CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL WATER BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER

**UPDATED WASTE DISCHARGE REQUIREMENTS and
RESCISSION OF ORDER No. R2-2002-0008 for:**

**CITY OF SANTA CLARA and RELATED SANTA CLARA, LLC
SANTA CLARA ALL-PURPOSE LANDFILL
SANTA CLARA, SANTA CLARA COUNTY**

The California Regional Water Quality Control Regional Water Board, San Francisco Bay Region (hereinafter, the Regional Water Board), finds that:

DISCHARGERS AND LOCATION

1. The Santa Clara All-Purpose Landfill (the Landfill or the Site) is a closed Class III landfill owned by the City of Santa Clara (the City). The Landfill was used for waste disposal between 1934 and 1993. The Landfill encompasses an area of approximately 210 acres located south of Highway 237 in the northern part of the City (Figure 1). Most of the Landfill has been used as a golf course since 1994. The northeast portion of the Landfill has been used as a BMX course.

2. Related Santa Clara, LLC (Related LLC) is working with the City to develop approximately 175 acres of the Landfill as a multi-use complex known as Santa Clara City Place that will include retail stores, restaurants and entertainment, office space, and residential units. Approximately 35 acres on the Landfill's Parcel 3/6 will be developed as park and open space. The City has indicated it will enter into a private agreement with Related LLC that defines which party is responsible for regulatory obligations related to development of the Landfill. The Regional Water Board recognizes that the parties are free to contract with each other concerning responsibility, and does not seek to interfere with that contractual agreement, but, due to substantial overlapping responsibility for the integrity of the Landfill's cap and leachate systems, the City and Related LLC are both named as Dischargers in this Order.

3. The City, as the current Landfill owner and former Landfill operator, has taken full responsibility for compliance with previous Regional Water Board orders. The City will continue to own the Landfill after development and will be solely responsible for compliance with all requirements of this Order relating to post-closure operation, maintenance, and monitoring of the Landfill, including but not limited to:

    a) operation and maintenance of the Landfill's final cover;

    b) operation, maintenance, and monitoring of the landfill gas extraction and collection system;

    c) operation, maintenance, and monitoring of the leachate collection and removal system;

    d) detection monitoring of groundwater and surface water;

    e) management and monitoring of stormwater management in portions of the Site not subject to an airspace lease to Related LLC;

f) corrective actions related to releases from the Landfill; and

g) financial assurances for future obligations related to post-closure activities, including any corrective actions that may be necessary.

4. Related LLC, as the project developer, will lease airspace above the Landfill from the City and, after development, will be the owner/operator of buildings and certain structures above the Landfill (supported by piles or columns emplaced into the Landfill). Those buildings and structures will contain various vapor mitigation and energy systems that will be owned and operated by Related LLC. The development requires modifications to the Landfill's existing final cover, gas collection system, and leachate collection system and will require penetrating through the Landfill's waste and the base of the Landfill into underlying native material. These physical changes to the Landfill have the potential to cause impacts to water quality, human health, or the environment. For this reason, Related LLC is appropriately named as Discharger in this Order. Once Related LLC undertakes these physical changes to the Landfill, Related LLC will have joint responsibility with the City for compliance with those requirements, obligations, and tasks contained in this Order assigned to the Dischargers. The City and Related have reached an agreement to allocate to Related LLC responsibilities that arise from Related LLC's future development, ownership, and operation of certain buildings, systems, and features of the development. This Order acknowledges the agreement between the parties as appropriate.

PURPOSE OF ORDER UPDATE

5. This Order updates the existing Waste Discharge Requirements (WDRs) that were adopted in 1994 and requires the City to update the Landfill's Self-Monitoring Program.

6. The City approved a change in land use for the Landfill on June 28, 2016. The Santa Clara County Department of Environmental Health (the Local Enforcement Agency or LEA) approved a Post-Closure Land Use Plan (PCLUP), which included mixed-use development, on December 22, 2016. Title 27 of the California Code of Regulations (CCR) section 21190 (c) designates authority to the LEA to review and approve proposed postclosure land uses if the project involves structures on top of waste. Additionally, the California Department of Resources Recycling and Recovery (CalRecycle) found the proposed PCLUP to be technically adequate in meeting requirements of CCR Title 27 section 21190 on December 9, 2016. Regional Water Board staff reviewed and accepted the PCLUP on December 9, 2016. The Regional Water Board does not have jurisdiction over local land use decisions, but this Order recognizes the jurisdictional agency's approval of the change in land use.

7. This Order includes requirements to ensure that the change in land use approved by the City and the LEA can be implemented in a way that protects water quality, will not adversely impact waste containment features of the Landfill, or results in adverse impacts on human health or the environment.

8. This Order requires the Dischargers to comply with the Prohibitions and Specifications and, pursuant to the Provisions, to submit technical reports containing information pertinent to protection of water quality and human and ecological health during and following landfill development.

OPERATIONAL HISTORY

9. The Landfill began operation as an open burn dump in 1934 in a low-lying area between the Guadalupe River and San Tomas Aquino Creek. Additional low-lying areas nearby (north of Highway 237 and west of Alviso) were also used for waste disposal. The burn dump was changed to a sanitary landfill after the Regional Water Board began regulating the site in December 1965. The Landfill was used primarily for the disposal of non-hazardous solid wastes such as municipal solid waste (MSW) and construction and demolition debris. It stopped receiving waste on October 1, 1993.

10. The Landfill was developed as four discrete parcels (in order of operation, Parcels 4, 2, 3/6, and 1/1NW) as shown on Figure 1. Each of the parcels accepted primarily non-hazardous waste and operated as a sanitary landfill. Parcel 4 includes 86.6 acres and accepted wastes from the 1960s until at least 1977. Parcel 2 includes 60.9 acres and accepted waste between 1977 and 1984. Parcel 3/6 includes 34.9 acres and accepted waste between1986 until 1991. Parcel 1/1NW includes 49.6 acres and received waste from 1982 until 1986 and again from 1991 until 1993.

11. No waste has been disposed at the Landfill since September 1993. In 1994, the City conducted final closure procedures at the Landfill, including the placement of final cover. Since closure, the City has continued to own the Landfill and remains responsible for maintenance of the landfill cover and groundwater monitoring. Since closure, portions of the Landfill have been used as a golf course/tennis complex, a landfill gas-to-energy plant, and a BMX track.

REGULATORY HISTORY

12. The Regional Water Board issued five orders between 1965 and 1986 to regulate the All-Purpose Landfill. These orders included specifications on landfill construction, operation, and closure. The first of these orders, Resolution No. 713, allowed the City to operate a sanitary landfill in what is now known as Parcel 4.

13. The Regional Water Board adopted WDRs Order No. 73-77 on December 27, 1973, for operation of the remaining six disposal areas at the Landfill.

14. Following the California Integrated Waste Management Board's approval of the Closure and Post Closure Maintenance Plan for Parcel 3/6 and Parcel 1 (Closure Plan), the Regional Water Board adopted WDRs Order No. 94-050 on April 20, 1994, supplementing the Closure Plan with requirements for groundwater and surface water monitoring, final closure of Parcels 2 and 4, leachate collection, and closure construction scheduling. Order No. 94-050 also rescinded Order No. 73-77.

15. The Regional Water Board adopted Order No. R2-2002-0008 on January 23, 2002, to implement upgrades to leachate and recovery systems and bring the Landfill into compliance with CCR Title 27 (Title 27). Order No. R2-2002-0008 rescinded Order No. 94-050.

16. This Order rescinds Order No. R2-2002-0008 and sets forth new WDRs consistent with the approved change in land use. This Order imposes conditions and prohibitions that maintain the leachate and methane collection systems, protect groundwater, prevent the migration of contamination, and protect human health and the environment during and following

development at the Landfill. The burden, including costs, of the monitoring and technical reports required by this Order bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. Specifically, the reports are necessary to fully evaluate potential impacts to human health and the environment associated with the proposed post closure land use change and to ensure all structures, all utilities, and any changes made to the Landfill will not result in any adverse impacts to or impair the beneficial uses of waters of the State.

GEOLOGICAL AND HYDROGEOLOGICAL SETTING

17. **Geology**: The Landfill is located in the northern part of the Santa Clara Valley, which is a seismically down-dropped basin that is filled with up to 1,500 feet of alluvial fan deposits composed of a heterogeneous mixture of gravel, sand, silt, and clay. Gravel and sand were deposited in meandering stream channels draining into the San Francisco Bay. These coarser deposits are the primary aquifers or water-producing zones in the San Jose area. Regionally, these channel deposits are grouped into upper and lower aquifer zones. In the vicinity of the Site, the upper water-bearing zone generally extends to depths of 150 feet, the lower part of which is an extensive clay aquitard. The lower aquifer zone generally occurs below a depth of 150 feet below ground surface. The upper aquifer zone along the Bay margin in the vicinity of the Site has been impacted to a varying extent by salt water intrusion. The Landfill was built on levee and overbank/flood basin deposits.

18. **Seismicity**: The Landfill is located between two major, active fault systems, the San Andreas Fault Zone and the Hayward Fault. The closest fault to the Landfill is the Silver Creek Fault, which is located 1.5 miles to the east. The San Andreas Fault Zone is located approximately 12 miles to the southwest and has an expected maximum Moment magnitude of 8.0 and has displayed significant movement as recently as October 17, 1989, during the Loma Prieta Earthquake (Moment magnitude = 6.9), the epicenter of which was located approximately 25 miles to the south-southwest of the Site. The Hayward Fault is located approximately 6 miles to the northeast and has an expected maximum Moment magnitude of 7.5. Both faults are considered historic faults and could potentially cause excessive damage to improperly engineered structures. Other Holocene faults (i.e., active during the past 10,000 years) located within 30 miles of the Landfill include the Calaveras Fault, Mission Fault, Monte Vista-Shannon Fault, Pilarcitos Fault, Butano Fault, San Gregorio Fault, Zayante-Vergeles Fault, Sargent Fault, Las Positas Fault, Greenville Fault, and Mount Diablo Thrust. The Silver Creek Fault, located within 2 miles of the site, is also suspected of Holocene activity based on two magnitude 6.1 earthquakes in 1903.

    The 2014 Working Group on California Earthquake Probabilities at the U.S. Geological Survey predicted a 72 percent chance of a magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Area in the next 30 years. If not mitigated, damage as a result of ground shaking and/or settlement due to an earthquake of at least this magnitude may cause impairment of landfill gas extraction and landfill gas mitigation systems, leachate collection systems, groundwater monitoring wells, and vapor barrier infrastructure. Consequences of this damage could include loss of leachate or landfill gas containment, resulting in groundwater impairment and/or intrusion of methane and other landfill vapors to indoor air.

19. **Hydrogeology**: The hydrogeologic units in the vicinity of the Landfill include the refuse and underlying alluvium consisting primarily of clay and silt with interfingered layers of sand. The clay that underlies the northern portion of the Landfill may be Bay Mud. Within Parcel 4, portions of the Landfill's wastes are saturated with groundwater at least part of the time and constitute an unconfined hydrostratigraphic unit. The Landfill site lies over the Santa Clara Subbasin. The subbasin includes a shallow aquifer zone, which generally refers to aquifers that occur within 150 feet of ground surface, and deeper principal aquifer zones, which generally occur at depths below 150 feet. An aquitard varying in thickness from 20 to 100 feet, and typically at depths between 100 to 200 feet below ground surface, exists across the subbasin.

20. **Groundwater Elevations and Flow Direction**: Groundwater flow direction in the general vicinity of the Landfill is primarily northwards towards San Francisco Bay, whereas the interpreted flow direction within the Landfill is primarily from southwest to northeast, towards the Guadalupe River. Groundwater elevations are generally several feet higher on the southern perimeter of the Landfill than along the northern perimeter. Since groundwater monitoring is limited to wells along the periphery of the Landfill parcels, these measurements may not reflect the groundwater elevations or flow directions that may occur within the Landfill parcels as a result of possible leachate mounding, particularly in Parcels 1, 2, and 4, which do not have a leachate collection system. Recent investigations performed to support development of the Landfill suggest that leachate/groundwater levels in portions of Parcel 4 may be higher than surrounding groundwater levels, which could induce downward migration and outward radial flow from the Landfill. Provision 4 of this Order requires an evaluation of leachate and possible mounding within the Landfill.

