

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**STAFF SUMMARY REPORT (ALYX KARPOWICZ)
MEETING DATE: March 14, 2018**

ITEM: 5B

SUBJECT: WASTE MANAGEMENT OF CALIFORNIA, INC., KIRBY CANYON RECYCLING AND DISPOSAL FACILITY, SAN JOSE, SANTA CLARA COUNTY - Updated Waste Discharge Requirements and Rescission of Order No. R2-2007-0021

CHRONOLOGY: Waste Discharge Requirements (WDRs) were adopted in 1985 and 1993, amended in 1994 and 1997, and updated in 2007.

DISCUSSION: The Revised Tentative Order (Appendix A) would update WDRs for Waste Management's Kirby Canyon Landfill to 1) update site ownership information; 2) reflect the construction of additional disposal cells and a new leachate impoundment; 3) recognize successful completion of tasks and requirements in the 2007 WDRs; 4) allow continued filling of Cell 1; and 5) rescind the 2007 WDRs.

The landfill began operation in 1986 as a municipal refuse disposal site located in the hills of southern San Jose, east of highway 101. To date, more than 11 million cubic yards of waste have been deposited, and the remainder of the landfill's currently permitted disposal cells will provide sufficient capacity for approximately 30 more years.

Staff made minor changes to the tentative order circulated for public comment in response to comments received from Waste Management, as described in the Response to Comments (Appendix B). We expect this item to remain uncontested.

**RECOMMEN-
DATION:** Adoption of the Revised Tentative Order (Appendix A)

FILE NO. 2189.8128(AJK)

APPENDICES: A – Tentative Order
B – Response to Comments on the Tentative Order

Appendix A

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

REVISED TENTATIVE ORDER No. R2-2018-00XX

**UPDATED WASTE DISCHARGE REQUIREMENTS AND
RESCISSION OF ORDER No. R2-2007-0021 for:**

**WASTE MANAGEMENT OF CALIFORNIA, INC.
KIRBY CANYON RECYCLING AND DISPOSAL FACILITY
CLASS III SOLID WASTE DISPOSAL FACILITY
SAN JOSE, SANTA CLARA COUNTY**

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

- 1) Waste Management of California, Inc. (hereinafter, WMC or the Discharger), owns and operates the Kirby Canyon Recycling and Disposal Facility (hereinafter, KCRDF or the landfill), a Class III municipal refuse disposal site located in the City of San Jose.
- 2) KCRDF began operation in 1986, providing household waste disposal services for communities within and surrounding Santa Clara County. As a canyon-fill operation, disposal cells within the landfill boundary are constructed sequentially as interim grades are reached in previously constructed cells. To date, approximately 11.4 million cubic yards of waste have been deposited in the landfill.

PURPOSE OF ORDER

- 3) The purpose of this Order is to:
 - a) Update ownership information;
 - b) Update waste discharge requirements (WDRs) to reflect the construction of additional landfill cells and a new leachate impoundment since WDRs were last updated in 2007;
 - c) Recognize successful completion of tasks and requirements in the 2007 WDRs;
 - d) Allow for continued filling in Cell 1; and
 - e) Rescind previous Water Board Order No. R2-2007-0021.
- 4) The liner design requirements specified in this Order have been updated since the previous WDRs were adopted in 2007 (Order No. R2-2007-0021). All landfill cells constructed since 1993 have utilized a liner design consistent with the requirements in the 2007 WDRs.
- 5) This Order does not authorize the filling of wetlands or waters of the State at the KCRDF that have not received prior water quality certification. Such activities require certification by the Water Board or the Executive Officer pursuant to section 401 of the Clean Water Act (CWA). Such activities may also require amendment or update of WDRs contained in this Order for any proposed fill area. The remaining cells approved for construction (Cells 1 through 7) have already received the necessary fill permits and will provide sufficient capacity for approximately 30 more years.

SITE DESCRIPTION AND LOCATION

- 6) The KCRDF is located in the southeastern portion of the Santa Clara Valley on the west side of the Diablo Range. The landfill lies within the southern boundary of the City of San Jose (Figure 1). Access to the landfill is from the Coyote Creek Golf Drive interchange on U.S. Highway 101.
- 7) The KCRDF is located on property owned by WMC. WMC purchased the property from Castle & Cooke Development Corporation in December 2013. The 827-acre parcel includes 311 acres designated for refuse disposal, 449 acres designated for ancillary landfill facilities and undeveloped areas, 50 acres for landfill access roads and a potential soil borrow area, and 17 acres for construction of drainage control facilities. The 311-acre permitted refuse disposal area is divided into five “fill areas” referred to as Fill Areas 1 through 5 (Figure 3). Fill areas are further subdivided into waste disposal cells (Cells 1 through 13). As a canyon-fill operation, cells are constructed in phases until the final build-out of the entire landfill configuration is reached.

REGULATORY HISTORY

- 8) In July 1983, the Discharger submitted the initial Report of Waste Discharge for the landfill. In January 1984, the City of San Jose, as lead agency, certified the Final Environmental Impact Report (EIR) for the landfill. The EIR identified adverse water quality impacts for which mitigation measures would be necessary.
- 9) On May 15, 1985, the Water Board adopted WDR Order No. 85-47. WDR Order No. 85-47 authorized operation of the KCRDF as a Class III solid waste management facility and permitted the 311-acre footprint for refuse disposal including the 5 fill areas and 13 waste disposal cells. The landfill began operation in 1986.
- 10) In September 1992, the Discharger received a water quality certification for the filling of 3.62 acres of jurisdictional wetlands and waters of the United States consisting of seeps, springs, and seasonal watercourses within the landfill boundary. The filling of these wetlands was associated with the design, construction, and fill plans for the entire landfill. The Discharger mitigated these impacts by creating or enhancing a total of 7.3 acres of wetlands and planting 3.7 acres of riparian and upland shrubs, trees, and grasses surrounding the wetland areas.
- 11) On June 16, 1993, the Water Board adopted WDR Order No. 93-055, which updated liner requirements and the groundwater monitoring program for Cells 2/5 consistent with State regulations and the federal regulations governing management of non-hazardous solid waste, found in Subtitle D of title 40 of the Code of Federal Regulations (40 CFR Parts 239-259).
- 12) On January 19, 1994, the Water Board adopted WDR Order No. 94-011 amending Order No. 93-055. The amendment permitted acceptance of designated wastes, as defined in California Water Code (Water Code or CWC) section 13173, and wastes classified as non-hazardous pursuant to State and federal laws and regulations in cells constructed to federal Subtitle D and State Class II landfill design standards.

- 13) On August 20, 1997, the Water Board adopted WDR Order No. 97-099 further amending Order No. 93-055. Order No. 97-099 approved the use of a specific engineered alternative base liner design for Cells 2/5, Phase IId. The approved engineered alternative substituted a geosynthetic clay liner for a compacted-clay liner along the landfill cell side slopes.
- 14) On November 10, 2003, the Executive Officer issued water quality certification for fill activities in the upper reaches of Watercourse B related to construction of the later phases of Cells 3/4 (Fill Area 1) and Cell 6 (Fill Area 2). In October 2006, the Discharger proposed offsite mitigation for impacts to Watercourse B to occur within a headwater tributary to Upper Penitencia Creek. The enhanced mitigation project would include a) the previously proposed preservation and enhancement of Watercourse A, including the creation of a 1.2-acre mitigation wetland at the base of Watercourse A; b) conversion of a failing stockpond along a headwater tributary to Upper Penitencia Creek into a stable habitat suitable for use by California red-legged frog; and c) the Alum Rock Upper Penitencia Creek Restoration Project, which proposed creating additional wetland habitat along Watercourse B. The locations of these watercourses and mitigation projects are discussed in more detail in Findings 19 and 20 and shown on Figure 2 and 3.
- 15) In 2007, the Water Board adopted WDRs (Order No. R2-2007-0021) to recognize the construction of additional landfill cells, a new leachate impoundment, and changes to the groundwater and surface water monitoring programs. Order No. R2-2007-0021 rescinded previous Water Board Order Nos. 85-47, 93-055, 94-011, and 97-099. The Order required technical reports to evaluate and make recommendations for the improvement of the stormwater and leachate management systems, leak detection systems for the leachate storage impoundments, and leachate monitoring for the landfill, as well as to provide financial assurance every five years. The Discharger submitted one technical report to satisfy all three requirements, and, between 2007 and 2010, all recommended changes were made to improve stormwater and leachate management, monitoring, and storage. Financial assurance documentation was submitted between 2012 and 2017 for both corrective action and post-closure monitoring and maintenance.
- 16) In January 2013, the Discharger completed the construction of mitigation wetlands in Watercourse A and, in November 2015, head-cut repairs and open water pool construction in Watercourse A. The Alum Rock Upper Penitencia Creek Restoration was completed in January 2016. More information about these watercourses and projects is described in Findings 19 and 20 below.

SURFACE HYDROLOGY

- 17) The landfill is located in the foothills of Coyote Ridge in the Coyote Creek watershed just west of Anderson Reservoir, a drinking water reservoir operated by the Santa Clara Valley Water District (SCVWD). The Coyote Creek watershed is an important recharge area for the Santa Clara Valley Groundwater Basin, which is a major drinking water supply basin managed by SCVWD.
- 18) The natural site topography varies from moderate to steep, with elevations ranging from about 400 feet above mean sea level (msl) along the west side of the site to nearly 1,300 feet above msl along the east boundary.

