

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2011-0008

WASTE DISCHARGE REQUIREMENTS
FOR
BROWN SAND INC. and MOSSDALE ASSOCIATES, LTD
BROWN SAND MOSSDALE QUARRY
SAN JOAQUIN COUNTY

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

1. Brown Sand Incorporated (hereafter Discharger) submitted a Report of Waste Discharge (RWD) dated 17 May 2010 for expansion of an existing aggregate extraction, processing, and related activity facility.
2. The facility is located at 800 West Mossdale Road, Lathrop in Sections 9, 19, and 16 of T2S, R6E, MDB&M. The facility location is shown on Attachment A which is attached hereto and made part of this Order by reference. The property is also identified by Assessor's Parcel Numbers 239-030-08, 239-030-09, 239-040-04, and 239-040-07.
3. The aggregate washing equipment is owned and operated by the Brown Sand Inc.; Mossdale Associates LTD owns the land.
4. The facility is located in an agricultural region of the Central Valley. The area has not been previously mined for gold, the expansion area is in row crops. The Discharger has been excavating and processing aggregate at this site since 1992.

Facility Description

5. The Discharger operates an aggregate mining and processing facility that includes a scale house, office, and equipment shop.
6. The facility consists of existing and planned expansion areas. The existing facility consists of approximately 303 acres; the expansion area consists of approximately 380 acres. Aggregate reserves exist to a depth of approximately 60 feet in both areas.
7. A facility map is shown on Attachment B, which is attached hereto and made part of this Order by reference.

Mining/Processing Activities

8. The production rate will vary with market demand. Excess product will be stockpiled for later sale. It is anticipated that the excavation will provide 14 million tons of sand and 8.3 million tons of fine grained soil.
9. Mining techniques may include, but are not limited to, scrapers, track-mounted excavators, draglines, and clam-shell bucket techniques. Extraction operations will be

conducted to approximately 60 feet below the ground surface (approximately 50 feet below site groundwater levels). Excavation results in groundwater filled ponds. Because wastewater can be discharged to the ponds, they are referred herein as wastewater ponds.

10. Excavated materials are stockpiled at the shoreline to allow water to drain back to the pond being excavated. Material is transported to the processing equipment using conveyor belts or haul trucks.
11. Processing equipment generally consists of wash screens and vibratory screens. Wastewater is discharged to the wastewater ponds. Wastewater can be discharged to any on-site pond as part of operation or reclamation of the facility, consistent with the requirements of this Order and any other applicable regulatory requirement.
12. Presently, no concrete manufacturing using Portland cement occurs at the site. This Order requires submittal of a separate RWD for production of concrete, cement, or concrete products, or disposal of non-cured cement product wastewater.
13. In addition to aggregate mined on-site, aggregate materials such as sand and gravel are delivered from off-site. The imported aggregate is mixed with materials originating on-site to produce salable products.

Wastewater Generation, Quality, and Disposal

14. The primary water supply for the processing plant is the wastewater pond system. Wastewater is generated by washing fine-grained soil particles from the excavated aggregate. That turbid wastewater is discharged to a canal that leads to the wastewater pond where the soil particles are settled. Wastewater is recycled directly through reuse. Because all the ponds will eventually be combined into one large pond, this document refers to the ponds as a single wastewater pond.
15. Wastewater quality has been characterized by regular sampling and analysis. Wastewater pond sampling was required by Monitoring and Reporting Program (MRP) No. 91-217. Additional sampling was performed on 27 April 2010 for preparation of the RWD. Monitoring reports from July 2009 through June 2010 were reviewed to determine wastewater quality trends. In general, the water quality in the wastewater pond was poor, with elevated concentrations of dissolved solids. The following observations were noted:
 - a. A summary of wastewater pond water quality is presented below. The results for samples that were collected as part of routine monitoring required by the existing monitoring and reporting program are summarized, and the characterization is presented as statistics that describe the data collected.

<u>Sample</u>	<u>Date</u>	<u>Depth</u>	<u>EC</u> (umhos/cm)	<u>TDS</u> (mg/L)	<u>FDS</u> (mg/L)	<u>Chloride</u> (mg/L)	<u>Nitrate</u> (mg/L)
BSG-1	Fall 2004	Surface	3,100	1,600	NR	NR	NR
Lake 1	4/27/10	Surface	1,795	1,160	957	405	<1
Lake 2	4/27/10	Surface	1,774	1,120	983	401	<1
Lake 3	4/27/10	Surface	1,715	1,060	721	387	<1
Ditch 1	4/27/10	Surface	1,718	1,170	800	398	<1
Ditch 2	4/27/10	Surface	1,754	1,140	945	406	<1
Ditch 3	4/27/10	Surface	1,754	1,140	930	406	<1
		average	1,944	1,199	889	401	--
		median	1,754	1,140	938	403	--
		st. dev.	510	181	104	7	--

Monthly Wastewater Pond Surface Water Sample Data Statistics

	<u>EC</u> (umhos/cm)	<u>TDS</u> (mg/L)	<u>FDS</u> (mg/L)	<u>Chloride</u> (mg/L)	<u>Nitrate</u> (mg/L)
average 7/09-6/10	2,249	NR	NR	NR	NR
median 7/09-6/10	2,320	NR	NR	NR	NR
st. dev. 7/09-6/10	176	NR	NR	NR	NR

EC denotes Electrical Conductivity. TDS denotes Total Dissolved Solids. FDS denotes Fixed Dissolved Solids. Nitrate reported as nitrate. NR denotes Not Reported. Less than symbol indicates not detected, detection limit presented.

- b. The data indicate the wastewater pond water quality is poor with constituent values above the potentially applicable Agricultural Water Quality Goals for EC (700 umhos/cm), TDS (450 mg/L), chloride (106 mg/L), and sodium (69 mg/L).
16. The Discharger submitted a water balance that demonstrates sufficient capacity in the wastewater pond to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration using a return period of 100 years. This Order allows ponds to be constructed anywhere on the property as long as the Discharger is in compliance with this Order and any requirements imposed by other agencies.
 17. The Discharger may propose the use of flocculants to settle fine-grained materials from the wastewater. Because different products may be proposed for use over the life of the project, the Discharger is required to obtain approval from the Executive Officer prior to using any flocculant.