21. **Ambient Groundwater Quality:** Water quality in the shallow groundwater (up to a maximum depth of approximately 50 to 60 feet) monitored by the Landfill's groundwater monitoring system varies across the Site, with wells along the northern Landfill boundary of Parcels 1 and 3/6 having higher salinity than wells further to the south (Parcels 4 and 2, see Finding 17 and Figure 2). This observation is consistent with proximity to the Bay and salt water intrusion in the shallow aquifer zone. While total dissolved solids (TDS) concentrations in all wells fluctuate over time, shallow groundwater along the northern boundary is consistently more saline, with concentrations sometimes exceeding 14,000 milligrams per liter (mg/L). TDS concentrations in shallow groundwater along the southern perimeter of the Landfill are consistently below 3,000 mg/L. Over the past ten years, TDS concentrations in wells located in the central portion of the Landfill (between Parcels 4 and 3/6 and along Lafayette Street) have fluctuated between 1,200 and 3,500 mg/L. TDS concentrations appear to decrease slightly with depth within the shallow aquifer. The background quality of groundwater deeper in the shallow aquifer zone or principal aquifer zones has not been evaluated in the vicinity of the Landfill. The nearest well that has been used for drinking water is located 0.8 mile to the southeast of the Landfill.

22. **Surface Water**: Parcel 4 is bounded to the southwest by San Tomas Aquino Creek (Figure 2), which flows northward to San Francisco Bay and is tidally-influenced in the vicinity of the Site. Parcels 1 and 2 are bounded to the northeast by the Guadalupe River, which also flows northward to San Francisco Bay and is tidally-influenced in the vicinity of the Site. On the northeast side of Parcels 1 and 2 (between the Landfill and the Guadalupe River) is a small unlined drainage ditch, referred to in groundwater monitoring reports as the eastern perimeter drainage ditch. It has not been determined whether San Tomas Aquino Creek and the

Guadalupe River are hydraulically connected to the Landfill by leachate mixing with groundwater and through groundwater/surface water interaction. It also has not been determined whether groundwater/leachate discharges into the eastern perimeter drainage ditch.

LANDFILL DESCRIPTION AND HISTORY

23. **Landfill Construction**: The Landfill was constructed using waste disposal methods accepted at the time of its development, including digging and filling trenches. The first two parcels, Parcels 4 and 2, were constructed without any type of base liner or leachate collection system. In the northern part of Parcel 4, the base of buried waste lies below the current groundwater surface level, meaning that waste materials are in direct contact with groundwater. No bottom liner was installed beneath Parcels 1, 2, and 4, consistent with waste disposal practices at the time of filling; however, clay cut-off walls were installed surrounding Parcels 1 and 2. Parcel 1NW, located adjacent to Parcel 1, and Parcel 3/6 were developed with clay base liners and a dendritic leachate collection system.

24. **Waste Characterization**: The Landfill accepted primarily MSW and construction debris; however, it is possible that hazardous materials were disposed of in the Landfill. A 1986 Preliminary Assessment Summary (California Department of Health Services) mentions the disposal of drums containing solvents, organics, inorganics, heavy metals, acids and bases in the general area of the Landfill. Subsequent site investigations performed to support Landfill development have found no evidence of buried drums; however, chlorinated volatile organic compounds (CVOCs) are present in groundwater as described in Finding 31. Specification 10 requires the Dischargers to incorporate contingency procedures into all drilling or excavation plans in the event hazardous wastes (or drums suspected of containing hazardous wastes) are encountered during Landfill development activities.

25. **Landfill Final Cover**: The Landfill has a final cover composed of soil that varies in thickness from 3 to 35 feet. This cover soil is imported fill consisting of mixed sand, gravel, clay, and silt layers. This cover soil also contains a clay soil layer with varying amounts of sand and gravel content, likely used as the low-permeability layer of the previously constructed final cover, which varies in thickness up to 7 feet throughout the Site. The bottom of this low-permeability layer generally marks the top of the refuse layer. The lower one foot of the clay layer and upper one foot of the refuse layer were likely used as the foundation layer during original final cover construction. Data from the Draft Landfill Cover Investigation Report, dated February 2015, indicated that Parcels 1/1NW and 3/6 currently have a suitable soil cover that includes foundation, low-permeability, and erosion-resistant layers as prescribed by Title 27, §21090(a)(1-3). In some locations within Parcel 4, the low-permeability layer was not observed in borings. A final geotechnical investigation of Parcel 4 has been performed and identified locations where the low-permeability layer needs further delineation (particularly within the fairway areas of the existing golf course) and may need to be repaired or replaced during development. Provision 9 requires further evaluation of the Landfill cover.

26. **Stormwater Drainage**: The final cover surface of the Landfill was reconfigured in 1993 in conjunction with development of the golf course. The stormwater collection and drainage system was designed to prevent ponding and oversaturation of the surface, which can contribute to increased leachate. Parcels 3/6 and portions of Parcel 4 drain to a west ditch/channel and ultimately to the Eastside Retention Basin. Portions of Parcels 1 and 2 drain

to the Eastside Retention Basin via the Eastside Drainage Channel. Portions of Parcel 4 drain directly to San Tomas Aquino Creek via outfalls along the west side of the parcel. The Golf Course Pump Station also conveys runoff to San Tomas Aquino Creek from portions of Parcel 4. Portions of Parcel 4 currently drain to a lined pond within the parcel. The planned development of the Landfill will completely reconfigure site drainage, including removal of this pond and other components of the existing stormwater management system. Specification 17 requires the Dischargers to design the Site to promote lateral runoff and prevent ponding and infiltration of water after development is complete.

27. **Leachate**: Parcels 1, 2, and 4 do not have an engineered base liner. It is assumed that leachate produced in the waste mass in these parcels is in direct communication with underlying groundwater. In the northern portion of Parcel 4, this is known to be the case, as the bottom portion of the waste mass lies below the groundwater table and is saturated and mixed with groundwater. The existing leachate monitoring system (described in Finding 32) provides very little information regarding leachate conditions in these parcels. Provision 4 requires further evaluation of leachate conditions within the Landfill.

28. **Leachate Extraction System**: A leachate extraction system was installed in 1985 and 1990 to collect leachate from the northern portion of the Landfill (Parcels 3/6 and 1NW). It consists of a network of parallel leachate collection drains set at the bottom of the refuse with leachate collection sumps for leachate drainage. Historically, leachate production has been minimal, and leachate has been observed and collected from only one of the six leachate risers in Parcel 3/6 (LR-1). Leachate has never been observed in Parcel 1NW. An automated leachate pumping system was installed in LR-1 in 2009. Over the last five years, the annual total volume of leachate removed from the system has ranged from approximately 150,000 to 500,000 gallons. All leachate collected from LR-1is discharged to the sanitary sewer.

29. **Landfill Gas Collection System**: The Landfill continues to produce a significant amount of landfill gas, which is produced through the decomposition of putrescible waste and consists primarily of carbon dioxide and methane, with trace concentrations of other volatile organic gases such as vinyl chloride and benzene. The City operates a vacuum system to collect the landfill gas and burns this gas to produce energy using existing process equipment housed outside the former equipment enclosure in a fenced area in Parcel 1. Currently, 72 landfill gas extraction wells operate on all parcels to control vertical and lateral landfill gas migration in accordance with regulatory requirements. The collected landfill gas is processed at a landfill gas-to-energy facility operated by Amaresco under contract with the City. The gas collection system burned approximately 60,950,000 standard cubic feet of landfill gas between June 2015 and May 2016. Development plans include a complete replacement of the existing landfill gas collection system with a new, more efficient system.

MONITORING PROGRAMS

30. **Groundwater Monitoring** – Groundwater quality at the Landfill is currently monitored by 22 monitoring wells, including 12 wells around the landfill perimeter, and 10 wells located in the areas between parcels, as shown in Figure 2. Of the 10 wells between parcels, 6 are located between Parcels 4 and 3/6. The uppermost water-bearing zone (up to 25 feet deep) is monitored by 19 wells (indicated by a “G” prefix in the well name), and the next water-bearing zone (around 40 to 55 feet deep) is monitored by 3 wells (indicated by an “H” prefix in the well

name). These 22 wells are used for the detection monitoring program. Provision 4(b) of this Order requires additional characterization of the deeper portions of the shallow aquifer and the addition of permanent monitoring wells to evaluate the impacts the proposed development may have on groundwater.

The Self-Monitoring Program (SMP) attached to this Order requires the Dischargers to monitor groundwater levels quarterly and Monitoring Parameters (MPs) at a frequency no less than semi-annually in the groundwater monitoring wells. MPs are considered reliable indicators of a release from the Landfill and include field parameters (pH, EC, groundwater elevation), inorganics (TDS, ammonia, nitrate, dissolved metals), volatile organic compounds (VOCs), and total petroleum hydrocarbons (TPH). Constituents of Concern (COCs) are monitored once every five years and include semi-volatile organic compound (SVOCs), organochlorine pesticides, polychlorinated biphenyls (PCBs), and other water quality parameters. The groundwater quality in monitoring wells has consistently shown no significant impacts from the Landfill, except for VOCs in wells between Parcel 4 and Parcel 3/6 and recently on the southern perimeter of Parcel 2.

31. **Water Quality Impacts** – Groundwater in the northern portion of Parcel 4 and the southern portion of Parcel 3/6 is contaminated with CVOCs, including trichloroethylene (TCE) and its breakdown products cis-1,2-dichloroethylene, trans-1,2-dichloroethylene (DCE), and vinyl chloride (VC). Total CVOC concentrations range from below laboratory reporting limits to over 500 micrograms per liter (µg/L). This area of impacted groundwater appears to coincide with the area where waste is present beneath the water table and in direct contact with groundwater. There is no evidence that this CVOC plume has migrated outside Site boundaries. Provision 4(b) of this Order requires an evaluation of the vertical extent of these CVOCs.

    Since 2014, concentrations of CVOCs, particularly TCE and DCE, have also been rising in well G-2R at the southern border of Parcel 2. CVOCs at this well may be from an offsite source known to exist between Calle del Mundo and the Landfill, but this has not been confirmed. Provision 4(a) of this Order requires the submittal of a work plan and technical report to determine the reason CVOC concentrations have been rising in well G-2R.

32. **Leachate Monitoring** – The Landfill contains six leachate monitoring wells; one in Parcel 1, three in Parcel 2, and two in Parcel 4. Leachate samples have only been obtained from the leachate collection sump LR-1 (Parcel 3/6). No samples have been collected from the other leachate wells since before 2009, and some of the wells could not be located during a site inspection in 2017. The condition of the leachate wells is unknown. The SMP requires that the Dischargers measure leachate levels quarterly and analyze chemistry semi-annually in the leachate monitoring wells shown on Figure 2. Monitoring Parameters for leachate include field parameters (pH, EC, groundwater elevation) and inorganics (TDS, ammonia, nitrate). COCs include VOCs, SVOCs, organochlorine pesticides, TPH, and PCBs. The leachate monitoring program is included in the SMP. COCs have been detected in the leachate samples collected from LR-1, but the frequency of detection is low and the concentrations of the compounds do not exceed the Regional Water Board's Environmental Screening Levels and do not pose significant risk to either human health or the environment. However, this only applies to leachate collected and removed from Parcel 3/6. Leachate from the other parcels is not currently monitored. This issue is addressed in Specifications 1 and 3 of this Order, and

Provision 4 of this Order requires the Discharger to perform a leachate evaluation at Parcels 2 and 4.