- 19) The landfill encompasses three major canyons and six drainages identified as Watercourses A through F (Figure 2). All onsite drainages cut through serpentinite-derived soils and serpentinite bedrock, with some exhibiting bedrock pools or step-pool morphology. Watercourses A, B, E, and F are perennial streams with water sources from springs. Watercourses C and D are ephemeral, going dry in the dry season. Disposal Cells 1 and 2/5 are constructed within Watercourse B, separating the upper watershed from the lower watershed such that Watercourse B now exists as discontinuous perennial and ephemeral stream segments. A mitigation wetland built in 1997 is located at the base of Watercourse B and derives water from nearby springs and seeps and also from periodic releases of impounded stormwater from the landfill's stormwater sedimentation basin during the wet season (Figure 3 and 6). Impacts to jurisdictional waters, wetlands, and federally-listed species caused by landfill activities that have occurred and are planned to occur in Watercourse B have been mitigated by the following:
- i) the construction of wetlands and breeding habitat at the base of Watercourse B;
 - ii) the construction of wetlands, repair of erosion, and construction of pools for California red-legged frog in Watercourse A; and
 - iii) the removal of a dam and restoration of Penitencia Creek near its headwaters in an offsite location upstream of Alum Rock Park in the Sierra Vista Open Space Preserve (called the Upper Penitencia /Alum Rock site). The offsite location is north of the KCRDF and is within the watershed of San Francisco Bay.

Overall, the mitigation in these locations includes:

- i) 1.3 acres of wetland creation and 0.5-acre of riparian habitat at the base of Watercourse A;
 - ii) preservation and enhancement of 1.3 acres and 13,010 linear feet of stream in Watercourse A;
 - iv) a conservation easement over 180 acres of Watercourse A;
 - v) \$40,000 funding for the San Francisco Bay Estuary Institute's completion of the Upper Penitencia Creek Focused Historical Ecology Assessment; and
 - vi) removal of a stock pond dam on Upper Penitencia Creek and the subsequent restoration of 725 linear feet of stream channel and 70 linear feet of tributary channel, including restoration/creation of 0.10-acre of in-channel seasonal wetlands, 0.10-acre of riparian habitat, 0.22-acre of off-channel seasonal wetland, and 0.08-acre of off-channel open water habitat.
- 20) Stormwater runoff from the landfill flows into a sedimentation basin where it is either reused, evaporated, or released downstream. Stormwater released from the sedimentation basin flows into the mitigation pond and wetland at the base of Watercourse B and then to SCVWD's Coyote Canal. Both this Canal and nearby Coyote Creek serve as recharge sources for the Santa Clara Valley Groundwater Basin. See Figure 6.

GEOLOGY AND SEISMICITY

- 21) The landfill is bounded on the northeast by the Silver Creek fault and on the southwest by the Coyote Creek fault. The closest Holocene fault is the Calaveras fault, which is located 1.8 miles northeast of the site. The San Andreas fault, located approximately 11.4 miles

southwest of the site, and the Calaveras fault have had extensive historic earthquake activity.

- 22) The geology beneath the landfill includes three lithologic units: alluvium, weathered serpentinite, and unweathered serpentinite. Surface soils are a thin layer of alluvial and colluvial material derived from the underlying serpentinite bedrock. This alluvial unit is relatively thin on the ridge tops and slopes (1-5 feet) and thicker in gully bottoms (3-10+ feet). Underlying the alluvial unit is weathered serpentinite bedrock, which extends to approximately 20 to 30 feet below ground surface (bgs) in the valley areas and approximately 100 feet on or near ridge tops. This formation contains numerous iron-stained, clay-filled fractures. The weathered serpentinite interval is underlain by unweathered serpentinite, which extends beyond 200 feet bgs. The unweathered bedrock is composed of dark green to blue-gray, highly plastic to well-indurated serpentinite.

HYDROGEOLOGY

- 23) Groundwater occurs in all three lithologic units present at the site. However, the volume of shallow groundwater occurring in the serpentinite formation underlying the site is very limited. Water balance and flow calculations indicate that the alluvial zone provides approximately 95% of the groundwater flow through the canyon in which Cells 2/5 and 3/4 are located. The alluvial sediments occur in the central contour of the canyon and do not extend up the canyon side slopes and/or into surrounding upland areas. Groundwater monitoring for Cell 1, Cells 2/5, and Cells 3/4 is performed in the alluvial sediments and underlying bedrock in the canyon downgradient of the cells. Additional groundwater monitoring for Cell 7 is performed in a separate canyon downgradient of that unit.
- 24) Groundwater flows in a westerly and southwesterly direction along the major canyons toward the Santa Clara Valley. At depth, the Coyote Creek fault separates the serpentinite beneath the landfill from the Santa Clara Formation to the west and may act as a barrier to groundwater flow. The serpentinite bedrock and the Santa Clara Formation are characterized by very low hydraulic conductivity. Municipal and private wells are located in the Santa Clara Valley Alluvium; the closest wells are approximately one mile north of the site. The KCRDF installed a supply well onsite in 2016 to augment supplies needed for daily operations.

WASTES AND THEIR CLASSIFICATION

- 25) The landfill was designed to receive nonhazardous solid waste as classified in California Code of Regulations title 27 (CCR title 27), section 20220(a) from residential, commercial, and industrial sources. Nonhazardous solid waste includes but is not limited to putrescible and nonputrescible solid, semi-solid, and liquid wastes including household wastes, food wastes, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, and soil.
- 26) Although the KCRDF is classified as a Class III landfill, which means that it may accept nonhazardous wastes, all currently existing cells except for Cell 1 have been designed and constructed in compliance with federal Subtitle D requirements and State Class II siting criteria and design requirements in CCR title 27, section 20250. Class II landfills may also accept "designated waste," which under Water Code section 13173, is either: "a) hazardous waste that has been granted a variance from hazardous waste management requirements

pursuant to section 25143 of the California Health and Safety Code, or b) nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit (cell), could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of waters of the state.” Accordingly, cells meeting Class II requirements generally provide a higher degree of water quality protection and may accept designated waste for disposal. Therefore, this Order remains consistent with the Water Board’s prior approval for the KCRDF (WDR Order No. 94-011), which permits the acceptance of non-hazardous waste and designated waste in cells constructed to federal Subtitle D and State Class II standards.

- 27) This Order also allows the landfill to receive nonhazardous solid waste and designated waste within cells that are constructed to federal Subtitle D and State Class II standards, including the following, which may require special handling:
- a. Sludge
 - b. Dead animals
 - c. Ashes
 - d. Contaminated soil
 - e. Pesticide containers triple-rinsed in accordance with CCR title 22, section 66261.7
 - f. Wastes and materials containing lead at concentrations less than the hazardous-waste threshold pursuant to CCR title 22, section 66261.3
 - g. Chemically-treated metal shredder residue (formerly called treated auto shredder waste)
 - h. Treated wood waste.

The only cell not currently meeting these standards is Cell 1.

- 28) “Treated wood” means wood that has been treated with a chemical preservative registered pursuant to the federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following) for the purpose of protecting the wood against decay. Such preservatives include: chromated copper arsenate, pentachlorophenol, creosote, acid copper chromate, ammoniacal copper arsenate, ammoniacal copper zinc arsenate, or chromated zinc chloride.
- 29) Federal Resource Conservation and Recovery Act regulations exempt most treated wood waste from regulation as a hazardous waste (40 CFR 261.4). State law permits treated wood waste meeting certain characteristics to be disposed of in municipal landfill cells that have a composite liner constructed to federal Subtitle D and State Class II standards (Health and Safety Code Section 25150.8; CCR., tit. 22, § 67386.1 et seq.). The KRCDF meets both the federal and State standards for disposal of treated wood waste.

FILL SEQUENCING

- 30) Refuse disposal began in Cell 1 of Fill Area 1 in 1986. By 1993, Cell 1 had reached its interim grades with over one million cubic yards of refuse, and construction had begun on Cells 2/5. The final grades planned for Cell 1 cannot be achieved without prior waste filling in adjacent cells. Filling of Cells 2/5 occurred from 1993 through 2005. In 2000, as Cells 2/5 neared interim grades, construction began on Cells 3/4. The first two phases of Cells 3/4 (Phases 1a & 2a) have been constructed. In 2004, construction began on Cell 7 in Fill Area 3. Cell 7, Phase 1 was constructed in 2005 and began accepting waste in September 2005. Cell 7, Phase 2 was constructed in 2007 and began accepting waste at the end of 2008. Cell

3/4, Phase 3a was constructed in 2017 and is currently accepting waste; additional portions of Cells 3/4 will be constructed at a later date. Figure 4 shows final grades for Cells 1-7. Figure 3 shows the locations of these disposal cells.

- 31) Future fill plans consist of development of Cell 6 in Fill Area 2, which is anticipated to provide 10 to 15 years of airspace. When the development of Cell 6 is completed, additional phases of Cell 3/4 will be developed. Development beyond this point will proceed into Fill Areas 3, 4, and 5. Filling of wetlands or waters of the State at the KCRDF (which have not received prior water quality certification) requires issuance of water quality certification by the Water Board or the Executive Officer pursuant to CWA section 401 and may require amendment or update of WDRs contained in this Order for the proposed fill area.