Groundwater Considerations

18. Groundwater quality at the expansion area has been investigated using groundwater monitoring wells and grab groundwater samples collected from direct push sampling techniques. Some of the wells have already been excavated and therefore no longer exist. The details of groundwater monitoring well installation are not well documented.
19. Depth to groundwater is approximately 10 feet below the ground surface. Groundwater flow directions are not defined. The facility is bordered by surface water bodies on three

sides - the San Joaquin River to the north and east, and Paradise Cut to the south. A single monitoring event on 14 May 2010 indicated inward flow direction from the surrounding surface water. Seasonal and tidal changes in the river elevations may have significant affects on groundwater flow directions.

20. Groundwater is in contact with the wastewater pond, and other excavated pits of adequate depth. The aggregate being excavated extends approximately 50 feet below the top of the first saturated groundwater level. The water that exists in any on-site pond is a mixture of infiltrated groundwater and wastewater.
21. Based on the well drilling log for monitoring well PMW-2, a 17-foot thick low permeability aquitard exists from approximately 93 to 110 feet below the ground surface. The project will not excavate the aquitard.
22. Groundwater samples were obtained from wells and grab groundwater sampling techniques as described below:
 - a. Monitoring wells were installed at the expansion area without seeking review and/or approval of the monitoring locations, well construction, or analyte list from the Central Valley Water Board. The well installation and sampling results are poorly documented. Similarly, the direct push grab groundwater sampling was performed without Central Valley Water Board input. As a result, the available data is limited.
 - b. Groundwater samples were collected from shallow, medium, and deep zones. The deep zone is at a depth approximately 30 feet below the bottom of the wastewater pond and based on a well driller's boring log, a 17 foot thick low permeability zone separates the wastewater pond from the deep zone.
 - c. The locations of the groundwater monitoring well and grab groundwater samples are presented on Attachment B. A summary of groundwater quality data is presented below.

<u>Depth Zone</u>	<u>Depth</u>	<u>EC</u> <u>(umhos/cm)</u>	<u>TDS</u> <u>(mg/L)</u>	<u>Chloride</u> <u>(mg/L)</u>	<u>Nitrate</u> <u>(mg/L)</u>
<u>Shallow Zone</u>					
PHP-1A	11-16	690	450	18	1.4
PHP-2A	15-20	1,200	650	160	<1
PHP-3A	12-17	1,200	740	150	<1
PHP-4A	9-14	1,300	730	140	1.7
PHP-5A	14-19	1,800	960	300	<1
PHP-6A	13-18	1,200	650	130	<1
PHP-7A	13.5-18.5	1,600	930	220	<1
	average	1,284	730	160	
	median	1,200	730	150	
	st. dev.	351	175	86	

<u>Depth Zone</u>	<u>Depth</u>	<u>EC</u> <u>(umhos/cm)</u>	<u>TDS</u> <u>(mg/L)</u>	<u>Chloride</u> <u>(mg/L)</u>	<u>Nitrate</u> <u>(mg/L)</u>
<u>Medium Zone</u>					
PHP-8B	24-27	2,600	1,700	620	<1
PHP-8C	50-52	1,800	1,100	330	<1
PHP-9A	29-33	1,400	880	21	<1
PHP-10A	20-24	1,300	810	240	<1
PHP-11A	23-27	1,200	710	250	<1
	average	1,660	1,040	292	
	median	1,400	880	250	
	st. dev.	573	396	216	
<u>Deep Zone</u>					
PMW-2	90-119.5	2,000	1,000	520	<1

EC denotes Electrical Conductivity. TDS denotes Total Dissolved Solids. Nitrate reported as nitrate. NR denotes Not Reported. Less than symbol indicates not detected, detection limit presented.

23. As shown in the table above, groundwater quality for TDS and EC is poor, based on the following comparison to water quality criteria:
- Shallow zone groundwater values exceed the agricultural water quality standard for sensitive crops (450 mg/L for TDS and 700 umhos/cm for EC). The values also exceed the secondary drinking water standard for TDS (500 mg/L) and EC (900 umhos/cm).
 - The medium depth zone groundwater samples contained higher concentrations than the shallow zone (but both zones have been excavated in the wastewater pond). The values also exceeded the upper level drinking water standards for TDS (1,000 mg/L) and EC (1,600 umhos/cm).
 - The deep zone groundwater sample, which has not been excavated in the wastewater pond and may be separated from the pond bottom by a 17-foot thick low permeability zone, similarly exceeded upper level drinking water standards. However, the lateral extent of the low permeability zone has not been investigated.

Other Waste Streams

24. The Discharger does not presently perform gold recovery but may perform gold recovery in the future. Any gold recovery performed in activities described in this Order must only use gravimetric methods. No amalgamation or leaching processes can be used in the gold recovery process. Heavy sands recovered can be taken off-site for further processing if desired.

25. Potentially hazardous materials are stored and used at the site. The locations of the material storage are presented on Attachment B. An inventory of potentially hazardous materials was performed on 8 September 2010. The following materials were noted:

<u>Material</u>	<u>Max Amount</u>	<u>Location</u>
Waste Antifreeze	500 gal	Shop Maintenance Yard
Waste Oil	1,000 gal	Shop Maintenance Yard
Hydraulic Oil	350 gal	Shop Maintenance Yard
Automatic Transmission Oil	350 gal	Shop Maintenance Yard
Engine Oil	500 gal	Shop Maintenance Yard
Antifreeze	165 gal	Shop Maintenance Yard
Unleaded Fuel	1,000 gal	Shop Maintenance Yard
Diesel Fuel	23,000 gal	Fuel Storage Containment

26. Domestic wastewater from the office and related buildings is discharged to a septic system permitted by the San Joaquin County Environmental Health Department. In addition, portable chemical toilets are available at the facility.

Site Reclamation Activities

27. The Discharger anticipates aggregate processing will continue for approximately 35 years. The current reclamation plan was approved by resolution of the San Joaquin County supervisors on 14 August 2007. Reclamation will create a lake that will be used for aquaculture.

Site-Specific Conditions

28. Based on the California Department of Water Resources rainfall data for the Lathrop weather station, the average annual precipitation is approximately 11.2 inches; the 100-year return annual precipitation is approximately 20.23 inches. Based on the California Irrigation Management Information System (CIMIS) data for Lodi, Manteca, and Tracy, the average annual evapotranspiration is approximately 51.3 inches/year.
29. The facility is located adjacent to the San Joaquin River and is protected from the river with levees that are below the anticipated base flood elevation presented on the Federal Emergency Management Agency (FEMA) flood insurance rate map. The following mitigation measures have been considered:
- The Discharger requested authorization to raise the levees surrounding the site to prevent floodwater inundation. In a 30 August 2010 letter, Mossdale Reclamation District No. 2107 did not support raising the levees due to downstream flooding issues.
 - The caretaker's residence, diesel fuel tanks, and hazardous material storage are located on an elevated pad constructed at an elevation of 26.25 feet above mean sea level (msl). The residence, diesel fuel tanks, and hazardous materials are

therefore protected from the anticipated 100-year flood with a base flood elevation of 25.0 feet msl.