33. **Surface Water Monitoring** – Surface water monitoring is required as part of the SMP and approved Industrial and Construction Stormwater Monitoring Plans. The SMP requires the collection of surface water samples from four designated points, SW-1 through SW-4, representing upstream and downstream samples in both the Guadalupe River on the east side of the Landfill and San Tomas Aquino Creek on the west side of the Landfill. As shown in Figure 2, current sampling locations for the Guadalupe River appear to be located in a drainage ditch adjacent to the Landfill and not in the river. This issue is addressed in the SMP.

34. **Facility Inspections**: The following portions of the Site are inspected by the Dischargers as required by the SMP:

    a) Surface water monitoring points;

    b) Monitoring wells (groundwater and leachate); and

    c) Stormwater conveyance system.

RECENT INVESTIGATIONS PERFORMED TO SUPPORT LAND USE CHANGE

35. Since 2014, multiple phases of geotechnical, waste, soil, landfill gas, and groundwater investigations; risk assessments; feasibility studies; pilot tests; and remedial/mitigation system designs have been completed by Related LLC and the City at the Site at the request of the Regional Water Board. These investigations were performed to refine understanding of existing site conditions and to support the design of various elements of the proposed development of the Landfill. The Regional Water Board reviewed and provided comments on each report listed below, in some cases with conditions that must be met upon further evaluation or refinement of design documents:

    a) Geotechnical Field Exploration Work Plan, submitted July 3, 2014

    b) Building Pile / Foundation Evaluation Technical Memorandum for City of Santa Clara, submitted July 11, 2014

    c) Work Plan for Targeted Site Characterization, submitted September 26, 2014

    d) Feasibility Study of Groundwater Remedial Alternatives, submitted July 21, 2015

    e) Memorandum, Potential Historical Drum Disposal at Parcel 4, submitted July 23, 2015

    f) Revised Draft Post-Closure Land Use Plan, submitted September 2015

    g) Revised Landfill Gas Pilot Test Work Plan, Parcel 4, submitted January 14, 2016

    h) Revised Work Plan, Geotechnical Investigation, Parcel 4, submitted February 3, 2016

    i) Final Site Investigation and Environmental Risk Assessment, submitted May 6, 2016

    j) Revised Final Post-Closure Land Use Plan, submitted November 17, 2016.

POST-CLOSURE DEVELOPMENT

36. The Dischargers submitted a Post-Closure Land Use Plan (PCLUP) that describes the Landfill property and the proposed new land use. This plan was accepted as technically adequate by

CalRecycle on December 9, 2016; was reviewed and accepted by Regional Water Board staff on December 9, 2016; and approved by the LEA on December 22, 2016. The current use as a golf course/tennis complex and BMX track will be replaced by the development of a very large mixed-use complex including commercial office space, retail, entertainment, and residential units. Based on the developer's preferred scheme, the PCLUP envisions a total of over 9,200,000 square feet of commercial space (of which 625,000 square feet would be in Phase 1 on Parcel 5 outside the southern boundary of the Landfill) and 1,680 residential units (of which 200 units would be in Parcel 5 outside the boundaries of the Landfill). Development is expected to occur in seven phases, beginning with the construction of Phase 1 in an adjacent area known as Parcel 5. Phases 2, 3, and 4, which comprise the City Center portion of the development, would be built over the Landfill's Parcel 4 area. Most of the development in Phases 2 through 4 would be constructed on a platform of approximately 40 acres that will be built above Parcel 4's landfill surface. This platform is proposed to consist of a pile-supported structural concrete slab with a building protection system (see Finding 32(h) below). Landfill gas extraction wells installed through this platform are proposed to be constructed with telescoping (slip) casings to accommodate extension expected from the settlement of refuse below a fixed well head. Parcel 3/6 will be developed as a park and open space, while Parcels 1 and 2 will be developed for commercial/industrial uses.

37. The PCLUP is the master planning document describing the proposed new land use. The PCLUP is largely a compilation of information derived from site investigations and project design plans from previously submitted, stand-alone project planning documents that were reviewed by Regional Water Board staff, including:

    a) Waste characterization and evaluation of possible historic drum disposal;

    b) Evaluation of historical and current groundwater conditions and groundwater remediation alternatives;

    c) Soil and landfill gas investigations;

    d) Landfill cover assessment;

    e) Geotechnical and seismic conditions;

    f) Human health risk assessment;

    g) Landfill gas collection system pilot test and design concept plans;

    h) Building pile and foundation evaluation; and

    i) The Environmental Impact Report.

38. The PCLUP describes aspects of the project including:

    a) demolition of existing structures and preparation of site for construction;

    b) evaluation of future site settlement and seismic hazards;

    c) platform and building foundation construction methods;

    d) design for the new final landfill cover, including stormwater management, irrigation, and landscaping;

    e) waste and odor management during construction;

f) preliminary plans for utilities (water, sewer, gas, electrical, etc.);

g) the enhanced landfill gas collection system;

h) the landfill gas mitigation systems beneath buildings including vapor barrier membrane, sub-slab venting system, and methane sensor network;

i) the leachate collection and removal system;

j) an emergency response plan; and

k) an operation and maintenance plan.

These aspects of the development will be described more fully and in greater detail in future project design documents, as required by the Provisions of this Order, or as required to be submitted and approved by the LEA and the City's Building Department.

REQUIRED PROTECTIVE MEASURES FOR DEVELOPMENT

39. This Order sets forth numerous requirements to ensure that the proposed development sufficiently protects water quality, human health, and the environment. These requirements are contained in the Prohibitions, Specifications, and Provisions in this Order. The need for these requirements is discussed below.

40. **Landfill Cap Regrading and Exposure of Waste:** An initial step of the planned land use is the preparation of the Landfill's existing surface for development. Grading and re-contouring the existing ground surface to reduce topographic relief will include cutting into the existing final landfill cover and will likely include grading and relocation of buried waste in some locations. Care must be taken to protect water quality and human health when waste is exposed during construction activities. Prohibitions 1, 2 and 6 of this Order prohibit degradation of water quality during development.

41. **Penetrations of Landfill for Support Piles:** The proposed land use requires the construction of several hundreds and possibly thousands of structural piles that will penetrate both the landfill final cover and the landfill base and extend into the underlying geologic media that are saturated with groundwater. These penetrations have the potential to cause or allow migration of landfill leachate into unimpacted groundwater. Prohibitions 6, 7, and 13 of this Order prohibit migration of contaminants from the Landfill, and Specification 9 of this Order requires the Dischargers to address these concerns in project design. The PCLUP describes drilling and pile installation methods that will minimize the likelihood of leachate loss through the landfill base. Nonetheless, leachate migration associated with these penetrations remains a possibility. Provision 5 of this Order requires the Dischargers to perform a groundwater/landfill gas evaluation at recently-constructed pile test locations in Parcel 4. These pile tests, which are being performed to evaluate pile capacities and downdrag loads, provide an opportunity to assess leachate migration before full-scale development commences. Specification 1 and Provisions 4 and 7 require the Dischargers to perform detection monitoring to identify any water quality impacts that may be caused or enhanced by development activities, to control leachate migration, and to perform corrective actions if needed.

42. **Vapor Intrusion:** The Landfill continues to produce significant volumes of methane and other landfill gases that, if not managed properly, pose a potential threat to human health.

Development of occupied buildings above the Landfill requires that a landfill gas collection and landfill gas mitigation system (i.e., building protection system) be operated without interruption, except as required and permitted for maintenance and/or repairs, for as long as gas is produced. A protocol for addressing system interruption will be required in the Post-Closure Maintenance Plan, which must be approved by the Executive Officer. Migration of landfill gas or vapors through the clay cap, concrete platform structure, cracks in concrete or clay, seismic joints, non-airtight openings, or utilities could allow methane or other vapors to accumulate in occupied or confined areas. Additionally, penetrations through the cap could allow atmospheric oxygen to migrate downward into the Landfill. The PCLUP proposes significant enhancements to the existing landfill gas collection system to ensure capture and prevent buildup of gases beneath the developed area. Enhancements to the gas collection system include addition of new wells to optimize the radius of influence and overall collection efficiency and a plan to use expanding (telescoping) wells to counteract the effects of landfill settlement. Prohibitions 11 and 12; Specifications 11, 12, and 13; and Provision 5 of this Order address these vapor intrusion issues.

43. **Access to Critical Systems:** Decomposition and settlement of waste and seismic events may cause damage to the gas collection and mitigation systems, vapor barriers, and groundwater/leachate monitoring and extraction wells. Damage from earthquakes is an additional significant risk in this seismically active area. Access to the gas collection system to repair damage from settlement and seismic activity is essential to protect human health, particularly for landfill gas collection wells installed through the structural platform in Parcel 4. Access to the groundwater/leachate monitoring/remediation systems to detect impacts to groundwater quality is essential. Specification 14 of this Order requires the Dischargers to design and maintain the ability to access these wells and other appurtenances for inspection, maintenance, and repairs following a seismic event or any observed damage from settlement.

FINAL DESIGN REPORTS

44. This Order and the LEA's approval of the PCLUP require the Dischargers to submit various investigation and design reports to provide full details for each phase of development. These include landfill cover evaluations, geotechnical investigation reports, landfill gas collection system design reports, the soil structure interaction evaluations, and other final engineering design reports for each phase of development.

BASIN PLAN AND BENEFICIAL USES

45. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Regional Water Board (State Water Board), U.S. EPA, and the Office of Administrative Law where required.

46. Regional Water Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas containing high TDS, high background contaminant levels, or those areas with a low-yield. The Basin Plan provides that all groundwater is considered suitable, or potentially

suitable, for municipal or domestic water supply (MUN) and that, in making any exceptions, the Regional Water Board will consider the criteria referenced in Regional Water Board Resolution No. 89-39, "Sources of Drinking Water," where:

a) TDS exceeds 3,000 mg/liter or electrical conductivity exceeds 5,000 μS/cm, or

b) There is contamination, either by natural processes or human activity, that cannot be reasonably be treated for domestic use using best management practices or best economically achievable treatment practices, or

c) The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

47. There is no current use of groundwater in the immediate vicinity of the Landfill. As noted in Finding 21, shallow groundwater beneath the northern portion of the Site contains elevated chloride and total organic carbon levels and generally exceeds 3,000 mg/L TDS. Therefore, the upper portion of the shallow aquifer zone in the northern portion of the Site meets one of the exemption criteria of the State Water Board's Sources of Drinking Water Policy and is not considered a potential source of drinking water. TDS concentrations are generally below 3,000 mg/L in shallow groundwater beneath the southern portion of the Landfill. The quality of groundwater deeper in the shallow aquifer zone or principal aquifer zones in the vicinity of the Landfill has not been evaluated. In accordance with the Basin Plan, with the exception of shallow groundwater in the northern portion of the Site, the Site is considered a potential source of drinking water.

48. The existing beneficial uses of surface waters near the Landfill (San Tomas Aquino Creek and Guadalupe River), as defined in the Basin Plan, Table 2-1, include:

a) Groundwater recharge;

b) Cold freshwater habitat;

c) Fish migration;

d) Preservation of rare and endangered species;

e) Fish spawning;

f) Warm freshwater habitat;

g) Wildlife habitat;

h) Water contact recreation; and

i) Noncontact water recreation.

The existing beneficial uses of groundwater in the Santa Clara Valley groundwater basin as defined in the Basin Plan, Table 2-2, include:

a) Municipal and domestic water supply;

b) Industrial process water supply;

c) Industrial service water supply; and

d) Agricultural water supply.

ANTIDEGRADATION POLICY

49. Title 40 of the Code of Federal Regulations, part 131.12, requires that state water quality standards include an anti-degradation policy consistent with federal policy. The State Water Board established California's anti-degradation policy through State Water Board Resolution 68-16, which incorporates the federal anti-degradation policy where federal policy applies. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. This Order complies with the anti-degradation policy by prohibiting degradation of existing water quality in the vicinity of the Landfill and requiring monitoring to confirm that no degradation occurs.