LANDFILL DESIGN, CONSTRUCTION, AND OPERATION

Cell 1:

- 32) Cell 1 was constructed in 1985 in accordance with Order No. 85-47. Cell 1 does not have a composite base liner; a thin veneer of gunnite and/or bentonite clay was applied directly above the prepared subgrade. The containment system for Cell 1 consists of a hydraulic barrier composed of a toe berm and grout curtain constructed at the toe of the cell and a dendritic-type leachate collection and spring water interceptor system.
- 33) The leachate collection and recovery system (LCRS) for Cell 1 includes two leachate extraction wells (RE-01 and RE-02) installed approximately 60 feet deep and equipped with submersible pumps that discharge automatically to a leachate collection pipe. The leachate interceptor system drains under gravity to an onsite surface impoundment. Initially, this system was separate from the subdrain; however, at some point leachate or landfill gas began to enter the subdrain, and, as a result, the discharge pipes for the subdrain and LCRS were connected to ensure that all leachate was captured and treated.
- 34) The 2007 WDRs contained wording that both the Water Board and the Local Enforcement Agency (LEA), the City of San Jose, interpreted to mean Cell 1 had reached final fill capacity and was no longer receiving waste. In August 2016, the LEA contacted the Water Board regarding its August 18, 2016, site inspection, in which it observed preparations for waste placement in Cell 1. In January 2017, WMC submitted a compilation of documents stating that continued filling in Cell 1 had been planned for many years and was necessary to achieve final landfill grades. WMC formally requested permission to continue disposing waste in Cell 1.

On August 23, 2017, the Water Board sent a notice to WMC prohibiting the continued filling of the unlined Cell 1 until a more complete evaluation of data could be conducted. WMC's September 2017 submittal evaluated whether the existing LCRS could adequately capture any additional leachate generated from additional waste placement. A report prepared for WMC by GeoSyntec Consultants in October 1999 concluded that additional waste placement in Cell 1 would not generate additional leachate, and an August 2017 reanalysis of the 1999 conclusions determined that since less waste had been placed in Cell 1 than had been predicted in 1999, the existing LCRS could adequately handle leachate generated by additional waste placement. Based on the conclusions of these two reports, the Water Board provided interim approval in September 2017 of continued filling in Cell 1.

This Order formally recognizes that WMC intends to continue waste placement in Cell 1 until final fill elevation and grades are achieved, at which point Cell 1 will be closed and capped.

Cell 2/5:

- 35) Cell 2/5 covers approximately 36 acres of the first major canyon (Figure 3). As of February 2017, Cell 2/5 has been filled to an elevation of 1,165 feet. The final fill grade (including final capping) is 1,205 feet. Cell 2/5 will receive additional refuse fill to final grades in the future as the adjoining fill areas are developed.
- 36) In accordance with Order No. 93-055, the Cell 2/5 base liner was constructed with the following design components:
- Continuous or blanket spring water subdrain along the base and side slopes,
 - Composite liner consisting of an 80-mil high density polyethylene (HDPE) geomembrane above two feet of compacted clay with a permeability of less than 10^{-7} cm/sec, and
 - Blanket LCRS consisting of gravel and slotted pipe along the base and swales.

Cell 2/5, Phases 1d and 2d (located on the upper portions of the Cell 2/5 side slope) were constructed with an engineered alternative liner system that substituted a geosynthetic clay liner (GCL) in place of the two-foot thick compacted clay layer (CCL).

Cell 3/4:

- 37) The existing and proposed Cell 3/4 limits cover an area of approximately 48 acres. To date, three phases (Ia/b, IIa/b, and IIIa) of Cell 3/4 have been constructed and filled to an elevation of 1,000 feet. Cell 3/4 has a final fill grade (including final capping) of 1,205 feet, which also includes future phases of construction. The base liner design for Cell 3/4 was approved by Water Board staff in September 2017 and includes the following major components, from bottom to top:

| <u>Cell Base</u> | <u>Cell Side Slopes & Benches</u> |
|---|---|
| • Prepared subgrade | • Prepared subgrade |
| • Underdrain system (heat-bonded geocomposite) if needed | • Underdrain system (heat-bonded geocomposite) if needed |
| • 2-foot CCL, or encapsulated GCL | • 2-foot CCL, or encapsulated GCL |
| • 80-mil single-sided textured HDPE geomembrane, textured side down | • 80-mil single-sided textured HDPE geomembrane, textured side down |
| • 1-foot gravel layer | • 1-foot gravel layer on benches |
| • Non-woven geotextile | • Non-woven geotextile on benches |
| • 1-foot min. soil operations layer | • 1-foot min. soil operations layer |

Cell 7:

- 38) Cell 7 covers an area of approximately 13.4 acres and is currently receiving waste. Cell 7, Phase 1 was constructed and started accepting waste in 2005. Cell 7, Phase 2 was

constructed in 2007 and started receiving waste in fourth quarter 2008. As of February 2017, Cell 7 has been filled to an elevation of 1,020 feet. Cell 7 has a final grade (including capping materials) of 1,064 feet, as shown in Figure 4. The liner design for Cell 7 (approved by Water Board staff in September 2005) includes the following major components, from bottom to top:

| <u>Cell 7 Base Liner</u> | <u>Cell 7 Side Slopes & Benches</u> |
|---|---|
| • Prepared subgrade | • Prepared subgrade |
| • Geotextile Separator | • Geotextile separator |
| • Gravel underdrain with 6-inch slotted pipe | • Blanket geonet subdrain |
| • Geotextile separator | • Geotextile separator |
| • 2-foot thick compacted clay liner | • 40-mil double-sided textured HDPE geomembrane |
| • 80-mil single-sided textured HDPE geomembrane, textured side down | • GCL* |
| • Gravel LCRS with 6-inch slotted pipe | • 80-mil single-sided textured HDPE geomembrane, textured side down |
| • Geotextile separator | |
| • 1-foot minimum soil operations layer | • 1-foot minimum soil operations layer |

* The Cell 7 side slope design includes use of an encapsulated GCL, which consists of (1) a GCL product that is manufactured with an HDPE geomembrane on one side (i.e., geomembrane backing), or (2) a GCL without a geomembrane backing that is installed on top of a separate, double-sided, textured, 30 or 40 mil HDPE geomembrane. In either case the geomembrane is situated underneath the GCL. The HDPE geomembranes above and beneath the GCL are bonded at the edges to encapsulate the GCL, providing resistance to its complete hydration.

Leachate and Stormwater Management

39) The landfill currently has two leachate storage impoundments (LSI-2 and LSI-3) (Figure 6). The older of the two impoundments (LSI-2) was constructed in 2005 and provides about 1.1 million gallons of storage capacity for primarily untreated leachate. LSI-3 was constructed in 2009 to replace the old LSI-1 and has a 6 million gallon capacity. LSI-2 and LSI-3 both include double liners and full leak detection systems that meet State Class II impoundment standards. The liner design for LSI-3 includes the following components from bottom to top, as approved by Water Board staff in February 2009:

- Soil bedding
- GCL with 40-mil HDPE geomembrane backing
- Leak detection geonet
- 60-mil single-sided, textured HDPE geomembrane
- 2-foot operation layer.

40) Leachate from Cells 1, 2/5, and 3/4 is conveyed by gravity through a leachate transmission pipeline (part of the LCRS) to the leachate storage impoundments (LSIs) located below the toe of the landfill (Figures 5 and 6). Cell 7 leachate is pumped to the leachate transmission pipeline for the other cells and then gravity-drained to the LSIs. Separate LCRS and subdrain transmission lines are maintained for each cell; portions of these waters are

combined into the leachate transmission pipeline, and other portions are redirected to the watercourses. The leachate from Cells 2/5 and 3/4 are managed together via a continuous LCRS and a single leachate transmission pipeline. Leachate and spring water from Cell 1 is captured by two groundwater extraction wells (RE-01 and RE-02) located on the upgradient side of the Cell 1 grout curtain as well as a gravity drainage pipe.

- 41) A 6-inch diameter, double-walled pipe connects the two LSIs to allow for emergency transfer of liquids, if necessary. All leachate is currently either evaporated directly from the LSIs, recirculated in composite-lined cells of the landfill, or used for dust suppression within the composite-lined areas of the landfill. The KCRDF is evaluating options for the future treatment and beneficial reuse of leachate generated at the site. Since further use of the leachate is an option in the future, and the site is in close proximity to the Santa Clara Valley Groundwater Basin's recharge area, new analytical testing requirements have been added to the Self-Monitoring Program.
- 42) Surface water run-on and runoff from the landfill is collected by perimeter and internal drainage ditches, which drain to the surface water sedimentation basins located at the site. Stormwater collected in the sedimentation basin is either reused on or within the landfill, evaporated, or discharged downstream to maintain storage capacity for additional stormwater runoff.
- 43) When released from the sedimentation basin, stormwater flows into a mitigation pond and wetland, then to SCVWD's Coyote Canal. Both this Canal and nearby Coyote Creek serve as recharge sources for the Santa Clara Valley Groundwater Basin.