- c. Due to the small margin of safety, a Flood Contingency Plan to minimize the potential for a release of hazardous chemicals or domestic wastewater into flood water is required by the provisions of this Order.
30. Surrounding land uses are primarily agricultural and residential.
 31. Stormwater that falls on the site is directed into wastewater or excavation ponds.
 32. The facility lies within the San Joaquin Delta Hydrologic Unit Area No. 544.00, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

Antidegradation Analysis

33. The Water Quality Control Plan, for the Sacramento 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 Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
34. Surface water drainage in the area is to the San Joaquin River. The beneficial uses of the San Joaquin River (within the Sacramento San Joaquin Delta Hydrologic Area) are municipal and domestic supply; agricultural supply; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.
35. The beneficial uses of the underlying groundwater are domestic, industrial, and agricultural supply.
36. State Water Resources Control Board (State Board) Resolution No. 68-16 allows the degradation of groundwater quality if the Central Valley Water Board determines 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 cause exceedance of one or more water quality objectives; and
 - d. The discharger employs best practicable treatment and control to minimize degradation.

37. The treatment and control practices described herein provides commonly implemented treatment and control for the subject wastewater, and should prevent the discharge from creating a condition of pollution or nuisance, and maintain water quality. Settling ponds are routinely used in the aggregate mining industry to settle suspended solids.
38. The materials used in the Discharger's operation are natural earth materials subjected to a classification and separation process using recycled wastewater and site groundwater. Flocculants may be added to the wastewater pending Executive Officer approval.
39. Federal regulations for the stormwater discharges were promulgated by the U.S. Environmental Protection Agency on 16 November 1990 (40 CFR Parts 122, 123, and 124). The regulations require that specific categories of facilities which discharge stormwater associated with industrial activities obtain National Pollutant Discharge Elimination System (NPDES) permits. The Discharger has not obtained an NPDES Industrial Stormwater permit. This Order requires the Discharger to obtain the permit or submit a Notice of Non-Applicability.
40. Section 13267(b) of California Water Code states that: "In conducting an investigation specified in subdivision (a), the Central Valley Water Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Central Valley Water Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the Central Valley Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2011-0008 is necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

41. The Basin Plan encourages reclamation.

CCR Title 27 Exemption

42. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereinafter Title 27). The exemption, pursuant to Section 20090(b) and 20090(h) is based on the following.
 - a. For the exemption based on Section 20090(b):

- i. The Central Valley Water Board is issuing waste discharge requirements,
 - ii. The discharge complies with the Basin Plan,
 - iii. The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22, CCR as a designated or hazardous waste.
- b. For the exemption based on Section 20090(h):
- i. The Discharger will recycle the wastewater after treating the wastewater in the wastewater pond system. Settlement of soil particles allows reuse of the clarified wastewater. The solid fraction that settles to the pond bottom is inert waste and therefore is consistent with applicable provisions of the division.
 - ii. The recycling will consist of reusing the water in the aggregate processing operations as well as groundwater recharge for later use both on- and off-site.

California Environmental Quality Act Considerations

43. On 16 March 2007 the San Joaquin County Planning Commission approved a Negative Declaration for the expansion of the mine under the California Environmental Quality Act (CEQA). Mitigation measures were not adopted as a condition of the project.

Public Notice

44. All the above and the supplemental information and details in the attached Information Sheet, incorporated by reference herein, were considered in establishing the following conditions of discharge.
45. The Discharger and interested agencies and persons were notified of the intent to prescribe WDRs for this discharge and provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
46. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that Order No. 91-217 is rescinded and pursuant to Section 13263 and 13267 of the California Water Code, Brown Sand and Mossdale Associates, LTD., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, shall comply with the following:

Note: Other prohibitions, conditions, definitions, and the method 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. The discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Bypass around, or overflow from, the wastewater pond(s) is prohibited.
3. Discharge of domestic waste to any area or facility other than the San Joaquin County permitted septic tank system or regularly serviced portable toilets is prohibited.
4. Discharge of any industrial waste (including aggregate wastewater, assay wastes, laboratory wastes, or vehicle maintenance wastes) to the septic system is prohibited.
5. Discharge of waste classified as 'hazardous,' as defined in Chapter 15, Sections 2521(a) of Title 23, CCR, Section 2510, et seq., (hereinafter Chapter 15), or 'designated,' as defined in Section 13173 of the California Water Code, is prohibited.
6. The discharge or deposit of waste at this site from sources other than from the aggregate operations is prohibited. Processing¹ recycled materials such as cured concrete, asphalt pavement, or imported inert aggregate which can be used to produce saleable materials consistent with the existing activities at the site is acceptable.
7. An independent WDRs Order shall control discharge of any concrete or cement related wastewater. Discharge of any noncured concrete or cement related wastewater under this WDRs Order is prohibited.
8. Chemical methods to recover gold such as amalgamation, cyanide leach, or any other chemical method are prohibited. Gold recovery using gravimetric methods is allowed.

B. Discharge Specifications:

1. All wastewater shall be recycled to the extent possible.
2. Newly constructed or rehabilitated berms or levees (excluding filter barriers between ponds within the wastewater ponds area) that contain or control the flow of water shall be designed and constructed under the supervision of a California Registered Civil Engineer.
3. The discharge shall remain within the property boundaries at all times. Additional ponds may be constructed within the property boundaries (approximately depicted on Attachment B).

¹ Processing includes receiving, storage, and the physical manipulation required to manufacture saleable products. Physical manipulation may include crushing, washing to remove fines, grinding, heating, etc. Processing does not include accepting uncured Portland cement or concrete, or washout from uncured Portland cement or concrete handling equipment (includes delivery trucks, pumps, concrete molds, etc.) unless allowed by a separate Order issued by the State Water Resources Control Board or Central Valley Water Board.