SAFE DRINKING WATER POLICY

50. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring the Dischargers to contain all contamination and demonstrate that the Landfill is not negatively impacting beneficial uses (including potential sources of drinking water) or water resources.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

51. A final Environmental Impact Report (EIR) was prepared for the proposed City Place development. On June 28, 2016, the City Council adopted a resolution certifying that the final EIR was completed in accordance with the requirements of the California Environmental Quality Act (CEQA). The Regional Water Board is a responsible agency under CEQA and has jurisdiction over landfill cover, leachate collection systems, water quality, and beneficial uses. The Regional Water Board reviewed the EIR and considered the effects associated with the project on areas within its jurisdiction. The Regional Water Board finds that all environmental effects have been identified for project activities that it is required to approve and has adopted feasible mitigation measures in this Order. With respect to the environmental effects of the project for which the Regional Water Board has jurisdiction, the Regional Water Board finds that the project will not have significant adverse impacts on the environment, provided that the mitigation presented in the final EIR and any subsequent agency-approved plan is designed and implemented as conditioned in this Order.

52. The EIR determined that the project may be susceptible to unstable soils (including differential settlement and liquefaction) and strong seismic ground shaking (which may affect groundwater monitoring and leachate and landfill gas collection and mitigation systems). The Dischargers have proposed to address unstable soils (settlement) by measures that include using building and podium foundations supported by drilled displacement columns and/or auger cast-in-place piles. The effectiveness of these measures is being tested in Parcel 4, where piles were installed in September 2016. The effects of these piles on water quality protection standards are discussed in Finding 41. The EIR notes that problems associated with unstable soils will also be addressed through the submittal of additional geotechnical reports; this issue is discussed in Findings 25, 35, 36, and 44. Impacts to waters of the State associated with unstable soils shall be mitigated to less-than-significant levels by compliance with Specification 13 and Provisions 4, 5, and 9. The EIR states that the effects of strong seismic ground shaking are less-than-significant based on construction in accordance with the current California Building Code. The Regional Water Board response to the EIR stated its continued concern about acute risks of

methane and other gases, fire explosion, or asphyxiation hazards, especially as a result of a significant seismic event. These issues fall under the jurisdiction of the LEA.

53. The EIR also identified hazardous materials (including landfill gas, soil, and groundwater use) and disturbance of the existing leachate collection and removal systems as potentially significant impacts. The Dischargers have proposed to address hazardous materials by submittal of a revised closure plan and post-closure maintenance plan, replacement of the landfill gas collection and removal system, installation of landfill gas protection systems under structures, a landfill gas monitoring and control program, building restrictions (including a limit of residential units on Parcel 4 to over open-air podium level garages or at least one level of enclosed commercial space), and a landfill hazards disclosure to be provided to all ground leases and space leases over the Landfill. The Dischargers have proposed to address disturbance of the existing leachate collection and removal systems by finalizing and implementing the *Draft Technical Memorandum: Leachate Collection and Removal System*. This only addresses the system in Parcel 3 and does not address existing leachate monitoring wells L-1 through L-6 in Parcels 1, 2, and 4. Impacts to waters of the State associated with hazardous materials shall be mitigated to less-than-significant levels by compliance with Specification 13 and Provisions 4, 5, and 9. However, existing leachate monitoring wells and any other wells, including gas extraction and condensate collection wells, that are no longer used are addressed in Finding 32, Prohibition 13, Specification 2, and Provision 4.

54. The EIR also determined that soil erosion and water quality impacts, such as contamination of stormwater run-on and run-off, may also result from exposure of soil and refuse during construction. Impacts to waters of the State associated with construction stormwater runoff shall be mitigated to less-than-significant levels by compliance with Provision 10. Impacts to waters of the State associated with post-construction stormwater management shall be mitigated to less-than-significant levels by compliance with Provision 11.

55. The proposed development may require filling of wetlands or other waters of the State. As noted in Prohibition 3 and Provision 3, the Dischargers must complete a jurisdictional delineation of wetlands and other waters of the State before any development takes place. Before impacting any wetlands or other waters of the State, the Dischargers must obtain a Water Quality Certification pursuant to section 401 of the Clean Water Act and WDRs pursuant to the California Water Code, and the Dischargers must provide mitigation for those impacts, as described in Provision 3.

    The Regional Water Board, as a responsible agency under CEQA, found that there are environmental effects (e.g., fill of wetlands or other waters) associated with the project that will require mitigation. Provision 3 of this Order contains requirements to mitigate the effects caused by the project to less-than-significant effects on water quality and the environment. Issuance of a Water Quality Certification/WDRs will require review of specific impacts and specific mitigation measures in conformance with the requirements of CEQA.

NOTIFICATIONS AND MEETING

56. The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prepare WDRs and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

57. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to this WDR update.

IT IS HEREBY ORDERED pursuant to the authority in section 13263 of the California Water Code and CCR titles 23 and 27, the Dischargers, their agents, successors, and assigns shall meet the applicable provisions contained in the Water Code and CCR titles 23 and 27 and shall comply with the following:

A. PROHIBITIONS

1. Development of the Landfill shall not result in adverse impact to waters of the State. Wastes exposed temporarily during construction shall not be allowed to exist in any position where they can migrate from the Landfill to adjacent geologic materials or waters of the State.

2. The Dischargers shall not perform any intrusive activities on the landfill surface that have the potential to negatively affect the integrity and proper function of the landfill cap, such as digging or trenching, other than activities described within the approved PCLUP, without prior Executive Officer approval. Minor surface excavation or reconfiguration activities, such as for installation of signs or landscaping or for routine maintenance and repair, do not require prior concurrence.

3. No development may occur until the Dischargers have completed a jurisdictional delineation of wetlands and other waters of the State. The Dischargers must obtain a Water Quality Certification pursuant to section 401 of the Clean Water Act and WDRs pursuant to the California Water Code for impacts to wetlands and/or waters of the State.

4. This Order does not allow for the take, or incidental take, of any special status species. The Dischargers shall use the appropriate protocols, as approved by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, to ensure that project activities do not impact rare or endangered species.

5. The creation of any new waste management unit is prohibited.

6. Migration of leachate or groundwater containing leachate from the Landfill is prohibited.

7. Leachate or groundwater containing leachate or in contact with waste shall not be discharged to waters of the United States unless specifically authorized under an NPDES permit.

8. Buildup or mounding of leachate levels within the Landfill that could adversely impact waters of the State is prohibited.

9. Surface drainage water, irrigation water, stormwater, or other water supply shall not be allowed to pond on top of the cap/liner system, above the platform structure, or within the landfill gas collection system or any utility corridor, or well access vault.

10. Surface drainage water, irrigation water, or stormwater shall not be allowed to pond on the landfill surface and shall not be allowed to contact or percolate through wastes during the life of the Landfill.

11. Landfill gas or volatile organic compounds shall not accumulate under or within any developed area at concentrations that may result in a hazardous condition within or under the developed area.

12. Landfill gas or volatile organic compounds shall not be vented away from any developed area at concentrations that may result in a hazardous condition.

13. Piers, piles, or columns placed through the Landfill's waste material shall not cause adverse impacts to groundwater quality, serve as a conduit for the downward migration of landfill leachate or contaminants, or serve as a conduit for the upward migration of landfill gases that are not fully captured by the landfill gas migration system, which protects buildings and structures above the landfill cap. All wells and borings that are no longer being used at the Site shall not pose a threat of leachate or contaminant migration below the refuse or landfill gas migration above the cap.

14. The Dischargers, or any future owner or operator of the Landfill, shall not cause the following conditions to exist in waters of the State or of the United States at any place outside of the waste management units:

    a. Surface Waters:

        i. Floating, suspended, or deposited macroscopic particulate matter or foam;

        ii. Bottom deposits or aquatic growth;

        iii. Adverse changes in temperature, turbidity, or apparent color beyond natural background levels;

        iv. Visible, floating, suspended, or deposited oil or other products of petroleum origin; or

        v. Toxic or other deleterious substances to exist in concentrations or quantities that may cause deleterious effects on aquatic biota, wildlife, or waterfowl or that render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

    b. Degradation of groundwater quality.

15. These Prohibitions shall apply to the City upon adoption of this Order and will apply to Related LLC commencing from the time Related LLC initiates any physical work that alters the existing cap, cover, leachate collection system, gas collection system, or any other physical feature of the existing Landfill.

B. SPECIFICATIONS

1. The City shall implement a Detection Monitoring Program (DMP), pursuant to Title 27, section 20420. The DMP shall be designed to identify any water quality impacts from the Landfill and demonstrate compliance with the Water Quality Protection Standard (WQPS), which is required pursuant to Title 27, section 20390. The SMP attached to this Order is intended to constitute the DMP for the Landfill.

   The WQPS for the Landfill shall include the following:

   a. Constituents of Concern (COCs): Title 27, section 20395, defines COCs as "all waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit." Site-specific COCs were developed for this Landfill based on the chemicals identified in leachate. They are the monitoring parameters identified in the SMP attached to this Order, as well as VOCs and metals (see Table B-1) or any future COC added by the Executive Officer.

   b. Monitoring Parameters (MPs): MPs, a subset of the COCs, are typically the most mobile and commonly-detected COCs in groundwater at the Landfill and are measured on a more frequent basis than the COCs. Their purpose is to indicate whether a potential leak from the Landfill has occurred. The MPs are chemicals identified in leachate at the Landfill in significantly greater concentrations than those found in groundwater and surface water. The MPs shall include, at a minimum, all constituents identified as MPs in the SMP attached to this Order or any future MPs added by the Executive Officer. The City may propose modification to the MPs as additional data become available concerning site-specific source characteristics and natural background water quality. However, modifications shall only be made upon written concurrence from the Executive Officer.

   c. Concentration Limits: Concentration limits for all COCs detected at the specified monitoring wells are typically established using the background data set. However, because of local variations in groundwater flow direction and possible radial flow outward from the Landfill, background concentrations are difficult to establish. For this reason, the use of an alternative method of establishing concentration limits is recommended, such as identification of trends in concentrations over time using intra-well statistical analyses. Should an increasing trend be identified, the City will notify the Regional Water Board, and the Executive Officer may require retesting.

   d. Monitoring Points: Title 27, section 20164, defines Monitoring Points as "a well, device, or location specified in the waste discharge requirements at which monitoring is conducted and at which the water quality protection standard . . . applies." Monitoring points for the Landfill, which are located along the parcel boundaries and at additional locations, are specified in the SMP attached to this Order or may be added in future amendments thereto, as approved in writing by the Executive Officer. The monitoring points for this Landfill include all groundwater monitoring wells specified in Table B-1 of the SMP and any future additions or replacements.

   The City shall conduct monitoring activities according to the SMP, and as specified in Provisions 4 and 5, to verify the effectiveness of the Landfill's systems for monitoring,

containment, collection, treatment, and removal of groundwater, surface water, leachate, and landfill gas (to prevent the impairment of beneficial uses of water due to gas migration).

2. All monitoring wells shall be constructed in a manner that maintains the integrity of the drill hole, prevents cross-contamination of saturated zones, and produces representative groundwater samples from discrete zones within the aquifer unit each well is intended to monitor. All wells and borings that are no longer being used at the Site, and are not anticipated to be used, shall be destroyed in accordance with applicable permits.

3. The City shall install additional groundwater and leachate monitoring devices as required to fulfill the terms of any future SMP issued by the Executive Officer.

4. All samples shall be analyzed by State-certified laboratories, or laboratories accepted by the Regional Water Board, using approved U.S. EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Regional Water Board review. This specification does not apply to analyses that can only be reasonably performed onsite (e.g., pH).

5. The City may file a written request (including supporting documentation) with the Executive Officer proposing modifications to the attached SMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the SMP.

6. The Dischargers shall maintain the Landfill so as to prevent a measurably significant increase in water quality parameters at points of compliance.

7. Whenever there is “measurably significant” geochemical evidence of an exceedance of concentration limits or significant physical evidence of a release, the City shall implement an Evaluation Monitoring Program (EMP), as described in Title 27, section 20425, at the direction of the Executive Officer. In such a case, the City shall continue implementing the DMP as prescribed in the SMP. If required, the EMP shall be implemented to determine the nature and extent of any release detected by the DMP.

