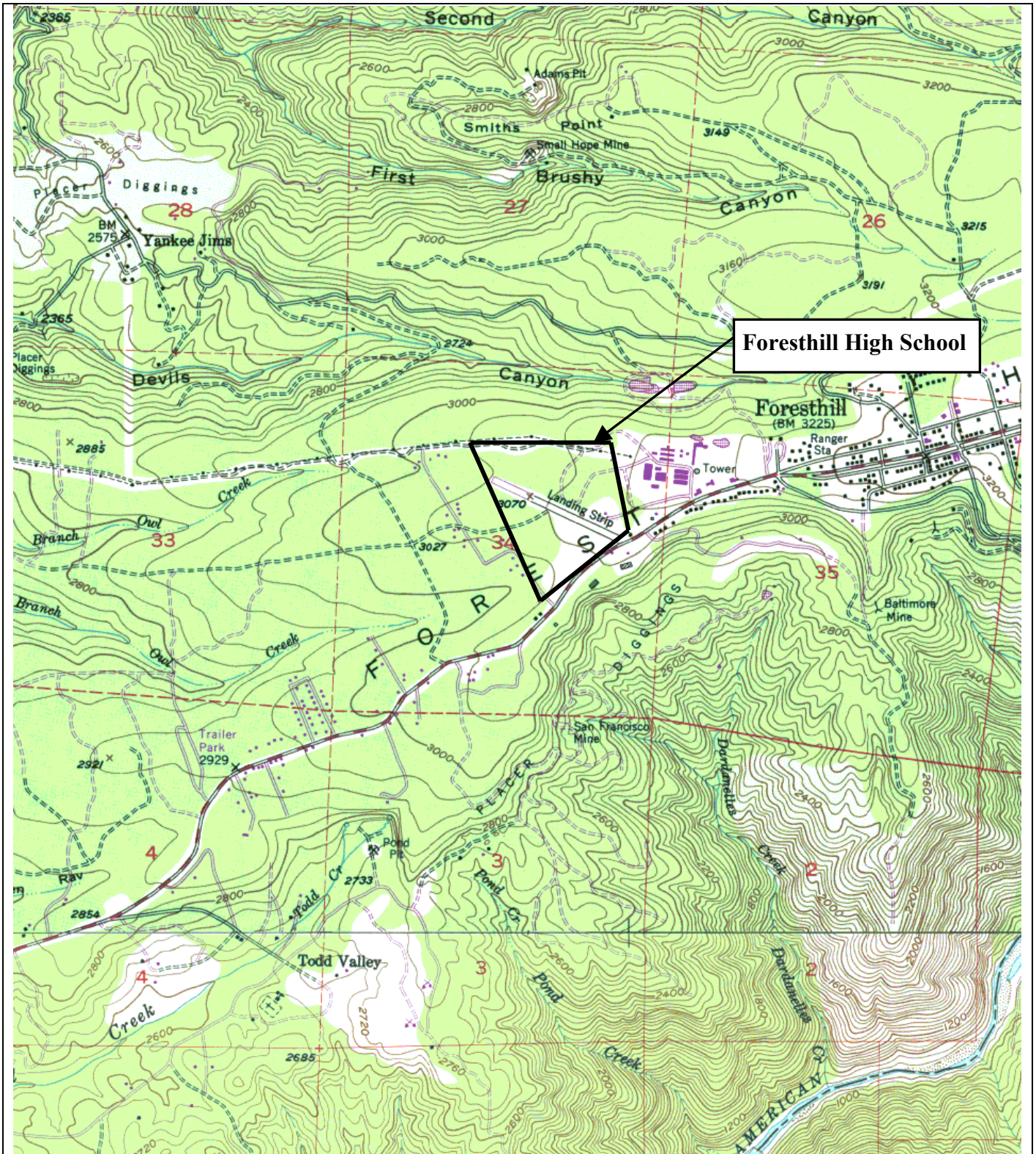
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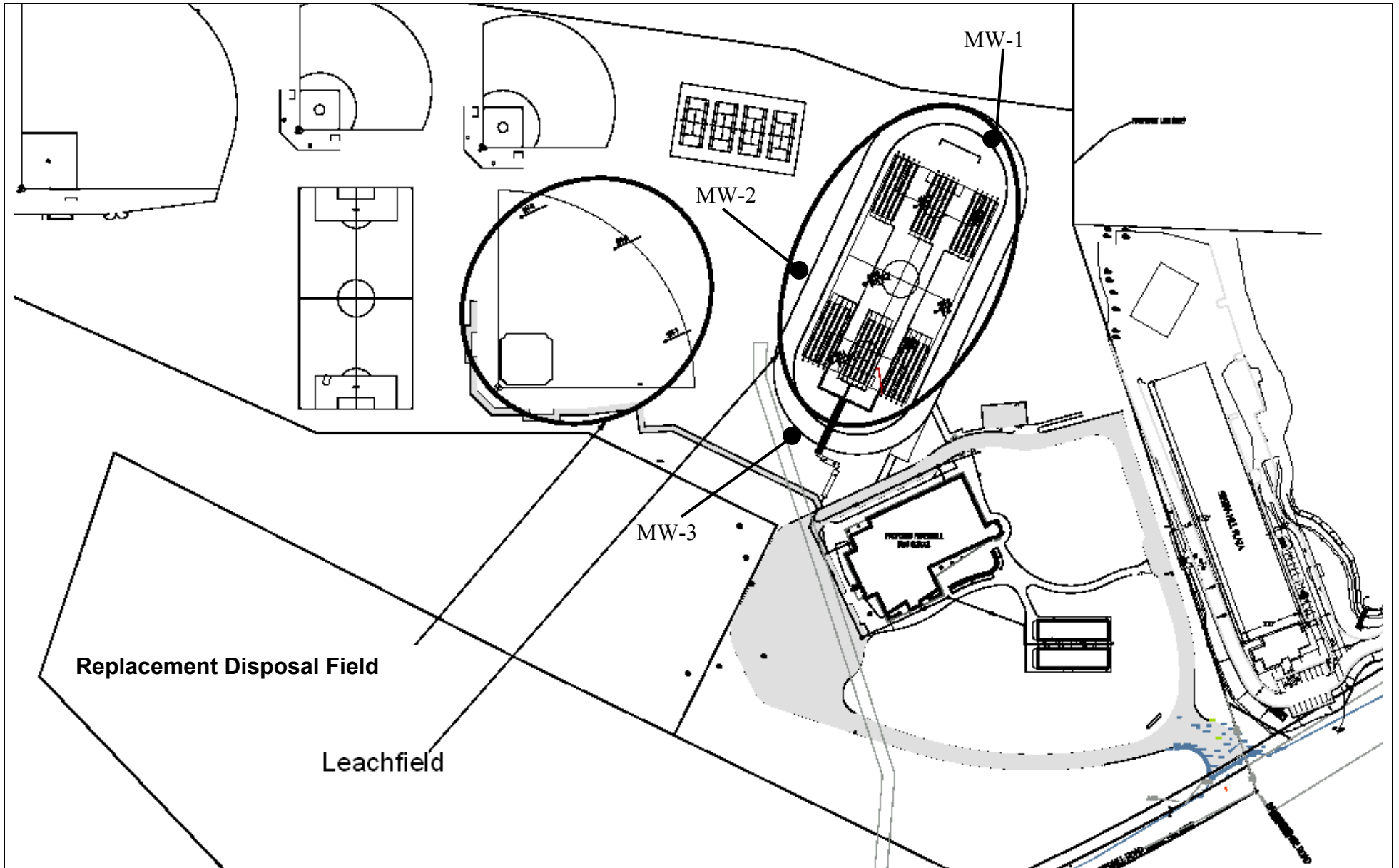




Drawing Reference:  
U.S.G.S  
TOPOGRAPHIC MAP  
7.5 MINUTE QUAD

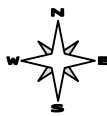
**SITE LOCATION MAP**  
  
FORESTHILL HIGH SCHOOL  
WASTEWATER TREATMENT FACILITY  
PLACER COUNTY

approx. scale  
1 in. = 2,100 ft.



**Drawing Reference:**  
K.B. Foster Civil Engineering, Inc.

**Site Plan**  
Foresthill High School  
Wastewater Treatment Facility  
Placer County

  
**Approximate Scale:**  
1-inch = 225 feet

**ORDER NO. R5-2004-0133**

**ATTACHMENT B**



# California Regional Water Quality Control Board Central Valley Region



Terry Tamminen  
Secretary for  
Environmental  
Protection

Robert Schneider, Chair

Arnold Schwarzenegger  
Governor

Sacramento Main Office  
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## ORDER NO. R5-2004-0133 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 approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which 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

***California Environmental Protection Agency***

- 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

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