4. The discharge shall not cause the wastewater ponds to have a pH less than 6.5 or greater than 10.0.
5. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or a mass that causes violation of the Groundwater Limitations.
6. All stockpiled products shall be managed to prevent erosion of sediment to surface water drainage courses.
7. The Discharger shall operate all systems and equipment to maximize treatment of the wastewater and optimize the quality of the discharge.
8. Freeboard shall never be less than two feet in any pond, as measured vertically from the water surface to the lowest point of overflow.
9. The wastewater ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with the historical rainfall pattern.
10. On or about 1 November of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. B.8 and B.9.
11. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
12. The Discharger shall comply with all applicable sections of the Aboveground Petroleum Storage Tank Regulations (Section 25270, Health and Safety Code).
13. Any waste material derived from gold recovery or quantification operations (such as laboratory assay) shall be contained and disposed of off-site at an appropriate facility.
14. At least **90-days** prior to scheduled use of flocculants the Discharger shall submit a technical report that describes the proposed flocculants, the application rate, and the fate and transport of the flocculants and any daughter products in the environment. The Discharger must obtain written approval from the Executive Officer prior to use of flocculants.
15. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the activity area.
16. All ponds shall be managed to prevent breeding of mosquitoes. In particular:
 - a. An erosion control program should assure 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.
- d. Coordination with the local Mosquito Abatement District to minimize the potential for mosquito breeding can supplement the measures described above in cases where other methods are infeasible.

C. Solids Disposal:

1. Collected screenings, sludge, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.
2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer in the next monthly monitoring report.
3. Disposal of septage shall comply with existing Federal, State, and local laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

D. Groundwater Limitations:

1. The discharge shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality except as allowed by State Water Board Resolution No. 68-16 and this Order. Background groundwater quality shall be calculated using the methods provided in Title 27 Section 20415(e)(10).

E. Provisions:

1. 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. As required by law, technical reports must bear the signature and/or seal of the registered professional. The following reports shall be submitted pursuant to Section 13267 of the California Water Code:
 - a. By **4 May 2011**, the Discharger shall either apply for coverage or submit a Notice of Non-Applicability for Order No. 97-03-DWQ, Discharges of Storm Water Associated With Industrial Activities.
 - b. By **4 May 2011** a *Flood Contingency Plan* shall be developed. At a minimum, the Contingency Plan shall address the following:
 - i. Emergency Contact List
 - ii. Facility Map
 1. The map should identify areas that store chemicals or waste constituents that could be released in a flood or that may require

additional work to return to service. Those areas typically include: buildings, septic tanks, portable toilets, groundwater wells, electrical shutoff, gas/water shutoff valves, and chemical storage areas (petroleum, compressed gas, oil/lubricant, pesticide/herbicide, and waste chemical storage areas).

- iii. On-site Resource List
 1. This section should identify resources available at the facility that may be of use fighting a flood. Those resources might include: heavy equipment, sandbags, plastic sheeting, portable water pumps, etc.).
- iv. Hazardous Materials Storage
 1. This section should identify potentially hazardous materials stored at the site. The materials may include: fuels, oil/lubricants, paint/solvent, pesticides/herbicides, compressed gases, waste oils, chemical storage, etc.
- v. Flood Response Plan
 1. If the facility is flooded, methods to secure, eliminate, or move potential sources of spills of hazardous materials shall be described.
- c. By **4 May 2011**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan*. The workplan shall describe a plan to install groundwater monitoring wells to allow evaluation of the groundwater quality upgradient and downgradient of the facility. Monitoring wells shall be constructed to yield representative samples from the first saturated interval and shall comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment C, "*Items to be Included in a Monitoring Well Installation Workplan and a Monitoring Well Installation Report of Results.*"
- d. By **2 June 2011**, the Discharger shall submit an *Operations and Maintenance Plan*, including (a) notification procedures and actions to be taken when the wastewater in the ponds fail to meet specified requirements for freeboard, pH, or creates a condition of pollution or nuisance, (b) weed abatement measures, vector control practices, and burrowing animal control (c) a berm inspection and maintenance program, and (d) best management practices to prevent hazardous materials from entering the ponds described in a *Spill Prevention Control and Countermeasures Plan*. This plan shall also describe spill response that will be implemented in the event of a hazardous material spill or wastewater discharge off-site.
- e. By **3 August 2011**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report*. The report shall be consistent with, and include the items listed, in the second section of Attachment C.
- f. By **15 October 2017**, the Discharger shall submit a *Groundwater Quality Investigation Report* that characterizes background groundwater quality if an

interwell approach is selected; or presents a statistical analysis that determines existing groundwater quality at each well if an intrawell approach is selected. The analysis must be consistent with the methods provided in Title 27 Section 20415(e)(10).

- g. At least **90 days** prior to initiating discharge, the Discharger shall submit an RWD for the manufacture of ready mix concrete or any use or disposal of non-cured concrete or cement related wastewater.
2. The Discharger shall comply with Monitoring and Reporting Program No. R5-2011-0008, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.
3. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
4. 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 reported, then the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.
5. 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.
6. In the event of any change in control or ownership of the facility or wastewater disposal areas, 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.
7. 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 rescission of this Order.