8. All reports submitted pursuant to this Order shall be prepared under the supervision of and signed by appropriately licensed professionals, such as a California-registered civil engineer, registered geologist, and/or certified engineering geologist, and acceptable to the Executive Officer.

9. Landfill piles or piers shall be designed and constructed so as not to impact water quality, serve as conduits for leachate or landfill gas/VOCs, and be able to withstand stresses caused by settlement and seismic activity. Monitoring ports shall be installed through the platform structure to observe and measure settlement around the piles or columns.

10. The Dischargers shall incorporate a contingency plan into all work plans for drilling through the refuse, whether for investigation purposes or for installation of wells, structural piles, or any excavation that may encounter waste. This contingency plan shall establish a protocol to

implement if hazardous wastes (whether in buried drums or not) are encountered during drilling.

11. The landfill gas collection system and gas mitigation systems above the Landfill are considered a critical remediation system and shall operate uninterrupted, except as required and permitted for maintenance and/or repairs, for as long as landfill gas or volatile organic compounds pose a threat to human health or the environment.

12. The landfill cap may develop cracks around pile caps as the soil around the piles settles. The Dischargers shall prevent downward migration of water and upward migration of landfill gas through these cracks in the landfill cap that cannot be fully captured in the landfill gas mitigation systems.

13. Project features above the waste and within the development that are critical to the protection of all occupants and/or water quality, such as vapor barriers, landfill gas collection systems, leachate collection systems, groundwater monitoring wells, foundation seals, well seals, leak detection systems, utility areas, sampling ports, alarm systems, shall be designed and constructed to withstand stresses caused by landfill settlement and seismic activity (see also Provision 9).

14. The Dischargers shall ensure that access is available for inspection and repair of critical features within the development that are related to the protection of occupants, water quality and the structural features of the development. These features include but are not limited to: landfill gas and leachate/groundwater monitoring wells, utilities, structural piles/columns, landfill gas collection systems, landfill gas alarms, leachate collection systems, any required remediation system, and irrigation water and stormwater collection systems (see also Provision 9).

15. Prior to construction of each phase of development on top of the Landfill's clay cap, the Dischargers shall certify that a continuous clay liner/cap at least one foot thick with permeability of less than 10^{-6} cm/sec exists over the Landfill, as specified in Provision 9.

16. Podium structures constructed over or adjacent to refuse shall be designed and maintained to prevent infiltration of any fluids from migrating into the final cover of the Landfill.

17. The Dischargers shall notify the Regional Water Board immediately of any failure occurring in the Landfill that threatens the integrity of containment or control features or structures at the Landfill. Such failure shall be promptly corrected after approval of the method and schedule by the Executive Officer.

18. The Dischargers shall grade and construct final cover systems for waste management units to promote lateral runoff and prevent ponding and infiltration of water, including landscaping irrigation water. Ordinary maintenance shall be the responsibility of the City.

19. The Landfill shall be protected from any washout or erosion of wastes from inundation, which could occur as a result of a 100-year, 24-hour storm event or as the result of flooding with a return frequency of 100 years.

20. The City shall review the SMP after each phase of site development, in accordance with Provision 7 of this Order, and shall propose for Executive Officer approval, any improvements, such as new monitoring wells, that may be necessary to identify water quality impacts from the Landfill that may be caused by development.

21. The City shall install new monitoring stations to replace any monitoring wells designated as monitoring stations that are destroyed or lost during landfill development or maintenance, so as to provide equivalent or better monitoring capability.

22. The Dischargers shall maintain all devices or designed features, installed in accordance with this Order, such that they continue to operate as intended without interruption.

23. The City shall provide and maintain a sufficient number of permanent surveyed monuments near the Landfill from which the location and change in elevation of wastes, structures placed above the waste, waste containment features, and monitoring facilities can be evaluated for settlement throughout landfill redevelopment, landfill closure, and landfill post-closure maintenance period. These monuments shall be installed by a licensed land surveyor or registered civil engineer.

24. The Dischargers shall maintain and operate containment, collection, drainage, and monitoring systems for surface water, irrigation water, and stormwater, and the City shall maintain and operate such systems for groundwater and leachate. These systems shall be maintained and operated as long as waste or leachate is present and poses a threat to water quality.

25. Consistent with the requirements and authority granted to the certified local enforcement agencies, the Dischargers shall adequately monitor, vent, extract, and control landfill gases from the Landfill to prevent gas build-up in the Landfill or structures and minimize the danger of explosion, adverse health effects, nuisance conditions or the impairment of beneficial uses of water.

26. The Dischargers shall construct and maintain the structures that control leachate, surface drainage, erosion, and landfill gases and assure that they are constructed and maintained to withstand conditions generated during the maximum probable earthquake (MPE) and accessible for inspection and repair of damage caused by a seismic event. MPE is terminology used in Title 27 but is no longer used to define the Design Earthquake (DE). The 2016 California Building Code requires seismic design parameters to be developed for the risk-targeted Maximum Considered Earthquake (MCE_R), and the DE is taken as two-thirds of the MCE_R. The MCE_R corresponds to the lesser of two percent probability of exceedance in 50 years (2,475 year return period) or 84^{th} percentile of the controlling deterministic event both considering the maximum direction as described in ASCE-7-10. The seismic design parameters associated with the DE are expected to be at least equal to the MPE values.

27. The Dischargers shall provide reasonable access to any property they own or lease at the Landfill to allow for installation, sampling, monitoring, inspection, etc., of all devices and equipment necessary for compliance with the requirements of this Order.

28. When there are multiple landowners or lease holders involved, the Dischargers shall ensure continued reasonable access to any property they own or lease at the Landfill to allow for installation, sampling, monitoring, inspection, etc., of all devices and equipment necessary for compliance with the requirements of this Order.

29. The Dischargers shall comply with all applicable provisions of Title 27 that are not specifically referenced in this Order.

30. These Specifications shall apply to the City upon adoption of this Order and will apply to Related LLC: (i) for each parcel commencing from the time Related LLC initiates any physical work on that parcel that alters the existing cap, cover, leachate collection system, gas collection system, or any other physical feature of the existing Landfill; and (ii) for each other parcel that is impacted by Related LLC work on a parcel.

C. PROVISIONS

1. **DUTY TO COMPLY:** The Dischargers shall comply immediately, or as prescribed by the time schedule below, with all conditions, Prohibitions, Specifications, and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. Violations may result in enforcement actions, including Regional Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these WDRs by the Regional Water Board.

2. **AUTHORITY:** All technical and monitoring reports required pursuant to this Order are being requested pursuant to section 13267 of the California Water Code. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer may subject the Dischargers to enforcement action pursuant to section 13268 of the California Water Code.

3. **WETLAND DELINEATION AND 401 CERTIFICATION:** The Dischargers must complete a jurisdictional delineation of wetlands and other waters of the State that may be impacted by project implementation before any development takes place. The Dischargers must obtain a Water Quality Certification pursuant to section 401 of the Clean Water Act and WDRs pursuant to the California Water Code prior to impacting wetlands or other waters of the State. Issuance of Water Quality Certification/WDRs will require review of specific impacts and specific mitigation measures in conformance with the requirements of CEQA.

   If mitigation that is acceptable to the Executive Officer consists of Discharger-responsible mitigation (e.g., creation, restoration, and/or enhancement of wetlands or other waters), the mitigation plan must include a monitoring and maintenance plan (MMP) sufficient to confirm the success of wetland mitigation projects and/or other water mitigation projects in providing the required acres of wetlands that exhibit wetland hydrology, soils, and vegetation and/or to confirm that the required quantity of stable and appropriately vegetated

other waters have been established. An adequate MMP should, at least, contain the following minimum components: a summary of maintenance activities, including irrigation, weeding, and replanting of dead or missing vegetation; a schedule for implementing maintenance activities; the plant palette selected for replanting, including pounds per acre of seeds, quantities of sedges, shrubs, and trees, and sources of all plant material; metrics to be used in assessing successful establishment of vegetation; annual performance criteria, including percent cover of vegetation, percent survival of plants, and final success criteria; and contingency measures to be implemented in the event that annual performance criteria or final success criteria are not attained, or if wetlands and/or other waters are not geomorphically stable at the end of the initial monitoring period. The MMP should describe the features (e.g., bank slumping, bank undercutting, knickpoints, headcuts, excessive sediment deposition) that will be used to assess the geomorphic stability of wetlands and/or other waters.

Maintenance and monitoring should be conducted for a minimum period of five years. Mitigation wetlands and/or other waters mitigation sites shall be preserved in perpetuity by placing a conservation easement, deed restriction, or other form of restrictive covenant over the mitigation site.

COMPLIANCE DATE: Application for Water Quality Certification/WDRs due 180 days prior to commencement of development activities on any portion of the property above the Landfill identified as potential water of the State.

No later than 60 days prior to impacting waters of the State at the Site, the Dischargers shall submit to the Executive Officer a cost estimate for funding of the mitigation program described in this provision, including implementation of the MMP, as well as a description of the funding mechanism that will be used to ensure the successful implementation of mitigation for impacts to waters of the State. Waters of the State shall not be impacted at the Site until the Executive Officer has approved the cost estimate and the funding mechanism.

4. **SUPPLEMENTAL LEACHATE/GROUNDWATER EVALUATION**: The City shall submit a Work Plan and Technical Report acceptable to the Executive Officer evaluating remaining data gaps for leachate and groundwater.

   a) The leachate evaluation shall determine if leachate mounding exists within the refuse in Parcels 2 and 4; the leachate flow directions beneath Parcels 2, and 4; and, if leachate is present, the chemical characteristics of leachate within these parcels. The Work Plan shall include a summary of historical data and construction details for existing landfill leachate wells L-1 through L-6, as well as a plan to locate, establish current conditions for, and either rehabilitate or properly destroy each well as appropriate. The Work Plan shall also identify data gaps and propose the installation of additional leachate monitoring wells to address any data gaps. Wells installed to address Provision 5 may be included in this evaluation. The Work Plan and Technical Report shall also evaluate whether landfill leachate is a source of CVOCs that have been recently detected along the boundary of Parcel 2 (in the vicinity of well G-2R). All leachate monitoring wells installed for these purposes shall be monitored for SMP constituents quarterly for at least 18 months. The Report shall document the installation, development, and initial leachate and groundwater monitoring results. Subsequent monitoring results shall be included in the SMP reporting requirements. If ongoing leachate monitoring indicates a buildup of

leachate or a release of CVOCs or other monitoring parameters that exceeds WQPS or may negatively impact beneficial uses of groundwater, the Executive Officer may require the City to submit a Corrective Action Plan, consistent with Title 27 and acceptable to the Executive Officer. The Report shall propose corrective actions to reduce or control leachate buildup (such as leachate collection, extraction, and disposal), and groundwater remediation as appropriate to achieve water quality objectives.

b) The groundwater evaluation shall provide subsurface information sufficient to select suitable locations for additional monitoring wells to improve the vertical coverage of the existing groundwater monitoring program. These wells must provide the ability to detect releases of COCs from the landfill that may result from development activities, particularly the installation of structural piles. These wells must be screened in potential transmissive zones (i.e., permeable layers) at depths beneath the deepest existing wells (i.e., >60 feet), and preferably deeper than the anticipated depth of pile penetrations, provided the wells do not fully penetrate into the regional aquifer (i.e. below a depth of 150 feet). The wells must be completed before development begins over the Landfill, so that baseline (pre-development) water quality conditions can be established. These wells will be permanent additions to the SMP for the Landfill and must be monitored quarterly for at least the first two years following commencement of development over the Landfill.

WORK PLAN DUE DATE: July 12, 2017

REPORT DUE DATE: Well installation and initial round of testing due 90 days following approval of Work Plan. Subsequent test reports due 30 days following each quarterly test date after well installation.