MONITORING, COLLECTION, AND CONTROL PROGRAMS

Groundwater:

- 44) The Discharger conducts groundwater and surface water monitoring in accordance with the landfill's Self-Monitoring Program (SMP, see attachment), which was implemented along with Order No. R2-2007-0021. Semi-annual sampling is required for compliance monitoring wells MW-A1, MW-WB1, MW-UB1, MW-UB2, MW-UB3, and for the spring during the first and third quarters, and for analysis of field parameters, general inorganic water quality parameters, selected dissolved metals, and volatile organic compounds (VOCs) including tetrahydrofuran (THF) and methyl-tert butyl ether (MTBE). Figure 5 shows groundwater monitoring locations.
- 45) To date, groundwater monitoring for Cells 1, 2/5, and 3/4 has consistently detected trace levels of VOCs, primarily benzene, chlorobenzene, toluene, and acetone, in four monitoring wells. Trace levels are less than the laboratory reporting limit and do not necessarily indicate a release. The Discharger has suggested that low-level detections of benzene and chlorobenzene may be associated with organic compounds indigenous to the alkaline serpentinite bedrock groundwater based on an investigation and analysis conducted in 2005. Provision 2 of these WDRs requires a technical report to further explore possible sources of these detections of benzene and chlorobenzene.
- 46) Groundwater monitoring data has shown that there are two distinct inorganic groundwater types beneath the site: 1) a near-neutral pH, magnesium-bicarbonate groundwater in the

alluvium and weathered serpentinite bedrock; and 2) a high-pH (hyper-alkaline) calcium-hydroxide groundwater in the unweathered serpentinite bedrock. The monitoring data has also shown that the hyper-alkaline calcium-hydroxide groundwater in the unweathered bedrock does occasionally mix with the magnesium-bicarbonate groundwater in the weathered bedrock and alluvium. This mixing has been observed to result in relatively short-duration changes to the inorganic chemistry of the groundwater in all three zones and in periodic control chart limit exceedances of the routine inorganic monitoring parameters (e.g., magnesium, alkalinity, and dissolved solids). The Discharger submitted a technical report prepared by GeoChem Applications in November 2014 describing the naturally-occurring mixing effects. Compliance monitoring of inorganic constituents has not provided measurably significant evidence of a release from the landfill.

Leachate

- 47) Leachate from Cells 1, 2/5, 3/4, and 7 is currently sampled at three locations: CELL-1, CELL-7, and L-03 (See Figure 5). CELL-1 is a sample port on the leachate transmission line for Cell 1. CELL-7 is a sample port of the leachate transmission line for Cell 7. L-03 is a sample port on the leachate transmission line for Cells 2/5 and 3/4. Sampling of CELL-1, CELL-7, and L-03 takes place annually during the first quarter, with analysis of field parameters, general inorganic water quality parameters, selected dissolved metals, and VOCs including THF and MTBE.

Stormwater and Surface Water

- 48) Chapter 40 of the Code of Federal Regulations (CFR), Parts 122, 123, and 124, require specific categories of industrial activities, including landfills, to obtain a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges. The State Water Resources Control Board (State Water Board) has issued a General Permit for Stormwater Discharges Associated with Industrial Activities (NPDES Permit Order No. 2014-0057-DWQ). The landfill is subject to the requirements of the State Water Board's General Permit and as such is required to (1) submit a Notice of Intent for coverage under the General Permit (last updated in October 2016 by WMC), (2) prepare and implement a monitoring program, and (3) submit an annual report. To comply with the General Permit, four qualified storm events are sampled yearly at four locations (IGP-1, IGP-2, IGP-3, IGP-RO1) shown on Figure 6. Stormwater releases from the sedimentation pond to the downstream mitigation pond and wetland are sampled at location IGP-R01. No other surface water monitoring is performed.

Landfill Gas

- 49) The Bay Area Air Quality Management District regulates the Gas Collection and Control System (GCCS). The GCCS consists of collection wells located in the landfill that are connected to a header pipeline network to transmit landfill gas under vacuum pressure to the landfill gas flare system. The landfill gas flare burns collected gas to mitigate potential pollutant emissions.

BASIN PLAN AND RESOLUTIONS

- 50) California Safe Drinking Water Act and Human Right to Water: 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 (Water Code §106.3, subd. (a)). The Safe Drinking Water Act provides that all Californians have a right to pure and safe drinking water (Health & Safety Code §116270, subd. (a)). This Order promotes that policy by requiring the Discharger to handle and dispose of waste in a manner that will protect water quality objectives, including those that protect drinking water supplies.

- 51) Basin Plan: The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the 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 Water Board and approved by the State Water Board, U.S. EPA, and the Office of Administrative Law where required. The latest version was effective as of May 4, 2017.
- 52) The Basin Plan considers all groundwater to be suitable, or potentially suitable, for municipal or domestic water supply and that, in making any exceptions, the Water Board will consider the criteria referenced in Water Board Resolution No. 88-63, "Sources of Drinking Water," where:
- a. The total dissolved solids exceed 3,000 mg/l (5,000 µS/cm, electrical conductivity), and it is not reasonably expected by the Water Board that the groundwater could supply a public water system, or
 - b. There is contamination, either by natural processes or human activity (unrelated to the specific pollution incident), that cannot 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.

BENEFICIAL USES OF SURFACE WATER AND GROUNDWATER

Groundwater:

- 53) The site resides within the boundaries of the Santa Clara Valley Groundwater Basin, as defined in the Basin Plan. The existing and potential beneficial uses identified for groundwater in this basin, according to the Basin Plan, include:
- a. Municipal and Domestic Supply (MUN)
 - b. Industrial Process Supply (PROC)
 - c. Industrial Service Supply (IND)
 - d. Agricultural Supply (AGR)
- 54) Based on the hydrogeologic characterization and water quality data for the site, groundwater underlying the site qualifies as a potential source of drinking water in accordance with Water Board Resolution No. 88-63. Therefore, all of the above current and potential beneficial uses apply to groundwater beneath the site.

- 55) The shallow groundwater at the site occurs within thin, low-yield alluvial sediments and weathered and fractured bedrock (serpentinite), so the landfill itself is neither currently used as a drinking water supply nor is it likely to be used for future water supply wells.

Surface Water:

- 56) Existing or potential beneficial uses identified for surface water in the southern Santa Clara Valley, Coyote Creek, and the Coyote Canal, according to the Basin Plan, include:
- a. Municipal and Domestic Supply (MUN)
 - b. Industrial Process Supply (PROC)
 - c. Industrial Service Supply (IND)
 - d. Agricultural Supply (AGR)
 - e. Water Contact Recreation (REC1)
 - f. Non-Water Contact Recreation (REC2)
 - g. Warm Fresh Water Habitat (WRM)
 - h. Cold Fresh Water Habitat (COLD)
 - i. Wildlife Habitat (WILD)
 - j. Preservation of Rare and Endangered Species (RARE)
 - k. Fish Migration (MIGR)
 - l. Fish Spawning (SPWN)

CALIFORNIA ENVIRONMENTAL QUALITY ACT

- 57) The City of San Jose certified a final EIR, dated September 15, 1983, for the 827-acre KCRDF in accordance with the California Environmental Quality Act (Public Resources Code Section 21000 et. seq.). The findings, prohibitions, specifications, and provisions of this Order are consistent with the certified final EIR.
- 58) Adoption of this Order relates to construction of cells in accordance with the 1983 EIR. The continued operation of the cells within the permitted waste disposal area is categorically exempt from the provision of the California Environmental Quality Act pursuant to CCR title 14, section 15301, which deals with existing facilities.

NOTIFICATION AND PUBLIC MEETING

- 59) The Water Board has notified the Discharger and interested agencies and persons of its intent to update waste discharge requirements and has provided them with an opportunity to submit their written views and recommendations.
- 60) The Water Board in a public meeting heard and considered all comments pertaining to the proposed waste discharge requirements for the site.

IT IS HEREBY ORDERED pursuant to the authority in Division 7, section 13263 of the California Water Code (CWC), title 27, Division 2, Subdivision 1 of the California Code of Regulations (CCR title 27), and State Water Board Resolution No. 93-62 that the Discharger, its agents, successors, and assigns shall meet the applicable provisions contained in CCR title 27, CWC section 13263, and State Water Board Resolution No. 93-62 and shall comply with the following:

A. PROHIBITIONS

1. Waste shall not be exposed at the surface of any cell where active filling is not occurring.
2. Designated (i.e., State Class II) waste shall not be placed into Cell 1.
3. Wastes shall not be disposed of in any position where they can be carried from the disposal site and discharged into waters of the State or of the United States.
4. The discharge of wastes, which have the potential to reduce or impair the integrity of the containment structures or which, if commingled with other wastes in the unit could produce chemical reactions that create heat, pressure, fire, explosion, toxic by-products, or reaction products, is prohibited.
5. The relocation of wastes is prohibited without prior Water Board staff concurrence.
6. The relocation of wastes to or from any cell shall not create a condition of pollution or nuisance as defined in CWC subsections 13050 (l) and (m). Any relocated waste shall not be placed in or allowed to contact ponded water from any source whatsoever. Wastes shall not be relocated to any location where they can be discharged into waters of the State or of the United States.
7. Excavation within or reconfiguration of any existing cell is prohibited without prior concurrence of Water Board staff. Minor excavation or reconfiguration activities, such as for installation of signs or landscaping or for routine maintenance and repair, do not require prior staff concurrence.
8. Wastes shall not be placed in any area of a new cell/disposal area without Executive Officer approval based on receipt of an adequate construction quality assurance report(s) certified by a California registered civil engineer or California certified engineering geologist.
9. Construction of the containment features of all future cells must comply with this Order, CCR title 27, and State Water Board Resolution No. 93-62.
10. The discharge or storage of hazardous waste, as defined in CCR title 23, sections 2521 and 2522, Article 2 of Chapter 15, and as defined in CCR title 22, at the landfill is prohibited.
11. The groundwater shall not be degraded as a result of the waste disposal operation.
12. Filling of wetlands or other waters of the State at the KCRDF without water quality certification issued by the Water Board or the Executive Officer pursuant to CWA section 401 is prohibited.

13. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes during the life of the site.
14. Buildup of leachate levels within the landfill is prohibited and shall be prevented by operation of a leachate extraction system. The depth of leachate shall not be greater than 12 inches above the bottom liner.
15. Leachate, or stormwater or groundwater containing leachate or in contact with waste, shall not be discharged to waters of the State or of the United States unless specifically authorized under an NPDES permit.
16. The treatment, storage, or discharge of groundwater or leachate shall not create a condition of pollution or nuisance as defined in CWC section 13050(m) nor degrade the quality of waters of the State or of the United States.
17. The Discharger shall not cause the following conditions to exist in waters of the State or of the United States at any place outside the landfill boundary:
 - a. Surface Waters:
 - (1) Floating, suspended, or deposited macroscopic particulate matter or foam
 - (2) Bottom deposits or aquatic growth
 - (3) Adverse changes in temperature, turbidity, or apparent color beyond natural background levels
 - (4) Visible, floating, suspended, or deposited oil or other products of petroleum origin
 - (5) Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.
 - b. Groundwater:
 - (1) Degradation of groundwater quality; or
 - (2) Substantial worsening of existing groundwater impacts
18. Migration of pollutants through subsurface transport to waters of the State is prohibited.

B. SPECIFICATIONS

1. The Discharger shall conduct monitoring activities according to the SMP attached to this Order, and as may be amended by the Executive Officer, to verify the effectiveness of landfill closure systems including groundwater, surface water, leachate, and landfill gas containment, collection, treatment, and removal.
2. At any time, the Discharger 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.

3. The Discharger shall install any reasonable additional monitoring devices for groundwater, surface water, leachate, and landfill gas required to fulfill the terms of any future SMP issued by the Executive Officer for the landfill.
4. The Discharger shall maintain, inspect, repair, and replace all devices installed in accordance with this Order such that they continue to operate as intended without interruption.
5. The Discharger shall design and construct precipitation and drainage control facilities with a minimum capacity to accommodate a 100-year, 24-hour storm event.
6. The Discharger shall protect the site 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.
7. The Discharger shall construct and maintain all landfill foundation and structures or devices for erosion control and water, leachate, and gas containment and monitoring to withstand conditions generated during the maximum probable earthquake.
8. The Discharger shall operate and maintain containment, collection, drainage, and monitoring systems for groundwater, surface water, and leachate for as long as waste or leachate is present and poses a threat to water quality.
9. The Discharger shall operate and maintain the leachate discharge system to minimize undue buildup of hydraulic head on the bottom of the landfill and ensure that accumulated fluid is being adequately removed from the landfill and appropriately contained and discharged.
10. Methane and other landfill gases shall be adequately vented, removed from the landfill, or otherwise controlled to minimize the danger of explosion, adverse health effects, nuisance conditions and the impairment of beneficial uses of water due to gas migration.
11. Discharge of leachate and gas condensate is 1) limited to areas of the landfill that are equipped with a composite liner and LRCS and 2) limited to the unit of the landfill from which derived except as otherwise approved by the Executive Officer. Leachate collected from Cell 1 shall be discharged only to a portion of the landfill that meets condition 1) above and Specification B.12 or to the landfill's leachate treatment and storage facility.
12. Recirculation of leachate or gas condensate to a different cell or unit from where it was generated shall be allowed with an acceptable operation, monitoring, and maintenance plan approved by the Executive Officer. At a minimum, 1) the receiving cell or unit must have a composite liner and LRCS designed to federal Subtitle D and State Class II standards, 2) the leachate generation and buildup above the liner must be monitored separately for each receiving cell or unit and is limited to 12 inches deep or less, and 3) recirculation may not occur under pressures exceeding gravity drainage.
13. Final and interim covers for the landfill shall be graded and maintained to promote lateral runoff of precipitation and prevent ponding or infiltration of water on or within the landfill.

14. The Discharger must install final landfill covers upon reaching the final fill height for each disposal cell.
15. The Discharger shall implement a Detection Monitoring Program (DMP), pursuant to CCR 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) required pursuant to CCR title 27, section 20390. The SMP attached to this Order is intended to constitute the DMP for the landfill.
16. The WQPS for the KCRDF shall include the following:
 - a. Constituents of Concern: CCR title 27, section 20395 defines Constituents of Concern (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.” COCs for the KCRDF include monitoring parameters identified in the SMP attached to this Order, or any future amendment thereof, and all Appendix II parameters in the federal Subtitle D regulations.
 - b. Monitoring Parameters: Monitoring parameters (MPs), a subset of the COCs, are typically the most mobile and commonly detected COCs in groundwater at a site and are measured on a more frequent basis than the entire list of COCs. The MPs for the KCRDF shall include, at a minimum, all constituents identified as such in the SMP attached to this Order, or any future amendments thereof. The Discharger 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 (CLs) for all COCs detected at the specified points of compliance shall be established using the background data set pursuant to CCR title 27, section 20400. A control chart limit shall be calculated from the background data set using statistical methods as appropriate.
 - d. Point of Compliance: CCR title 27 defines the Point of Compliance (POC) as the “vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.” The POC for the KCRDF shall be the hydraulically downgradient perimeter of the waste fill area.
 - e. Monitoring Points: CCR title 27 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 KCRDF, which are located along the POC and at additional locations, are specified in the SMP attached to this Order, or any future amendments thereof.
17. Whenever there is “measurably significant” evidence (as defined in CCR title 27, section 20164) or significant physical evidence of a release, the Discharger shall be prepared to implement an Evaluation Monitoring Program (EMP) pursuant to CCR title 27, section 20425, at the direction of the Water Board. In such a case, the Discharger shall continue implementing the DMP as prescribed in any SMP attached to this Order. If required, the

EMP shall be implemented to determine the nature and extent of any release detected by the DMP.

18. Future landfill cell base liners shall be constructed consistent with the design and components specified below, from bottom to top, which are consistent with the newest phase of Cell 3/4. Alternative liner designs and/or components must be approved by the Executive Officer. Liner designs consistent with the following specifications will likely streamline the Water Board staff liner design review process.

| <u>Cell Base</u> | <u>Cell Side Slopes & Benches</u> |
|---|---|
| <ul style="list-style-type: none"> • Prepared subgrade | <ul style="list-style-type: none"> • Prepared subgrade |
| <ul style="list-style-type: none"> • Underdrain system (heat-bonded geocomposite) if needed | <ul style="list-style-type: none"> • Underdrain system (heat-bonded geocomposite) if needed |
| <ul style="list-style-type: none"> • 2-foot CCL, or encapsulated GCL | <ul style="list-style-type: none"> • 2-foot CCL, or encapsulated GCL |
| <ul style="list-style-type: none"> • 80-mil single-sided textured HDPE geomembrane, textured side down | <ul style="list-style-type: none"> • 80-mil single-sided textured HDPE geomembrane, textured side down |
| <ul style="list-style-type: none"> • 1-foot gravel layer | <ul style="list-style-type: none"> • 1-foot gravel layer on benches |
| <ul style="list-style-type: none"> • Non-woven geotextile | <ul style="list-style-type: none"> • Non-woven geotextile on benches |
| <ul style="list-style-type: none"> • 1-foot min. soil operations layer | <ul style="list-style-type: none"> • 1-foot min. soil operations layer |

19. Nonhazardous solid waste and designated waste shall be discharged only into composite-lined cells equipped with leachate collection and removal systems meeting federal Municipal Solid Waste construction and design requirements specified in the Subtitle D regulations and meeting State Class II siting, construction, and design requirements specified in CCR title 27, section 20250 and specifications B.5 through B.18 of this Order. Cell 1 is authorized to receive only municipal solid waste and non-designated waste.
20. Treated wood waste shall be discharged only into composite-lined cells equipped with an LCRS meeting federal Municipal Solid Waste construction and design requirements specified in the Subtitle D regulations and meeting State Class II siting, construction, and design requirements specified in CCR title 27, section 20250 and specifications B.5 through B.19 of this Order. The Discharger shall manage and dispose of treated wood waste in accordance with California Health and Safety Code sections 25143.1.5 and 25150.7. If a verified release is detected from the cell where treated wood waste is disposed, the disposal of treated wood waste shall be terminated at the cell with the verified release until corrective action ceases the release. This discharge specification applies only to treated wood waste that is a hazardous waste solely due to the presence of a preservative in the wood and is not subject to hazardous waste management regulation under the federal act.
21. The Discharger shall provide and maintain a minimum of two surveyed permanent monuments near the landfill from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the operation and post-closure maintenance periods. These monuments shall be installed by a licensed land surveyor or registered civil engineer.
22. The Discharger shall notify the Water Board immediately of any failure occurring in the landfill. Any failure that threatens the integrity of containment or control features or

structures at the landfill shall be promptly corrected after approval of the method and schedule by the Executive Officer.

23. 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, professional geologist, and/or certified engineering geologist.