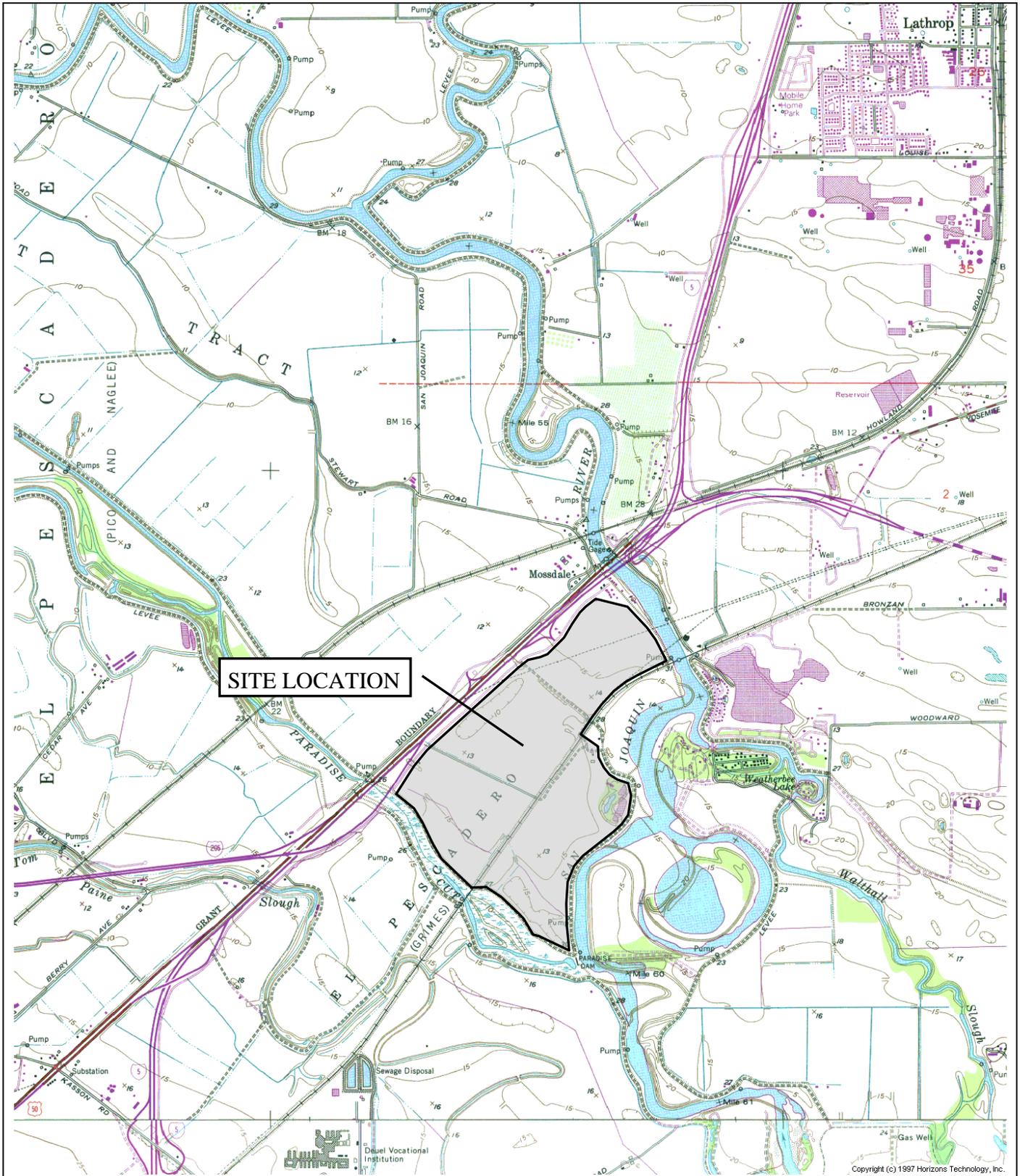
8. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
9. The Central Valley Water Board will review this Order periodically and revise requirements when necessary.

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 3 February 2011.

original signed by

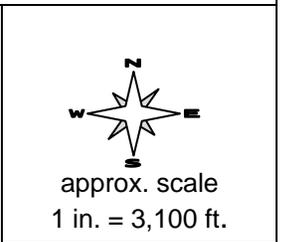
PAMELA C. CREEDON, Executive Officer

TRO: 2/9/11

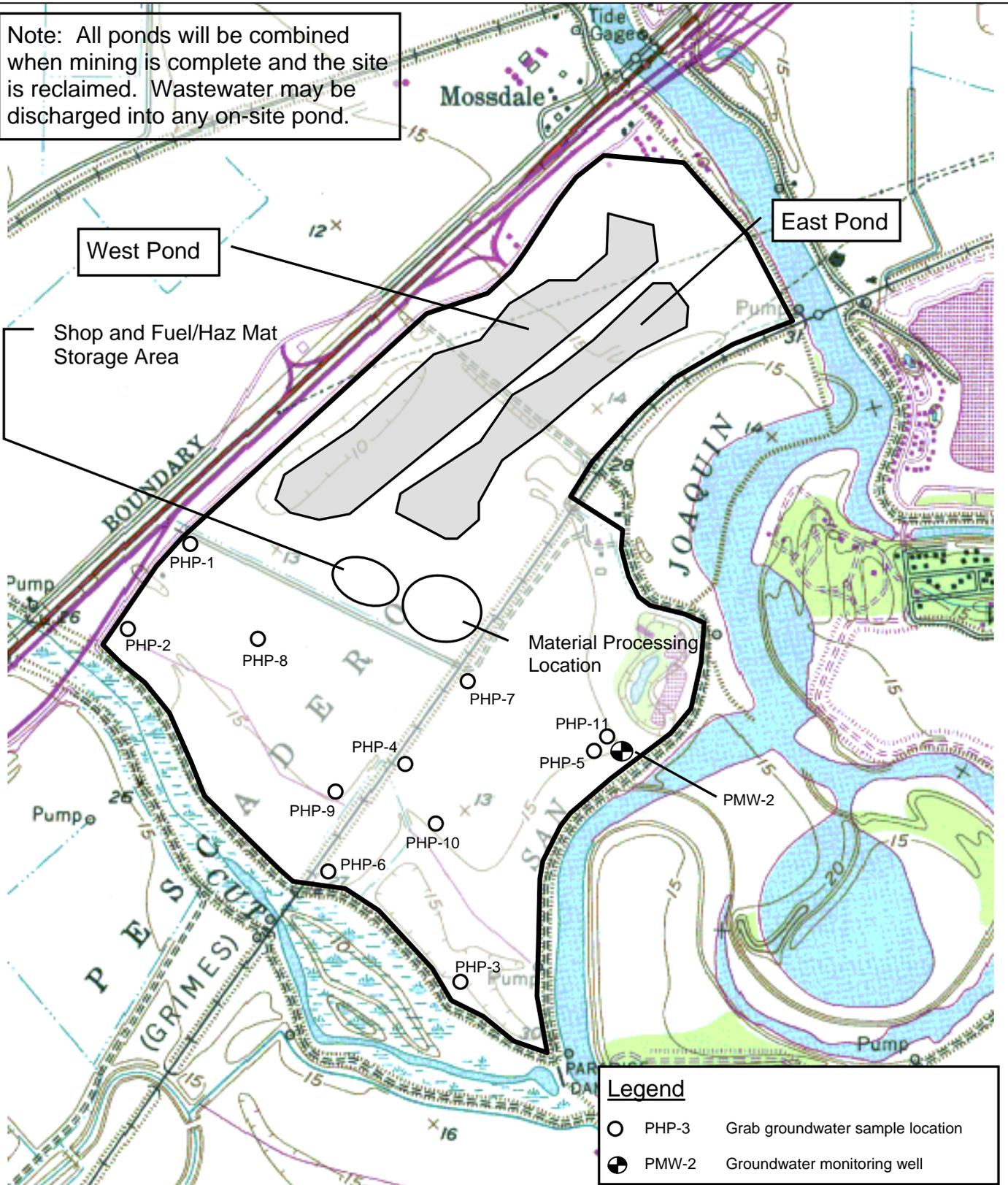


Drawing Reference:
 U.S.G.S 7.5 Min Quad
 Lathrop, California
 Topographic Map

SITE LOCATION MAP
 Brown Sand and Mossdale Associates, LTD.
 800 W. Mossdale Road
 Lathrop, San Joaquin County



Note: All ponds will be combined when mining is complete and the site is reclaimed. Wastewater may be discharged into any on-site pond.