5. **LANDFILL PENETRATION EVALUATION**: The Dischargers shall monitor groundwater and landfill gas at locations where test piles have already been constructed in Parcel 4, and possibly other locations where test piles are installed prior to the commencement of development, in order to evaluate the potential for the migration of landfill leachate into underlying groundwater, migration of landfill gases upward through the cap, and migration of atmospheric oxygen downward through the cap into the refuse. The City shall submit a Work Plan, acceptable to the Executive Officer, proposing the methodology to be used in the evaluation, and a Technical Report that summarizes the results of the evaluation. The Work Plan shall include a proposal for the installation of groundwater monitoring wells at a minimum of three locations around test pile locations to establish local groundwater flow direction. Each location shall, at a minimum, include groundwater monitoring wells screened within the saturated portion of the refuse, where leachate is expected to be mixed with groundwater, and additionally across the first encountered water-bearing zone below the base of refuse. Depending upon initial results, additional deeper wells may be required by the Executive Officer to determine the vertical extent of impacts. The Work Plan shall include a proposal for the installation of soil gas monitoring wells at each test pile location. Each location shall, at a minimum, include a soil vapor monitoring well screened within the refuse and a soil vapor monitoring well screened immediately above the landfill cap. All monitoring wells installed for these purposes shall be monitored for the SMP constituents (groundwater) and existing monitoring requirements (landfill gas) quarterly for at least 18 months. The report shall document the installation,

development, and initial monitoring results. Subsequent monitoring results shall be included in the SMP reporting requirements.

WORK PLAN DUE DATE: July 12, 2017

REPORT DUE DATE: 90 days following Executive Officer approval of Work Plan

6. **POST-CLOSURE MAINTENANCE PLAN:** The City shall submit a technical report, acceptable to the Executive Officer and the LEA, that fulfills the requirement for a Post-closure Maintenance Plan (PCMP), in accordance with Title 27 section 21769. In addition to plan elements required under Title 27, the PCMP must include (a) a protocol for addressing interruptions of the landfill gas collection and mitigation systems: (b) a plan to prevent water releases from within and/or above the podium and other building foundations from penetrating the landfill cover or disrupting the functions of any landfill gas collection or mitigation system; and (c) must provide assurance that an effective vapor barrier and landfill gas extraction system, as designed, will function as intended (particularly following a major seismic event or significant settlement) and can be promptly accessed when repairs or maintenance are needed.

   COMPLIANCE DATE: 120 days prior to any construction

7. **DETECTION MONITORING PROGRAM REVIEW**: Before each phase of development over the Landfill commences, the City shall evaluate and determine if changes are needed to ensure the adequacy of the Landfill's DMP to promptly detect any releases to groundwater or surface water from the Landfill or any changes in water quality that may have been caused by post-closure development activities. Based on the results of the evaluation, the City shall propose to the Executive Officer any improvements, such as new monitoring wells, that may be needed to identify water quality impacts from the Landfill and demonstrate compliance with the WQPS and Prohibition 1 of this Order.

   COMPLIANCE DATES: Initial DMP review to be completed at least 90 days prior to initial phase of construction over the Landfill. Subsequent DMP reviews to be completed at least 60 days prior to each subsequent phase of construction.

8. **WELL INSTALLATION OR DESTRUCTION REPORT**: The City shall submit a technical report, acceptable to the Executive Officer, which provides well construction details, geologic boring logs, and well development logs for all new wells installed or destroyed as part of the DMP or other provisions of this Order.

   REPORT DUE DATE: 60 days following well installation or destruction

9. **PHASE INVESTIGATIONS AND DESIGNS:** Prior to any phase of development over the Landfill, the Dischargers shall submit technical documents, acceptable to the Executive Officer, that include:

   a) Landfill Cap Certification – Prior to the construction of each phase of development above the clay cap of the Landfill, the Dischargers shall submit a report that certifies that a continuous one foot thick or thicker clay liner/cap with a permeability of less than 10^{-6} cm/sec exists above the Landfill in the parcel included in the area of phased construction.

b) Geotechnical Investigation Report – Prior to the construction of each phase of development over Parcels 1 and 2, the Dischargers shall submit a geotechnical report and soil structure interaction evaluation that evaluates the geotechnical conditions of those parcels to support development of design criteria for the project that are protective of human health and the environment.

c) Design details showing critical project features including podium structures, foundation pile and column penetrations and connections, landfill gas well and system details, seismic joints and details on sealing from gas/vapors, settlement monitoring ports, and vapor barriers to ensure the proposed project will be protective of human health and the environment. These design documents must demonstrate that the landfill gas extraction and building protection systems will be constructed and maintained to function as intended and can be accessed for repairs and maintenance to promptly address any damage related to settlement and seismic events.

d) Certification that all other required agency permits and approvals have been obtained, as necessary, prior to development.

e) Certification that the proposed development is consistent with the April 2016 final EIR for the project and the November 17, 2016, final PCLUP.

These plans shall describe the project, identify key design components that may impact existing containment or monitoring structures, and specify components of the design necessary to maintain integrity of those structures and prevent water quality impacts.

COMPLIANCE DATE: At least 60 days prior to each phase of construction

10. **CONSTRUCTION-RELATED STORMWATER PERMIT**: Prior to proposed grading or development greater than one acre in size, the Dischargers shall submit a Notice of Intent to the State Water Board, submit a Stormwater Pollution Prevention Plan acceptable to the Executive Officer, and implement Best Management Practices for the control of stormwater in accordance with requirements specified in the State Water Board's General Permit for Stormwater Discharges Associated with Construction Activities (Order No. 2010-0014-DWQ, NPDES Permit No. CAS000002). This includes the following requirements:

    a. Prior to the start of the rainy season, the Dischargers shall ensure that disturbed areas of waters of the State and disturbed areas that drain to waters of the State are protected with correctly installed erosion control measures (e.g., jute, straw, coconut fiber erosion control fabric, coir logs), and/or revegetated with propagules (seeds, cuttings, divisions) of locally collected native plants. Erosion control textiles that include plastic monofilament netting are prohibited from use at the project site or at any mitigation site;

    b. Where areas of bare soil are exposed during the rainy season, appropriate sediment and silt control measures shall be used where silt and/or earthen fill threaten to enter waters of the State. Silt control structures shall be monitored for effectiveness and shall be repaired or replaced as needed. Buildup of soil behind silt fences shall be removed promptly and any breaches or undermined areas repaired at once.

    COMPLIANCE DATE: 60 days prior to each phase of construction

11. P**OST-CONSTRUCTION STORMWATER TREATMENT:** The Dischargers shall submit treatment plans for runoff generated from impervious surfaces to the Executive Officer for review; these treatment plans shall include the operation and maintenance manual for the treatment measures, identify the responsible party for implementing operation and maintenance of the treatment measures, and identify the funding source for operation and maintenance of the treatment measures. Treatment measures for stormwater runoff associated with impervious surfaces created at the Site must be designed in accordance with the design standards in Provision C.3 of the NPDES Municipal Regional Permit for municipal stormwater runoff (Order No. R2-2015-0049; NPDES Permit No. CAS612008; November 11, 2015). Construction of new impervious surfaces at the Site shall not commence until the Executive Officer has approved the designs of the stormwater treatment measures proposed for those surfaces. Stormwater treatment measures must be functional in the first rainy season following construction of new impervious surfaces that will drain to the treatment measures.

    COMPLIANCE DATE: At least 60 days prior to the construction of any improvements at the Project site that will create impervious surfaces

12. **ACCESS AND INSPECTION:** The Dischargers shall submit technical reports acceptable to the Executive Officer that describe design features and methods to access, inspect, and repair critical features above the landfill clay cap and within the development that are related to the protection of occupants, water quality, and the structural integrity of the development features. These features include but are not limited to: landfill gas, groundwater, and leachate monitoring wells; structural pile caps; structural slabs; vapor barriers; utilities; landfill gas collection systems; landfill gas alarms; leachate collection systems; and irrigation water collection systems. These reports shall be submitted prior to each phase of development.

    REPORT DUE DATE: 60 days prior to each phase of development

13. **LANDFILL GAS/VAPOR SYSTEM:** The landfill gas and vapor collection system is considered a critical remediation system that must be operated uninterrupted, except as required and permitted for maintenance and/or repairs, as long as landfill gas or volatile organic compounds pose a threat to human health or the environment. The City shall submit semi-annually a summary report that certifies that the landfill gas vapor system has operated uninterrupted during the reporting period and remains protective of human health and the environment. The report shall describe any system issues related to exceedances, repairs, maintenance, or significant operational changes.

    COMPLIANCE DATE: January 31 and July 31 of each year

14. **ANNUAL MAINTENANCE REPORT:** The City shall submit a technical report to the Regional Water Board, acceptable to the Executive Officer, detailing the repair and maintenance activities that need to be completed prior to the commencement of the next rainy season. This letter report shall also include a schedule for repair and maintenance activities, and a cost analysis detailing the anticipated expense for all repairs, maintenance, and monitoring during the next 12 months. Repair and maintenance estimates shall be based on rainy season inspections conducted throughout the winter as required in the SMP.

    COMPLIANCE DATE: July 31 of each year

15. **EMERGENCY RESPONSE CONTINGENCY PLAN:** The Dischargers shall submit an Emergency Response Contingency Plan, acceptable to the Executive Officer, outlining measures necessary in order to stop and contain the migration of pollutants to receiving waters as the result of any earthquake generating ground shaking, excessive rainfall, damaging tidal action, or other significant events. The Contingency Plan shall describe the containment features and groundwater monitoring and leachate monitoring facilities potentially impacted by such events. The Contingency Plan shall provide for reporting results of the post-event inspection to the Regional Water Board within 72 hours of the occurrence.

    In the event that a buildup or loss of containment of landfill gases (methane or VOCs) or other hazardous conditions pose a risk to the health and safety of occupants, visitors, or workers at the Site, an evacuation plan, approved in advance by the LEA and the City, shall be implemented.

    COMPLIANCE DATE: 120 days prior to any construction

16. **EARTHQUAKE INSPECTION REPORT**: The City shall submit a detailed Post-Earthquake Inspection Report, acceptable to the Executive Officer, in the event of any earthquake generating ground shaking of Moment Magnitude 5.5 or greater, at or within 30 miles of the Landfill, or any other earthquake that results in potentially damaging effects. The report shall describe the containment features, groundwater monitoring, and control facilities potentially impacted by seismic deformations of the Landfill. Any physical damage to the Landfill that affects the ability of the unit to contain waste, leachate, and/or landfill gases or that may impact waters of the State or human health must be reported to the Executive Officer.

    COMPLIANCE DATE: Notification due immediately; written report due within 2 weeks of earthquake

17. **CORRECTIVE ACTION PLAN (CAP):** Upon discovery of water quality impacts or damage to the landfill cap or to structures that contain waste or control leachate, surface drainage, and landfill gases, the Dischargers shall submit a CAP, acceptable to the Executive Officer. This CAP shall describe any corrective actions necessary to remediate water quality impacts or to repair damage that could potentially cause impacts to water quality or human health.

    WORK PLAN DUE DATE: within 30 days following discovery of impacts or damage

18. **FINANCIAL ASSURANCE for POST-CLOSURE MAINTENANCE**: The City shall provide financial assurance for post-closure maintenance that complies with the requirements of Title 27. The City shall provide evidence to the Executive Officer that the City's financial assurance mechanism is acceptable to CalRecycle.

    COMPLIANCE DATE: 120 days prior to any construction

19. **FINANCIAL ASSURANCE FOR CORRECTIVE ACTIONS:** The City shall provide financial assurance for corrective action that complies with the applicable requirements of Title 27. The City shall provide evidence to the Executive Officer that the City's financial assurance mechanism is acceptable to CalRecycle.