C. PROVISIONS

1. Self-Monitoring Program (SMP): The Discharger shall comply with the SMP attached to this Order (Part A and Part B). Since landfills are the final repository for a heterogeneous mixture of liquid and solid waste from residential, industrial, and commercial sources, the leachate generated can consist of a diverse mixture of chemicals. Therefore, this Order requires that the Discharger prepare and submit a Work Plan, acceptable to the Executive Officer, to analyze for contaminants of emerging concern (CECs). The Work Plan should include consideration of CEC lists developed by the State Water Board and U.S. EPA and may include testing for pharmaceuticals, steroid hormones, and household and industrial chemicals. The Work Plan should also discuss how the data will be utilized.

The SMP is intended to constitute a Detection Monitoring Program (DMP) pursuant to CCR title 27, section 20420, and is designed to identify significant water quality impacts from the landfill and demonstrate compliance with the WQPS established pursuant to CCR title 27, section 20390. The attached SMP may be amended as necessary at the discretion of the Executive Officer.

COMPLIANCE DATE: SMP Compliance- Immediately
Work Plan – June 30, 2018

2. Benzene Study: The Discharger shall submit a technical report evaluating possible sources of benzene in groundwater and whether the detected benzene concentrations can be attributed to a natural source onsite.

COMPLIANCE DATE: June 15, 2018

3. Report of Waste Discharge: The Discharger shall submit a technical report, acceptable to the Executive Officer, describing any proposed material change in the character, location, or volume of a discharge or in the event of a proposed change in use or development of the landfill [CWC section 13260(c)]. The technical report shall describe the project, identify key changes to the design that may impact any portion of the landfill, and specify components of the design necessary to maintain integrity of the landfill cover and prevent water quality impacts. No material changes to any portion of the landfill shall be made without approval by the Executive Officer.

COMPLIANCE DATE: 120 days prior to any material change

4. Financial Assurance for Post Closure Monitoring and Maintenance: The Discharger shall submit to this Water Board evidence of an Irrevocable Fund, acceptable to the Executive Officer, to ensure monitoring and maintenance of the landfill during the post-closure period. Every five years, for the duration of the post-closure monitoring period, the Discharger shall submit a report that includes an outline of the financial assurance mechanism and verification

that the fund has been created. Fund value should be supported by calculations, to be included with this submittal, providing cost estimates for all post-closure monitoring, maintenance, repair, and replacement of landfill containment, cover, and monitoring systems. The fund value should be based on the sum of these estimates. The cost estimates and funding should be updated to reflect changes to monitoring systems as they occur. The post-closure maintenance period shall extend as long as landfill wastes pose a threat to water quality; however, for purposes of calculating cost estimates, a period of no less than 30 years may be used.

COMPLIANCE DATE: July 1, 2022, then every five years thereafter

5. Financial Assurance for Corrective Actions: The Discharger shall submit to this Water Board evidence of an Irrevocable Fund, acceptable to the Executive Officer, to ensure completion of any corrective action and remediation action that may be necessary as a result of current or future unforeseen releases from the landfill. Every five years, for the duration of the post-closure monitoring period, the Discharger shall submit a report that includes an outline of the financial assurance mechanism and verification that the fund has been created. Fund value should be supported by calculations, to be included with this submittal, providing cost estimates for all corrective action measures and remediation that may be required at the landfill. The fund value should be based on the sum of these estimates. The cost estimates and funding should be updated as necessary. The post-closure maintenance period shall extend as long as landfill wastes pose a threat to water quality; however, for purposes of calculating cost estimates, a period of no less than 30 years may be used.

COMPLIANCE DATE: July 1, 2022, then every five years thereafter

6. Construction-Related Stormwater Control Plans: For each grading or development project outside of the permitted landfill footprint proposed to be greater than one acre, the Discharger shall a) submit a Notice of Intent to the State Water Board; b) submit a Stormwater Pollution Prevention Plan acceptable to the Executive Officer; and c) implement best management practices (BMPs) for the control of stormwater, in accordance with requirements specified in the State Water Board's General Industrial Permit for Stormwater Discharges Associated with Construction Activities (NPDES Permit No. 2014-0057-DWQ). The Discharger will be deemed in compliance with this provision if another party constructing improvements on property owned by the Discharger, pursuant to an easement granted by the Discharger, has obtained coverage under the General Permit.

COMPLIANCE DATE: 30 days prior to construction

7. Well Installation Report: The discharger shall submit a technical report, acceptable to the Executive Officer, that provides well construction details, geologic boring logs, and well development logs for all new wells installed as part of the DMP (Attachment A).

COMPLIANCE DATE: 60 days following completion of well installation

8. Earthquake Inspection: The Discharger shall submit a detailed Post-Earthquake Inspection Report, acceptable to the Executive Officer, in the event of any earthquake generating ground shaking of Richter Magnitude 7 or greater at or within 30 miles of the landfill. The report shall describe the containment features, groundwater monitoring, and control facilities potentially impacted by the static and seismic deformations of any cell. Damage to any

waste containment facility that may impact State waters must be reported immediately to the Executive Officer.

COMPLIANCE DATE: Within 2 weeks of earthquake

9. Availability: A copy of these WDRs shall be maintained by the Discharger and shall be made available by the Discharger to all employees or contractors performing work (maintenance, monitoring, repair, construction, etc.) at the landfill.
10. Change of Ownership: The Discharger 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 Discharger and the new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the Discharger and the new discharger. This agreement shall include an acknowledgment of which discharger is liable for violations up to the transfer date and which discharger is liable from the transfer date on. [CWC sections 13267 and 13263]
11. Revision: These WDRs are subject to review and revision by the Water Board. [CWC Section 13263]
12. Termination: Where the Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Water Board, it shall promptly submit such facts or information. [CWC sections 13260 and 13267]
13. 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 Discharger from liability under federal, State, or local laws, nor do they create a vested right for the Discharger to continue the waste discharge. [CWC section 13263(g)]
14. Severability: Provisions of these WDRs are severable. If any provisions of these WDRs are found to be invalid, the remainder of these WDRs shall not be affected. [CWC section 9213]
15. Operation and Maintenance: The Discharger 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 Discharger 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. [CWC section 13263(f)]
16. Reporting of Hazardous Substance Release: If any hazardous substance is discharged into any waters of the State, or discharged or deposited where it is, or probably will be, discharged into any waters of the State, the Discharger shall report such discharge to the Water Board by calling (510) 622-2369 during regular office hours (Monday through Friday, 8:00 to 5:00). The Discharger shall file a written report with the Water Board within five

working 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.

17. Entry and Inspection: The Discharger shall allow the Water Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the 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 Water Code, any substances or parameters at any location. [CWC section 13267]

18. 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 CWA section 404 and discharge subject to a general NPDES permit) must file an NPDES permit application with the Water Board. [CCR title 23, section 2235.1]

19. Endangerment of Health or the Environment: The Discharger shall report any noncompliance that may endanger 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 Discharger becomes aware of the circumstances. A written submission to the 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 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.

20. 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. San Francisco Bay Regional Water Quality Control Board
 - b. City of San Jose, LEA representative

The Executive Officer may modify this distribution list as needed.

21. Duty to Comply: The Discharger shall comply immediately, or as prescribed by the time schedule in this Order, with all Prohibitions, Specifications, and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these WDRs. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil

monetary liability, or in modification or revocation of these WDRs by the Water Board. (CWC sections 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350).

22. Requests for Technical Reports: All technical and monitoring reports required by this Order are requested pursuant to CWC section 13267. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to CWC section 13268.
23. Electronic Reporting Format: All reports submitted pursuant to this Order must be submitted as electronic files in PDF format, unless otherwise requested as a paper copy. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public during file reviews conducted at the Water Board's office. Email notification should be provided to Water Board staff whenever a file is uploaded to the Water Board's GeoTracker database.
24. This Order supersedes and rescinds Order No. R2-2007-0021.