Drawing Reference:

U.S.G.S 7.5 Min Quad
Lathrop, California
Topographic Map

SITE MAP

Brown Sand and Mossdale Associates, LTD.
800 W. Mossdale Road
Lathrop, San Joaquin County



approx. scale
1 in. = 1,350 ft.



California Regional Water Quality Control Board Central Valley Region

Katherine Hart, Chair



Linda Adams
Acting Secretary for
Environmental Protection

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

Edmund G. Brown, Jr.
Governor

ORDER NO. R5-2011-0008 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
 - 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
 - o General sampling techniques
 - o Record keeping during sampling (include copies of record keeping logs to be used)
 - o 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. R5-2011-0008

FOR
BROWN SAND, INC. AND MOSSDALE ASSOCIATES, LTD.
BROWN SAND MOSSDALE QUARRY
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring industrial wastewater. 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.

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 grab sample shall be recorded on the sample chain of custody form. Field test instruments (such as those used to measure 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 calibrated prior to each monitoring event;
3. The 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 the MRP.

POND MONITORING

All ponds¹ shall be inspected weekly and monitored as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard	0.1 Feet	Measurement	Weekly	Quarterly
Berm Condition	Observation	Observation	Weekly	Quarterly
Electrical Conductivity	umhos/cm	Grab	Monthly	Quarterly
Fixed Dissolved Solids	mg/l	Grab	Quarterly	Quarterly
pH	Std. Units	Grab	Quarterly	Quarterly

GROUNDWATER MONITORING

Prior to construction of any new groundwater monitoring wells, the Discharger shall submit a Groundwater Monitoring Well Installation Workplan to the Central Valley Water Board for

¹ For the purposes of monitoring requirements, ponds are defined as any excavation deep enough to intersect the water table. Monitoring ponded stormwater that is not in contact with groundwater is not required.

review and approval. Groundwater monitoring shall occur in the first saturated zone with adequate groundwater to allow monitoring.

The groundwater monitoring well network shall be determined by an approved groundwater monitoring workplan and approved revisions thereafter. Any additional monitoring wells installed at the site shall be added to the monitoring well network unless the wells are required under another governmental order not related to the discharge of wastewater. Prior to sampling, the depth to groundwater shall be measured at each well to the nearest 0.01 foot, and each well shall be purged of at least three well volumes or until measurements of pH and electrical conductivity have stabilized. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u> ¹	<u>Reporting Frequency</u>
Depth to Groundwater	0.01 foot	Semi-Annually	Semi-Annually
Groundwater Elevation	0.01 foot	Semi-Annually	Semi-Annually
Groundwater Gradient	Feet/Feet	Semi-Annually	Semi-Annually
Groundwater Flow Direction	Map Bearing	Semi-Annually	Semi-Annually
pH	Std. Units	Semi-Annually	Semi-Annually
Electrical Conductivity	umhos/cm	Semi-Annually	Semi-Annually
Total Dissolved Solids	mg/L	Semi-Annually	Semi-Annually

¹ Semi-Annual samples shall be collected twice per year.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., pond, groundwater monitoring, 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 specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

A. Quarterly Monitoring Reports

Quarterly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by 1 May) each year. At a minimum, the reports shall include:

1. Results of the pond 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).
4. A discussion of the condition of the wastewater pond(s) storage capacity and any

changes made to the wastewater pond system.

5. Disposal of septage or other solid waste disposal.
6. A calibration log verifying calibration of all monitoring instruments and devices used to comply with the monitoring program.

B. Semi-Annual Monitoring Report

In addition to the quarterly report described above, the Discharger shall establish a semi-annual (twice per year) sampling schedule for groundwater monitoring such that samples are obtained approximately every six months. The data shall be included in semi-annual monitoring reports which shall be submitted to the Central Valley Water Board by the **1st day of the second month after the reporting period** (e.g. the January-June semi-annual report is due by August 1st). As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, groundwater monitoring reports shall be prepared under the supervision of a California licensed engineer or geologist. The Semi-Annual Report shall include the following:

1. Results of groundwater monitoring.
2. A scaled map showing relevant structures and features of the facility.
3. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities. 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.
4. Calculation of groundwater elevations and discussion of seasonal trends.
5. A narrative discussion of the analytical results including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
6. A comparison of the monitoring data to groundwater limitations, and an explanation of any violation of those requirements.
7. Summary data tables of historical and current water table elevations and all analytical results.
8. A scaled map showing the locations of groundwater monitoring wells and groundwater elevation contours referenced to mean sea level datum.
9. Copies of laboratory analytical report(s). This submittal may be made on electronic media, appropriately labeled to indicate the associated monitoring report. If this option is selected, include a copy of the complete report (in portable document format (pdf) or equivalent) in the submittal.

C. Annual Monitoring Report

In addition to the monthly and semi-annual reports described above, an Annual Monitoring Report shall be submitted by **1 February of each year**. At a minimum, the Annual Monitoring Report shall include the following:

1. A written summary of the all significant actions taken during the year.
2. A tabular summary of the all data reported in the Quarterly Monitoring Reports.
3. Tabular summaries of all monitoring data obtained during the previous year. Data showing trends, such as groundwater elevation or quality, shall be presented in graphs.
4. If applicable, a statement of the approximate volume of recycled materials, type of recycled material (broken asphalt pavement, concrete, etc.), and the storage location of the recycled materials. If recycled materials were not located on site, the report shall state that.
5. A map showing the current location of the wastewater pond locations. (As described in the Pond Monitoring section, for the purposed of monitoring requirements, ponds are defined as any excavation deep enough to intersect the water table.)
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.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of violations discovered 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 and Reporting Program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

TRO: 2/9/11

INFORMATION SHEET

ORDER NO. R5-2011-0008
BROWN SAND, INC. AND MOSSDALE ASSOCIATES, LTD.
BROWN SAND MOSSDALE QUARRY
SAN JOAQUIN COUNTY

Background

Brown Sand Inc. has expanded a sand mining and wash plant at 800 W. Mossdale Road, Lathrop, San Joaquin County, adding 380 acres to the existing 303 acre facility. The mine has operated since the early 1990's. Waste Discharge Requirements (WDRs) Order No. 91-217 was issued for excavation of the 303 acre site. Brown Sand Inc. operates the excavation and washing equipment; Mossdale Associates, Ltd. owns the land; together they are hereafter referred to as Discharger. Due to the expansion and the age of the WDRs, the Order is being revised.