COMPLIANCE DATE: June 1 of each year

20. **CHANGE IN LANDFILL CONDITIONS**: The Dischargers shall immediately notify the Regional Water Board of any flooding, ponding, settlement, equipment failure (including the structural slab, vapor barriers, wells and other parts of the vapor collection and mitigation systems, settlement monitoring ports, etc.) or other change in landfill conditions that could impair the integrity of the landfill cap, building protection system, waste or leachate containment facilities, and/or drainage control structures and shall immediately make repairs. Within 30 days, the Dischargers shall prepare and submit a technical report, acceptable to the Executive Officer, documenting the corrective measures taken.

    NOTIFICATION DUE DATE: Within 24 hours of discovery

    REPORTING DUE DATE: 30 days after initial notification

21. **LONG-TERM FLOOD PROTECTION REPORT**: The City shall submit a report, acceptable to the Executive Officer, for long-term flood protection of the Landfill. The report shall include a consideration of feasible options for achieving protection of the Landfill from a 100-year flood in the face of rising sea levels and increasing flood frequency and intensity. The report shall consider methods developed by the San Francisco Bay Conservation and Development Commission to predict and protect against future flooding. The report shall be updated every five years throughout the post-closure maintenance period of the Landfill, utilizing the most recently available and credible information at the time of the update.

    REPORT DUE DATE: August 31, 2018, and update every five years thereafter

22. **Availability:** A copy of these WDRs shall be maintained by the Dischargers and shall be made available by the Dischargers to all employees or contractors performing work (maintenance, monitoring, repair, construction, etc.) at the Landfill.

23. **Change in Ownership/Operation**: The Dischargers must notify the Executive Officer, in writing, at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger. The notice must include a written agreement between the Dischargers and the new dischargers containing a specific date for the transfer of this Order's responsibility and coverage between the Dischargers and the new discharger. This agreement shall include an acknowledgment of which dischargers are liable for violations up to the transfer date and which dischargers are liable from the transfer date on. The Regional Water Board must amend this Order to add additional parties or remove named Dischargers in the event of a change of ownership.

24. **Report of Waste Discharge**: When a Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge (ROWD) or submitted incorrect information in a ROWD or in any report to the Regional Water Board, it shall promptly submit such facts or information.

25. **Revision**: This Order is subject to review and revision by the Regional Water Board.

26. **Vested Rights**: This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Dischargers from liability under federal, State, or local laws, nor do they create a vested right for the Dischargers to continue the waste discharge.

27. **Severability**: Provisions of this Order are severable. If any provision of this Order is determined, upon review by the State Water Board or a reviewing court, to be invalid, the remainder of these requirements shall not be affected.

28. **Operation and Maintenance**: The Dischargers shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Dischargers to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

29. **Reporting of Hazardous Substance Release**: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the Dischargers shall, upon discovery, report such discharge to the Regional Water Board by calling (510) 622-2369. A written report shall be mailed or submitted electronically to the Regional Water Board within five business days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

30. **Entry and Inspection**: The Dischargers shall allow the Regional Water Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter upon a Discharger's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this Order;

    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

    d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

31. **Analytical Methods**: Unless otherwise permitted by the Executive Officer, all analyses shall be conducted at a laboratory-certified for such analyses by the California Department of Public Health. The Executive Officer may allow use of an uncertified laboratory under exceptional circumstances, such as when the closest laboratory to the monitoring location is

outside the State boundaries and therefore not subject to certification. All analyses shall be required to be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" promulgated by U.S. EPA.

32. **Discharges To Navigable Waters**: Any person discharging or proposing to discharge to navigable waters from a point source (except for discharge of dredged or fill material subject to section 404 of the Clean Water Act and discharges subject to a general NPDES permit) must file an NPDES permit application with the Regional Water Board.

33. **Endangerment of Health or the Environment**: The Dischargers shall report any event of noncompliance that may endanger human health or the environment. Any such information shall be provided orally to the Executive Officer, or an authorized representative, within 24 hours from the time the Dischargers becomes aware of the circumstances by calling (510) 622-2369. A written submission to the Regional Water Board shall also be provided within five days of the time a Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

34. **Document Distribution**: Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

    a. Regional Water Board
    b. Santa Clara County Department of Environmental Health (Local Enforcement Agency)
    c. CalRecycle
    d. Santa Clara Valley Water District
    e. City of Santa Clara, Water and Utilities

    The Executive Officer may modify this distribution list as needed.

35. **Reporting Requirements**:

    a. <u>Hard copies</u>:

        i. Technical reports/plans submitted by the Dischargers in compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be submitted to the Regional Water Board on the schedule specified herein. Hard copies of these reports/plans shall consist of a letter report that includes the following:

            a) Identification of any obstacles that may threaten compliance with the schedule;

b) In the event of non-compliance with any Prohibition, Specification, or Provision of this Order, written notification that clarifies the reasons for non-compliance and that proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order;

c) In the SMP, an evaluation of the current groundwater, surface water, and leachate monitoring systems and a proposal for modifications as appropriate; and

d) A signed transmittal letter and professional certification by a California-licensed civil engineer or a professional geologist.

ii. All application reports or information to be submitted to the Executive Officer shall be signed and certified as follows:

a) For a corporation – by a principal executive officer or the level of vice-president or an appropriate delegate;

b) For a partnership or sole proprietorship – by a general partner or the proprietor, respectively; or

c) For a municipality, State, federal, or other public agency – by either a principal executive officer or ranking elected official.

b. Electronic Submittals:

i. The State Water Board has adopted regulations requiring electronic report and data submittal to Geotracker [http://www.geotracker.swrcb.ca.gov/]. The text of the regulations can be found at the following link: http://www.waterboards.ca.gov/ust/electronic_submittal/

ii. The Dischargers are responsible for submitting the following via the internet:

a) Groundwater, surface water, and leachate analytical data;

b) Surveyed locations of monitoring wells;

c) Boring logs describing monitoring well construction;

d) Portable data format (PDF) copies of all reports identified in 24a. above (the document, in its entirety [signature pages, text, figures, tables, etc.] must be saved to a single PDF file); and

e) Any additional submittal to GeoTracker the Executive Officer requires.

iii. Upon request, monitoring results shall also be provided electronically in Microsoft Excel® to allow for ease of review of data and to facilitate data computations and/or plotting that Regional Water Board staff may undertake during the review process. Data tables submitted in electronic spreadsheet format will not be included and should therefore be submitted on CD and included with the hard copy of the report. Electronic tables shall include the following information:

a) Well designations;

b) Well location coordinates (latitude and longitude);

c) Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, screen interval elevation, and a characterization of geology of subsurface the well is located in);

d) Groundwater and leachate depths and elevations (water levels);

e) Current analytical results by constituent of concern (including detection limits for each constituent);

f) Historical analytical results (including the past five years, unless otherwise requested); and

g) Measurement dates.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of and Order adopted by the California Regional Water Quality Control Regional Water Board, San Francisco Bay Region on _____.

_____
Bruce H. Wolfe
Executive Officer

Attachments:

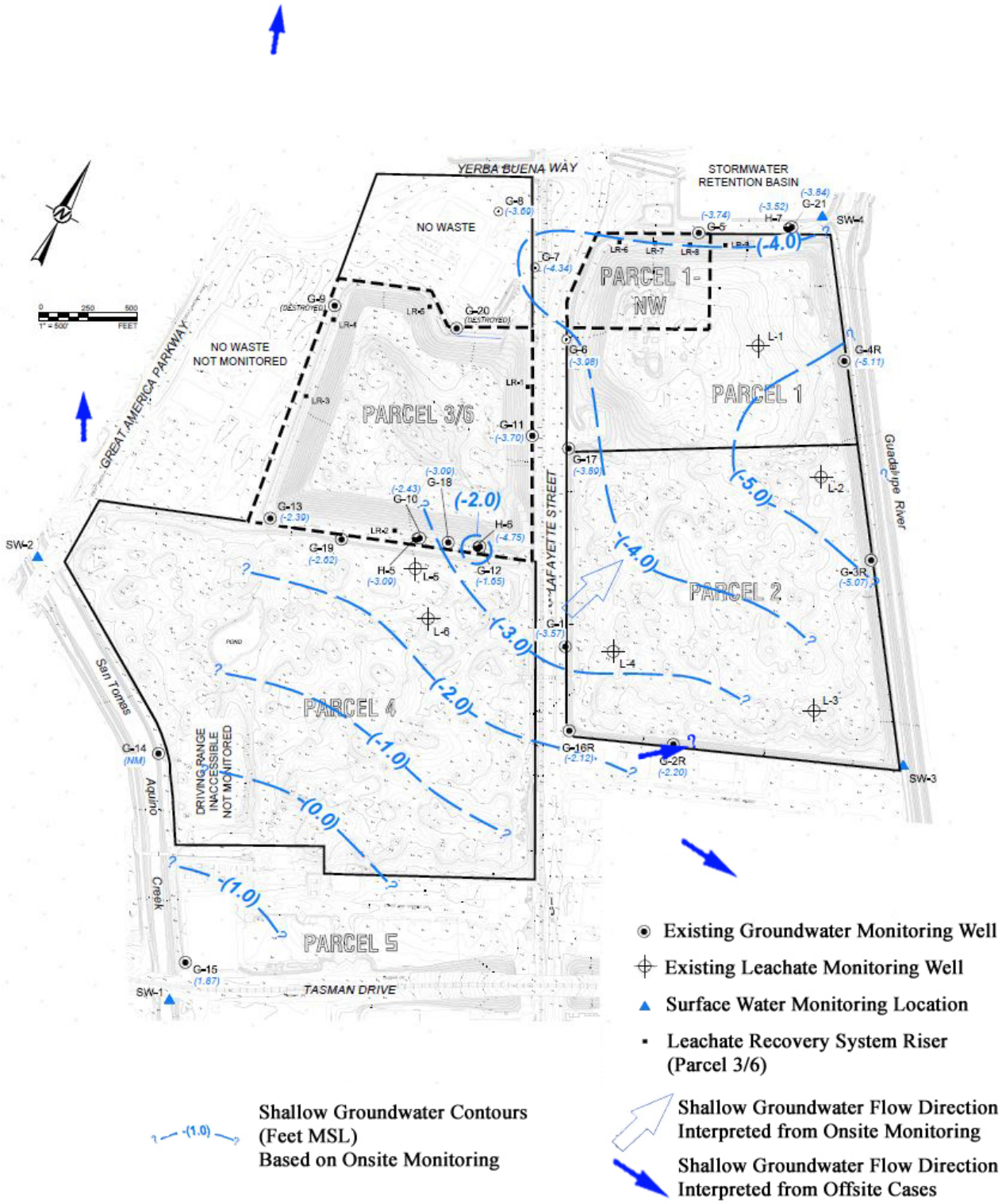
Figure 1, Landfill Location
Figure 2, Landfill Parcels and Monitoring Points
Self-Monitoring Program

Figure 1, Landfill Location

Base map from Google Earth;
Photography date: January 31, 2016.

SCALE: 0 2000 4000 FEET
(Approximate)

Figure 2, Landfill Parcels and Monitoring Points



[Note the surface water locations SW-3 and SW-4 locations as shown do not appear to be compliant with the requirements of the SMP for monitoring the Guadalupe River and must be adjusted.]

CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL WATER BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

SANTA CLARA ALL-PURPOSE LANDFILL
SANTA CLARA, SANTA CLARA COUNTY

TENTATIVE ORDER

CONSISTS OF

PART A

AND

PART B

PART A

This Self-Monitoring Program (SMP) specifies monitoring and reporting requirements, including:

a. General monitoring requirements for commercial facilities constructed on a Landfill (Part A);
b. Self-monitoring report content and format (Part A);
c. Self-monitoring report submittal frequency and schedule (Part B);
d. Monitoring locations and frequency (Part B); and
e. Monitoring parameters and analytes (Part B).

A. AUTHORITY AND PURPOSE

For discharges of waste to land, water quality monitoring is required pursuant to the California Code of Regulations, Title 27, sections 20380 through 20435 (Title 27). The principal purposes of an SMP are: (1) to document compliance with waste discharge requirements (WDRs) and prohibitions established by the Regional Water Board; (2) to facilitate self-policing by waste dischargers in the prevention and abatement of pollution arising from the waste discharge; (3) to develop or assist in the development of effluent standards of performance and toxicity standards; and (4) to assist dischargers in complying with the requirements of Title 27.