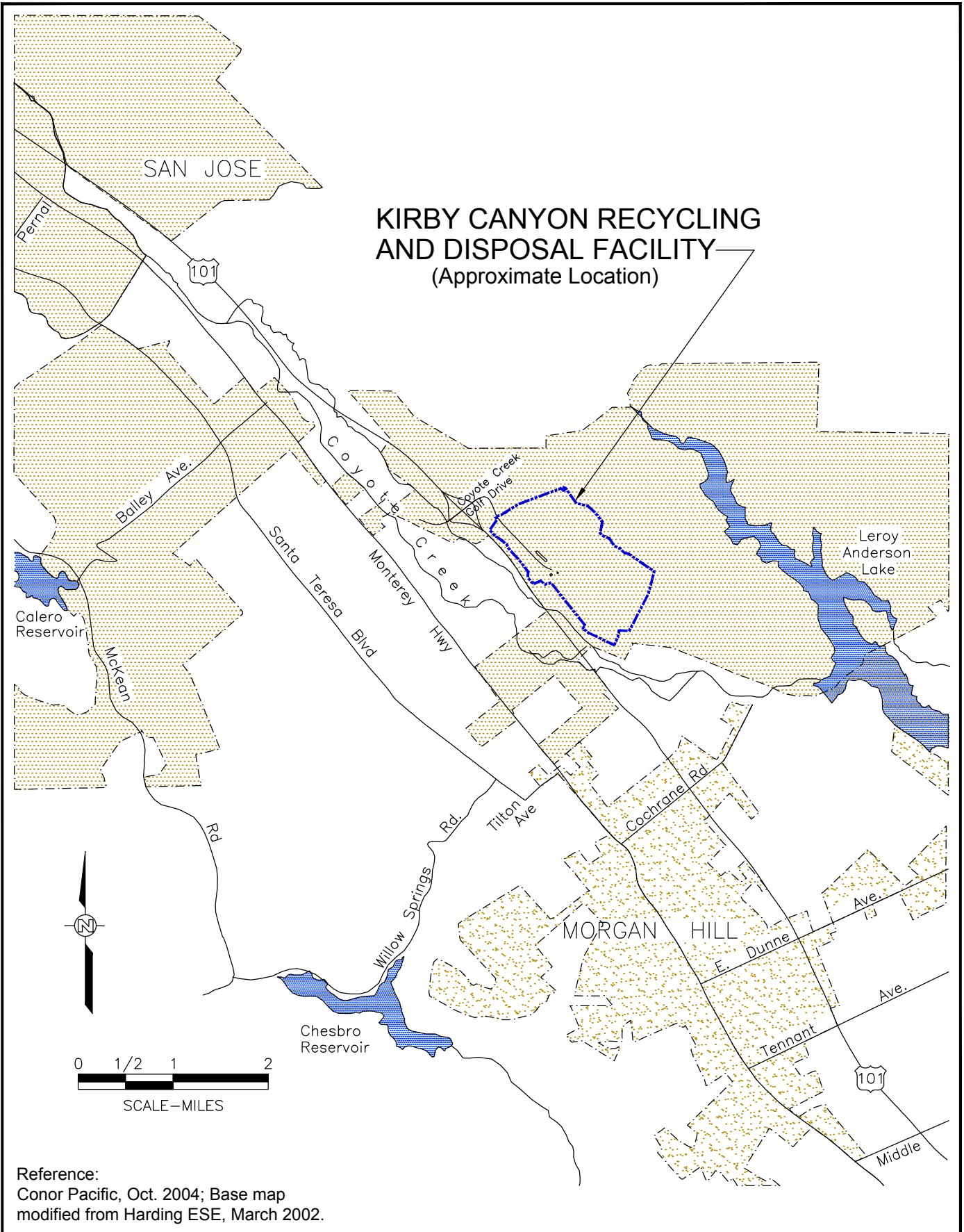
I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on _____.


Bruce H. Wolfe
Executive Officer

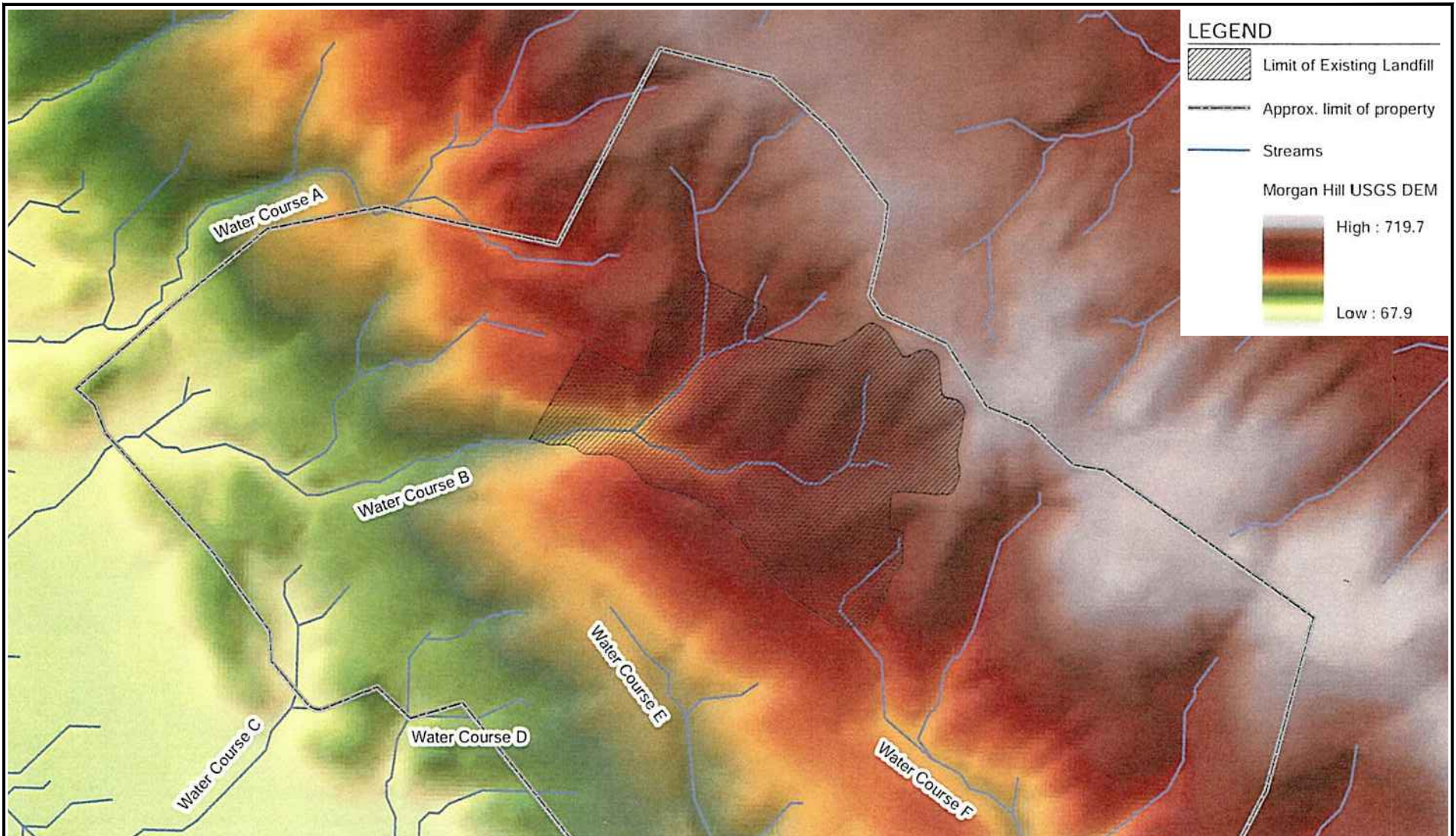
Attachments:

- Figure 1 - Vicinity Map
- Figure 2 – Water Courses and Site Drainage
- Figure 3 – Fill Areas and Disposal Cells
- Figure 4 – Final Grading Plan
- Figure 5 – Groundwater and Leachate Monitoring Locations
- Figure 6 – Stormwater and Surface Water Monitoring Locations

Self- Monitoring Program (Part A and Part B)



| | | |
|--|--|---------------------------|
|  CRAWFORD CONSULTING INC. | FIGURE 1 | DATE: 11/14/17 |
| | SITE LOCATION | FILENAME: SITE0817.DWG |
| | WASTE MANAGEMENT OF CALIFORNIA, INC. KIRBY CANYON RECYCLING & DISPOSAL FACILITY SANTA CLARA COUNTY, CALIFORNIA | PROJ. No. WM8701 |
| | | |



REFERENCE:
Golder Associates, Figure 4-1, "Watercourse Locations", date 07/12/10.

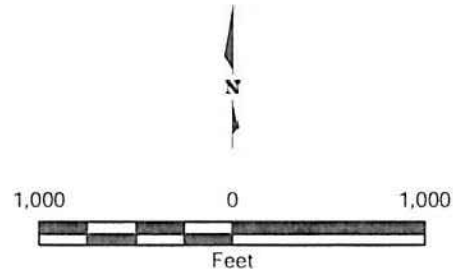
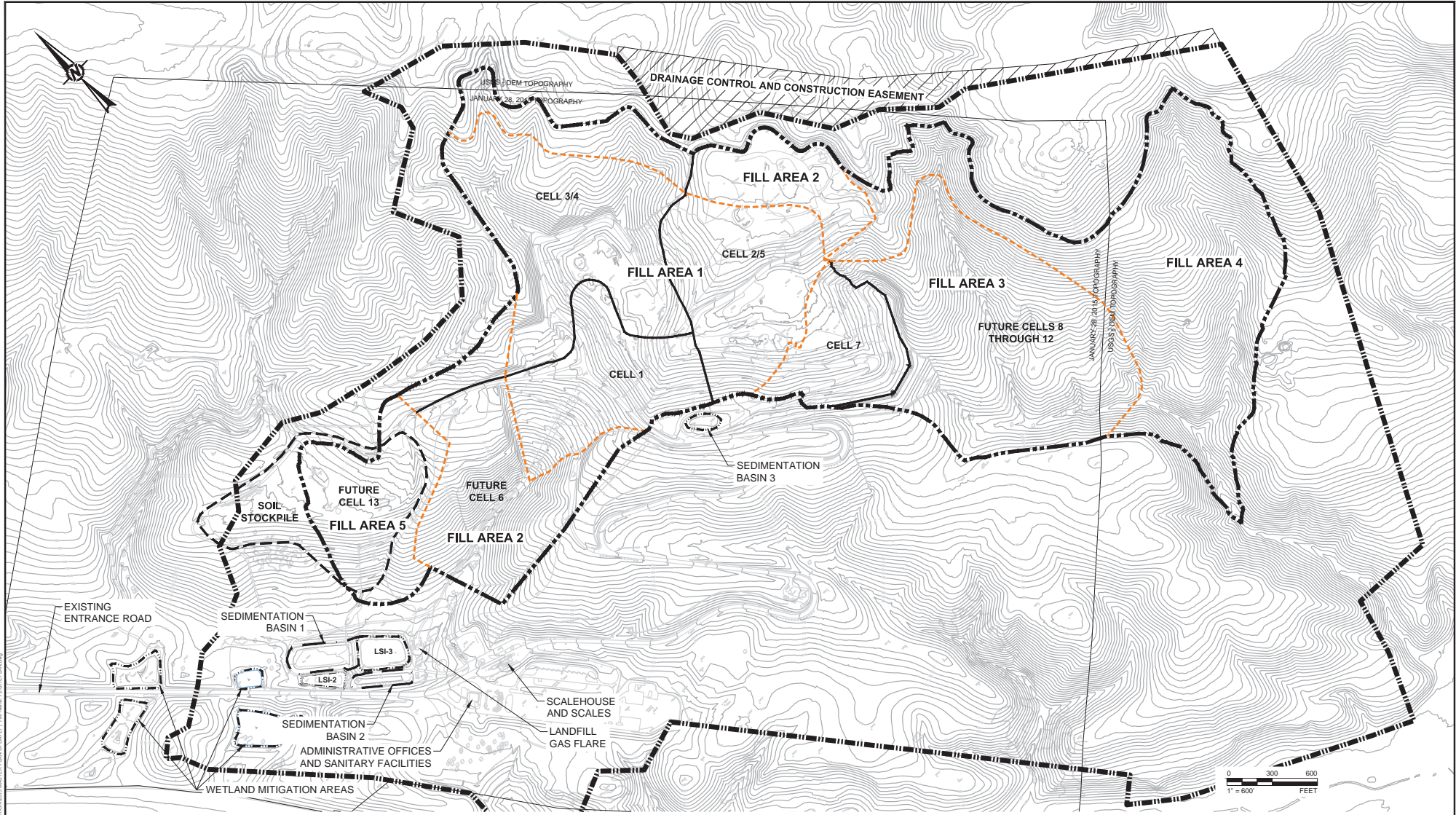