The Discharger excavates sand to depths of approximately 60 feet below the ground surface (approximately 50 feet below the water table). At the surface, there is approximately 10-15 feet of topsoil and/or clay. That material is removed and stockpiled for sale as clean fill. Excavation occurs by scrapers, loaders, and/or dragline. Excavated sand is stockpiled on the shore where it drains to the pond before being transported to the wash plant by either conveyor belt or trucks.

No concrete manufacturing using Portland cement occurs at the site. However, in the future, the Discharger may want to sell products containing cement. The Order requires submittal of a separate Report of Waste Discharge (RWD) for production of concrete, cement, concrete products, or disposal of non-cured cement product wastewater.

Domestic wastewater is discharged to on-site septic systems permitted by San Joaquin County Environmental Health. Portable toilets are also available for use.

The site is surrounded by berms or levees, but the levee tops are below the estimated 100-year base flood elevation. Therefore the site is not protected from inundation by the 100-year flood event. Potentially hazardous materials are used and stored on site. The storage areas are approximately 1.25 feet above the base flood elevation; therefore, they should be protected from floodwater. However, because the margin of safety is small and wind driven waves can reduce the margin of safety, this Order requires a Flood Contingency Plan that requires a spill prevention and countermeasure plan.

Wastewater Generation, Flow Rate, and Quality

The source of all wash water is the on-site pond. Since all ponds can be used to dispose of wastewater, they are all considered to be wastewater ponds. Wastewater (turbid water) is discharged via a settling canal (ditch) which is several hundred yards long. The settled fines are periodically removed from the canal and are either stockpiled for sale as clean fill, used on site, or placed in a pond. No dewatering of the excavation is performed.

Wastewater is recycled directly through reuse. Wastewater flow rates vary with the season due to product demand fluctuations. Because the source water originates in a pond, and the wastewater is discharged back to the pond, there is no reason to meter the flow rate. The

Discharger submitted a water balance that demonstrates sufficient capacity at the site to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration using a return period of 100 years. Continued excavation will increase storage capacity as the sand is removed from the site. The Order allows ponds to be constructed anywhere on the property as long as the Discharger is in compliance with the Order and any requirements imposed by other agencies.

The water in the pond presently receiving wastewater has been regularly monitored as required by existing WDR Order No. 91-217. In general, the pond water quality has possessed higher concentrations of dissolved solids than measured in nearby groundwater monitoring wells. This condition is discussed further below.

Groundwater Conditions

Groundwater quality at the expansion area has been investigated by installation and sampling of groundwater monitoring wells, direct push grab groundwater sampling, and pond water sampling. Pond water is in direct contact with groundwater but it is recognized that site activities, evapoconcentration, and other effects has likely affected the pond water chemistry increasing the concentration of Total Dissolved Solids (TDS).

Because the facility is bordered on three sides by surface water bodies - the San Joaquin River (on two sides) and Paradise Cut, surface water elevation has an important effect on local groundwater elevation. Groundwater flow directions near the pond are not defined. A monitoring event on 14 May 2010 showed inward flow direction from the San Joaquin River and Paradise Cut. However, a single monitoring event is not considered reliable evidence of groundwater flow direction or adequate characterization of the potential for changing groundwater flow directions through the year.

Expansion Area Groundwater Quality

Groundwater samples were collected from shallow, medium, and deep zones collected at the expansion area when that area was in agricultural use. The deep zone is at a depth approximately 30 feet below the bottom of the pond and based on a well driller's boring log, a 17 foot thick low permeability zone separates the pond from the deep zone.

Groundwater quality for Total Dissolved Solids (TDS) and Electrical Conductivity (EC) is poor, and often exceeds potentially applicable water quality criteria. Groundwater samples collected from the shallow and medium depth zones exceed water quality standards related to agricultural water use or drinking water levels. Samples from the deep zone, which has not been excavated and as previously noted is separated from the ponds by a 17 foot thick low permeability zone, similarly exceeded upper level drinking water standards. However, the extent of the low permeability zone has not been investigated.

Comparison of Pond Water to Groundwater Quality

Comparison of groundwater quality to pond water samples indicates the pond water has higher TDS and EC values than the shallow and medium zone groundwater. Because the pond is in direct contact with groundwater TDS/EC values at least as high as present in groundwater is

not unexpected. The higher values in the pond are likely the result of evapoconcentration and dissolution of salt contained in excavated sediment into the groundwater. Some dilution of the pond water would be expected seasonally as a result of precipitation.

<i>Groundwater</i>				<i>Pond Surface Water</i>			
<u>Shallow Zone</u>	<u>Depth</u>	<u>EC</u>	<u>TDS</u>		<u>Depth</u>	<u>EC</u>	<u>TDS</u>
PHP-1A	11-16	690	450	BSG-1	Surface	3,100	1,600
PHP-2A	15-20	1,200	650	Lake 1	Surface	1,795	1,160
PHP-3A	12-17	1,200	740	Lake 2	Surface	1,774	1,120
PHP-4A	9-14	1,300	730	Lake 3	Surface	1,715	1,060
PHP-5A	14-19	1,800	960	Ditch 1	Surface	1,718	1,170
PHP-6A	13-18	1,200	650	Ditch 2	Surface	1,754	1,140
PHP-7A	13.5-18.5	1,600	930	Ditch 3	Surface	1,754	1,140
	average	1,284	730		average	1,944	1,199
	median	1,200	730		median	1,754	1,140
	st. dev.	351	175		st. dev.	510	181
<i>Medium Zone</i>				<i>Pond Surface Water</i>			
	<u>Depth</u>	<u>EC</u>	<u>TDS</u>		<u>EC</u>	<u>TDS</u>	
PHP-8B	24-27	2,600	1,700	average 7/09-6/10	2,249	NR	
PHP-8C	50-52	1,800	1,100	median 7/09-6/10	2,320	NR	
PHP-9A	29-33	1,400	880	st. dev. 7/09-6/10	176	NR	
PHP-10A	20-24	1,300	810				
PHP-11A	23-27	1,200	710				
	average	1,660	1,040				
	median	1,400	880				
	st. dev.	573	396				
<u>Deep Zone</u>	<u>Depth</u>	<u>EC</u>	<u>TDS</u>				
PMW-2	90-119.5	2,000	1,000				

The facility is not in an area of historic mining, so mining-related mercury is not expected. However, due to the relatively high values of TDS and EC, and the lack of information on the direction of groundwater movement, investigation of the potential impact of the site on groundwater quality is prudent.