B. MONITORING REQUIREMENTS

Monitoring refers to the observation, inspection, measurement, and/or sampling of environmental media, landfill containment and control facilities, and waste disposed in the Landfill. The following defines the types of monitoring that may be required.

Monitoring of Environmental Media

The Regional Water Board may require monitoring of groundwater, surface water, stormwater, leachate, landfill gas, and any other environmental media that may pose a threat to water quality or provide an indication of a water quality threat at the Landfill.

Sample collection, storage, and analyses shall be performed according to the most recent version of U.S. EPA-approved methods or in accordance with a sampling and analysis plan approved by Regional Water Board staff. Analytical testing of environmental media required by this SMP shall be performed by a State-approved laboratory for the required analyses. The director of the laboratory whose name appears on the certification shall be responsible for supervising all analytical work in his/her laboratory and shall have signing authority for all reports or may designate signing of all such work submitted to the Regional Water Board.

All monitoring instruments and devices used to conduct monitoring in accordance with this SMP shall be maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once every two years.

“Receiving waters” refers to any surface water that actually or potentially receives surface or groundwater that passes over, through, or under waste materials or impacted soils. In this case, the groundwater beneath and adjacent to the Landfill and the surface runoff from the Landfill are considered “receiving waters.”

Standard Observations

"Standard observations" refers to observations within the limits of the Landfill, at the Landfill perimeter, and of the receiving waters. Standard observations to be performed and recorded include:

1. Landfill:
    a. Evidence of ponded water on the Landfill, including a map of approximate locations, and an estimate of the size of the area affected and the volume of water;
    b. Evidence of odors, including presence or absence, characterization, source, and distance of travel from source; and
    c. Evidence of erosion and/or daylighted waste, including a map of the approximate location and an assessment of the likelihood that soil or waste was discharged to the waters of the State.
    d. Measurement of groundwater and leachate elevations.

2. Perimeter of Landfill:
    a. Evidence of liquid leaving or entering the Landfill, estimated size of affected area and flow rate (show affected area on map);
    b. Evidence of odors, including presence or absence, characterization, source, and distance of travel from source;
    c. Evidence of erosion and/or daylighted waste;
    d. Vegetation coverage; and
    e. Measurement of groundwater elevations.

3. Receiving Waters:
    a. Floating and suspended materials of waste origin, including their presence or absence, source, and size of affected area;
    b. Discoloration and turbidity: description of color, source, and size of affected area;
    c. Evidence of odors, including presence or absence, characterization, source, and distance of travel from source;
    d. Evidence of beneficial use, such as presence of water associated with wildlife, and evidence of any stressed vegetation;
    e. Estimated flow rate, if possible, and for tidally-influenced water bodies, flow direction; and
    f. Weather conditions, such as estimated wind direction and velocity, total precipitation.

Facilities Inspections

"Facilities inspections" refers to the inspection of all containment and control structures and devices associated with the Landfill and overlying development. Containment and control facilities may include the following:

1. Final cover;
2. Stormwater management system elements such as perimeter drainage and diversion channels, ditches and down-chutes, and detention and sedimentation ponds or collection tanks;
3. Landfill gas collection system; and
4. Leachate extraction system elements such as leachate storage tanks, pumps and control equipment.
5. Groundwater monitoring well network.

Quality Assurance/Quality Control Sample Monitoring

The Dischargers shall collect duplicate, field blank, equipment blank (if appropriate) and trip blank samples for each semiannual monitoring event at the following frequencies:

1. Duplicate sample – one sample per 20 regular samples;
2. Field blank – one per semiannual monitoring event;
3. Equipment blank – one sample per 10 monitoring stations; and
4. Trip blank – one sample per cooler.

C. REPORTING REQUIREMENTS

Discharger reporting responsibilities are specified in the Water Code sections 13260, 13267 subdivision (b), and13383 and this Regional Water Board's Resolution No. 73-16 and Order No. 93-113. At a minimum, each SMR shall include the following information:

1. Transmittal Letter: A cover letter transmitting the essential points of the monitoring report shall be included with each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall also certify the completion of all monitoring requirements. The letter shall be signed by the Dischargers' principal executive officer, or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

2. Graphic Presentation: The following maps, figures, and graphs (if applicable) shall be included in each SMR to visually present data collected pursuant to this SMP:

    a. Plan-view maps showing all monitoring and sampling locations, waste management units, containment and control structures, treatment facilities, surface water bodies, and Landfill/property boundaries;
    b. Groundwater level/piezometric surface/leachate contour maps for each groundwater-bearing zone of interest showing inferred groundwater gradients and flow directions under/around the Landfill based upon the past and present water level elevations and pertinent visual observations; and
    c. Any other maps, figures, photographs, cross-sections, graphs, and charts necessary to visually demonstrate the appropriateness and effectiveness of sampling, monitoring, characterization, investigation, or remediation activities relative to the goals of this SMP.

3. Tabular Presentation: The following data (if applicable) shall be presented in tabular form and included in each SMR to show a chronological history and allow quick and easy reference:

    a. Well designation;
    b. Well location coordinates (latitude and longitude);
    c. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation);
    d. Groundwater and leachate depths;
    e. Groundwater and leachate elevations;
    f. Current analytical results (including analytical method and detection limits for each constituent);
    g. Historical analytical results (including at least the past five years unless otherwise

requested); and
h. Measurement dates.

4. Compliance Evaluation Summary and Discussion:

   a. A summary and certification of completion of all environmental media monitoring, standard observations, and facilities inspections;
   b. The signature of the laboratory director or his/her designee indicating that he/she has supervised all analytical work in his/her laboratory; and
   c. A discussion of the field and laboratory results that includes the following information:

      i. Data interpretations;
      ii. Conclusions;
      iii. Recommendations;
      iv. Newly implemented or planned investigations and remedial measures;
      v. Data anomalies;
      vi. Variations from protocols;
      vii. Condition of wells; and
      viii. Effectiveness of leachate monitoring and control facilities.

5. Appendices: The following information shall be provided as appendices in electronic format unless the information is already contained in a monitoring report approved by Regional Water Board staff and referenced in the SMR:

   a. New boring and well logs;
   b. Method and time of water level measurements;
   c. Purging methods and results, including:

      i. The type of pump used, pump placement in the well, and pumping rate;
      ii. The equipment and methods used to monitor field pH, temperature, and electrical conductivity;
      iii. The calibration of the field equipment used to measure pH; temperature, conductivity, and turbidity; and
      iv. The method of disposing of the purge water.

   d. Sampling procedures, field, equipment, and travel blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name of the person actually taking the samples, and any other relevant observations; and
   e. Documentation of laboratory results, analytical methods, detection limits (DLs) and reporting limits (RLs), and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling.

D. CONTINGENCY REPORTING

1. The Dischargers shall report to the Regional Water Board by telephone (510-622-2369) any measurably significant discharge from the Landfill immediately after it is discovered. The Dischargers shall submit a written report with the Regional Water Board within five days of discovery of any discharge. The written report shall contain the following information:

   a. A map showing the location(s) of discharge;
   b. Approximate flow rate;

c. Nature of effects (e.g., all pertinent observations and analyses); and
d. Corrective measures underway or proposed.

2. The Dischargers shall submit a written report to the Regional Water Board within seven days of determining that a statistically significant difference occurred between a SMP sample set and an approved Water Quality Protection Standard (WQPS). The written report shall indicate which WQPS(s) has been exceeded. If appropriate, within 30 days the Dischargers shall resample at the compliance point(s) where this difference occurred.

3. If re-sampling and analysis confirms the earlier finding of a statistically significant difference between SMP results and WQPS(s), the Dischargers shall, upon determination by the Executive Officer, submit to the Regional Water Board an amended Report of Waste Discharge (ROWD) for establishment of an Evaluation Monitoring Program (EMP) meeting the requirements of Title 27, section 20425.

E. REPORTING REQUIREMENTS

The Dischargers shall submit SMRs to Regional Water Board staff in accordance with the schedule indicated in Table B-1. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results pertaining to each monitoring period are clearly distinguishable.

F. MAINTENANCE OF WRITTEN RECORDS

The Dischargers shall maintain information required pursuant to this SMP for at least five years. The five-year period of retention shall be extended during the course of any unresolved litigation regarding a discharge or when requested by the Regional Water Board.

PART B

A. MONITORING LOCATIONS AND FREQUENCY

Monitoring locations, frequencies, parameters, and analytes are specified in Table B-1 of this SMP and as indicated below. Monitoring locations are shown in Figure 2.

1. **Environmental Media**

   a. Groundwater: Groundwater shall be monitored at the locations specified in Table B-1 and shown on Figure 2. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1.
   b. Leachate: Leachate shall be monitored at the locations specified in Table B-1 and shown on Figure 2. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1.
   c. Stormwater: As outlined in the Post-Closure Maintenance Plan.
   d. Surface Water: Surface water shall be monitored at the locations specified in Table B-1. Figure 2 shows the existing sampling locations. However, the sampling locations for the Guadalupe River appear to be located along a drainage ditch at the eastern edge of Parcel 1 and 2. These need to be relocated to properly monitor upstream and downstream within the Guadalupe River unless it is confirmed that groundwater/leachate discharges into the drainage ditch, in which case the drainage ditch would be an appropriate surface water monitoring location. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1. Surface water samples shall be collected during tidal outflow periods.
   e. Any additional monitoring as required by the provisions of this Order.

2. **Standard Observations**

   Standard observations (described in Part A) shall be made within the Landfill, along the perimeter of the Landfill, and of the water courses and receiving waters beyond their limits. Standard observations shall be conducted at the frequency specified in Table B-1.

3. **Facilities Inspections**

   The Dischargers shall inspect all containment and control structures and devices associated with the Landfill to ensure proper and safe operation.

4. **Quality Assurance/Quality Control Samples**

   The QA/QC samples shall be analyzed for VOCs (field blank, equipment blank and trip blank) or for the same tests as a regular sample (duplicate sample).

B. REPORTING SCHEDULE

The City shall submit SMRs to Regional Water Board staff in accordance with the schedule indicated in Table B-1. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results pertaining to each monitoring period are clearly distinguishable.

Table B-1: Self-Monitoring Program

Groundwater (POC) Wells: G-1, G-2R, G-3R, G-4R, G-5, G-6, G-7, G-8, G-10, G-11. G-12, G-13, G-14, G-15, G-16R, G-17, G-18, G-19, G-21, H-5, H-6, H-7

Leachate Piezometers: L-1, L-2, L-3, L-4, L-5, L-6, LR-1

Surface Water: SW-1, through SW-4 (Guadalupe River and San Tomas Aquino Creek)

Monitoring Event	Frequency	Parameters
Monitoring Parameters (MPs) **(POC Wells and LP-1)**	**Semi-Annually** 1st Semi-Annual Sampling event/ 2nd Quarter REPORT DUE: July 31 (may be combined with subsequent event; 2nd Semi-Annual Sampling event/ 4th Quarter REPORT DUE: January 31	**Bicarbonate Alkalinity** **Total Kjeldahl Nitrogen** **Total Organic Carbon** **Total Petroleum Hydrocarbons as Gasoline and Diesel** (without silica gel cleanup) **Volatile Organic Compounds** (Subtitle D Appendix I + 1,4 Dioxane) **Dissolved Metals** (Subtitle D Appendix I) **Field Parameters –** pH, electrical conductivity, temperature, turbidity, and dissolved oxygen
Groundwater and Leachate Levels	**Semi-Annually**	**As detailed in Part A**
Standard Observations	**Quarterly**	**As detailed in Part A**
Constituents of Concern **(POC Wells and LP-1)**	**Once every five years** Beginning 2017 (Report due with 2nd Semi-Annual report for 2017)	**Monitoring Parameters and Volatile Organic Compounds** (Subtitle D Appendix II)