Other Waste Streams

Aggregate processing facilities typically generate associated waste streams. They are described below:

The Discharger does not presently perform gold recovery but may consider adding gold recovery in the future. Any gold recovery performed in activities described in this Order must only use gravimetric methods. No amalgamation or leaching processes can be used in the gold recovery process.

Potentially hazardous materials stored at the site are petroleum fuel, motor oil, hydraulic fluid, transmission fluid, lube grease, gear lube, and similar products. Although the materials are stored on an earthen pad above the base flood elevation, the margin of safety is small; therefore, additional work is required to minimize the potential for hazardous material spills if the site is flooded.

Domestic wastewater from the office and related buildings is discharged to septic systems permitted by the San Joaquin County Environmental Health Department. In addition, portable chemical toilets are available at the facility.

Site Reclamation

The Discharger anticipates aggregate processing will continue for approximately 35 years depending on market conditions. Reclamation will occur concurrently as mining progresses. The current reclamation plan will result in one large lake to be used for aquaculture activities. The current reclamation plan was approved by resolution of the San Joaquin County supervisors on 14 August 2007.

Site Specific Conditions

Based on the California Department of Water Resources rainfall data for the Lathrop weather station, the average annual precipitation is approximately 11.2 inches; the 100-year return annual precipitation is approximately 20.23 inches. Based on the California Irrigation Management Information System (CIMIS) data for Lodi, Manteca, and Tracy, the average annual evapotranspiration is approximately 51.3 inches/year.

Surrounding land uses are primarily agricultural and residential. Stormwater that falls on the site is directed into a pond.

Basin Plan and Beneficial Uses

The Water Quality Control Plan, for the Sacramento 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 Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.

Surface water drainage in the area is to the San Joaquin River. The beneficial uses of the San Joaquin River (within the Sacramento San Joaquin Delta Hydrologic Area) are municipal and domestic supply; agricultural supply; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.

The beneficial uses of the underlying groundwater are domestic, industrial, and agricultural supply.

Antidegradation Analysis

State Water Resources Control Board (State Board) Resolution No. 68-16 allows the degradation of groundwater quality if the Central Valley Water Board determines that:

- The degradation is consistent with the maximum benefit to the people of the State.
- The degradation will not unreasonably affect present and anticipated future beneficial uses.
- The degradation does not cause exceedance of one or more water quality objectives.
- The discharger employs best practicable treatment and control to minimize degradation.

The treatment and control practices described herein provide commonly implemented treatment and control for the subject wastewater, and should prevent the discharge from creating a condition of pollution or nuisance, and maintain water quality. Settling ponds are routinely used in the aggregate mining industry to settle suspended solids.

The materials used in the Discharger's operation are natural earth materials subjected to a classification and separation process using recycled wastewater and site groundwater. Flocculants may be added to the wastewater pending Executive Officer approval. It is also noted that the Basin Plan encourages reclamation.

Federal regulations for the stormwater discharges were promulgated by the U.S. Environmental Protection Agency on 16 November 1990 (40 CFR Parts 122, 123, and 124). The regulations require that specific categories of facilities which discharge stormwater associated with industrial activities obtain NPDES permits. The Discharger has not obtained a National Pollutant Discharge Elimination System Industrial Stormwater permit. This Order requires the Discharger to obtain the permit or submit a Notice of Non-Applicability.

California Code of Regulations Title 27 Exemption

This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereinafter Title 27). The exemption, pursuant to Section 20090(b) and 20090(h) is based on the following.

- For the exemption based on Section 20090(b):
 - The Central Valley Water Board is issuing waste discharge requirements,
 - The discharge complies with the Basin Plan,
 - The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22, CCR as a designated or hazardous waste.

- For the exemption based on Section 20090(h):
 - The Discharger will recycle the wastewater after treating the wastewater in the pond system. Settling of soil particles allows reuse of the clarified wastewater. The solid fraction that settles to the pond bottom is inert waste and therefore is consistent with applicable provisions of the division.
 - The recycling will consist of reusing the water in the aggregate processing operations as well as groundwater recharge for later use both on- and off-site.

The Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater. The Order requires regular groundwater monitoring to determine if groundwater is degraded by the discharge. The Discharger has implemented typical industry best practicable treatment and control measures to minimize degradation.

California Environmental Quality Act

On 16 March 2007 the San Joaquin County Planning Commission approved a Negative Declaration for the expansion of the mine under the California Environmental Quality Act (CEQA). Mitigation measures were not adopted as a condition of the project.

Effluent Limitations

Because the Discharger does not add any additives to the wastewater, and the wastewater consists of water with suspended fine grained sediment, there is little opportunity to impose a limitation on a water quality parameter. Because the pond is in direct contact with groundwater, TDS/EC values at least as high as present in groundwater is not unexpected. The higher values in the pond are likely the result of evapoconcentration and dissolution of salt contained in excavated sediment into the pond. Some dilution of the pond water would be expected seasonally as a result of precipitation or infiltration of surface water through the levees.

Other Requirements

The Provisions require that the Discharger submit the following technical reports:

- Properly permit the site activity under the stormwater permitting program. The Discharger shall obtain coverage under the industrial stormwater permit or submit a notice of non-applicability.
- A *Groundwater Monitoring Well Installation Workplan* for groundwater quality evaluation.
- A *Flood Contingency Plan* that describes hazardous materials stored on-site and a response plan in the event of a potential flood event.
- An *Operations and Maintenance Plan*, the document shall include a *Spill Prevention Control and Countermeasures Plan* to comply with a CEQA mitigation measure.

ORDER NO. R5-2011-0008
BROWN SAND, INC. AND MOSSDALE ASSOCIATES, LTD.
BROWN SAND MOSSDALE QUARRY
SAN JOAQUIN COUNTY

-7-

- A *Groundwater Monitoring Well Installation Report* describing installation of the groundwater monitoring wells.
- A *Groundwater Quality Investigation Report* to determine background groundwater quality.
- Prior to initiating discharge of cement wastewater, an RWD for the activity is required.

TRO: 1/9/11