FIGURE 2
WATERCOURSES AND
SITE DRAINAGE
WASTE MANAGEMENT OF CALIFORNIA, INC.
KIRBY CANYON RECYCLING & DISPOSAL FACILITY
SANTA CLARA COUNTY, CALIFORNIA

| | |
|-----------|--------------|
| DATE: | 11/16/17 |
| FILENAME: | SITE1117.DWG |
| PROJ. No. | WM8701 |



NOTE(S)

1. LANDFILL TOPOGRAPHIC INFORMATION PROVIDED BY AERO-METRIC. DATE OF TOPOGRAPHY: JANUARY 28, 2015. TOPOGRAPHIC DATUM: NAD27 CA STATE PLANE ZONE III, FEET.
2. TOPOGRAPHY CALCULATED FROM USGS 1/2 DEGREE ARC DEM DATED DECEMBER 1, 2009. ORIGINAL DATUM: NAD83, METERS.
3. FILL AREA BOUNDARIES ARE APPROXIMATE BASED ON JUNE 1984 PD PERMIT PLANS.
4. WATER COURSE GENERATED FROM USGS DEM DATA BASED ON THE MORGAN HILL 7.5 MINUTE QUADRANGLE (PRE-DISPOSAL TOPOGRAPHY), DOWNLOADED JULY 13, 2010.
5. DRAINAGE CONTROL AND CONSTRUCTION EASEMENT AREA BASED ON THE JUNE 1984 PD PERMIT PLAN.

LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- - - - - LIMIT OF PERMITTED LANDFILL FOOTPRINT (APPROXIMATE)
- - - - - LIMIT OF CELL (APPROXIMATE)
- LIMIT OF BASIN/POND
- - - - - LIMIT OF SOIL STOCKPILE (APPROXIMATE)
- - - - - LIMIT OF FILL AREA (APPROXIMATE)
- - - - - WATER COURSE (SEE NOTE 4)

CLIENT
 WASTE MANAGEMENT OF CALIFORNIA, INC.
 910 COYOTE CREEK GOLF DRIVE
 MORGAN HILL, CA 95037

CONSULTANT



| | |
|------------|------------|
| YYYY-MM-DD | 2018-01-05 |
| DESIGNED | JDR |
| PREPARED | JDR |
| REVIEWED | KGH |
| APPROVED | KGH |

PROJECT
 KIRBY CANYON RECYCLING AND DISPOSAL FACILITY
 MASTER LANDFILL DEVELOPMENT PLAN

TITLE
FILL AREAS AND DISPOSAL CELLS

PROJECT NO.
 1416085

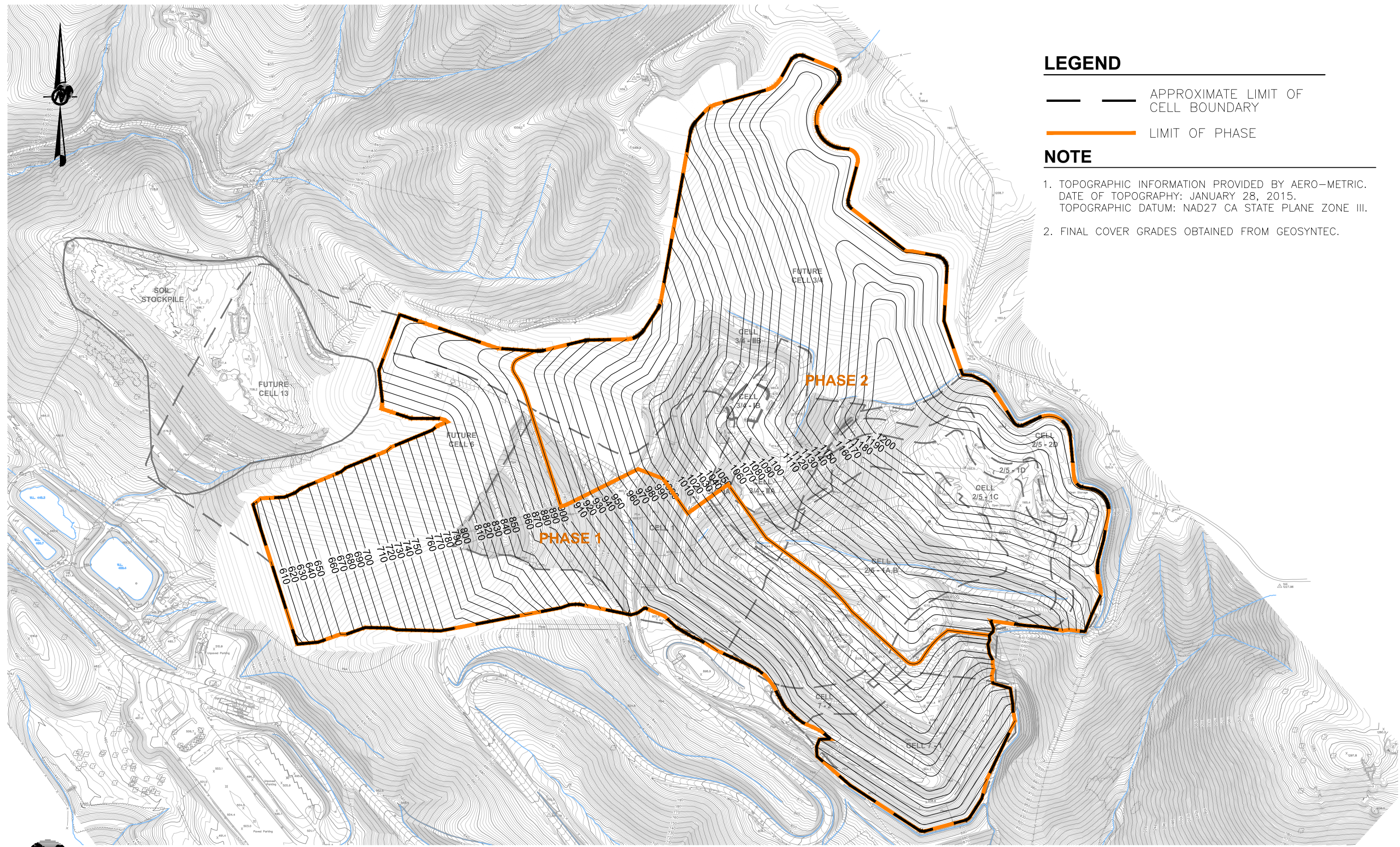
REV.
 0

FIGURE
 3



Path: \\usm\projects\1416085\GIS\PROJECT\CONSTRUCTION MASTER PLAN\DWG\1 - Fill Areas - PD PERMIT PLAN.dwg

IF THIS REPRODUCTION DOES NOT MATCH WHAT IS SHOWN, THE SOURCE SHALL BE REFERENCED TO FROM THIS PLAN.

M:\Sites\Kirby Canyon LF\PRODUCTION\1416085-2015 JTD UPDATE\1416085-F2_6-FGP.dwg, 11/22/17 10:03:07am, JRaub

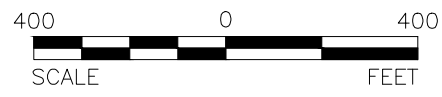


LEGEND

-  APPROXIMATE LIMIT OF CELL BOUNDARY
-  LIMIT OF PHASE

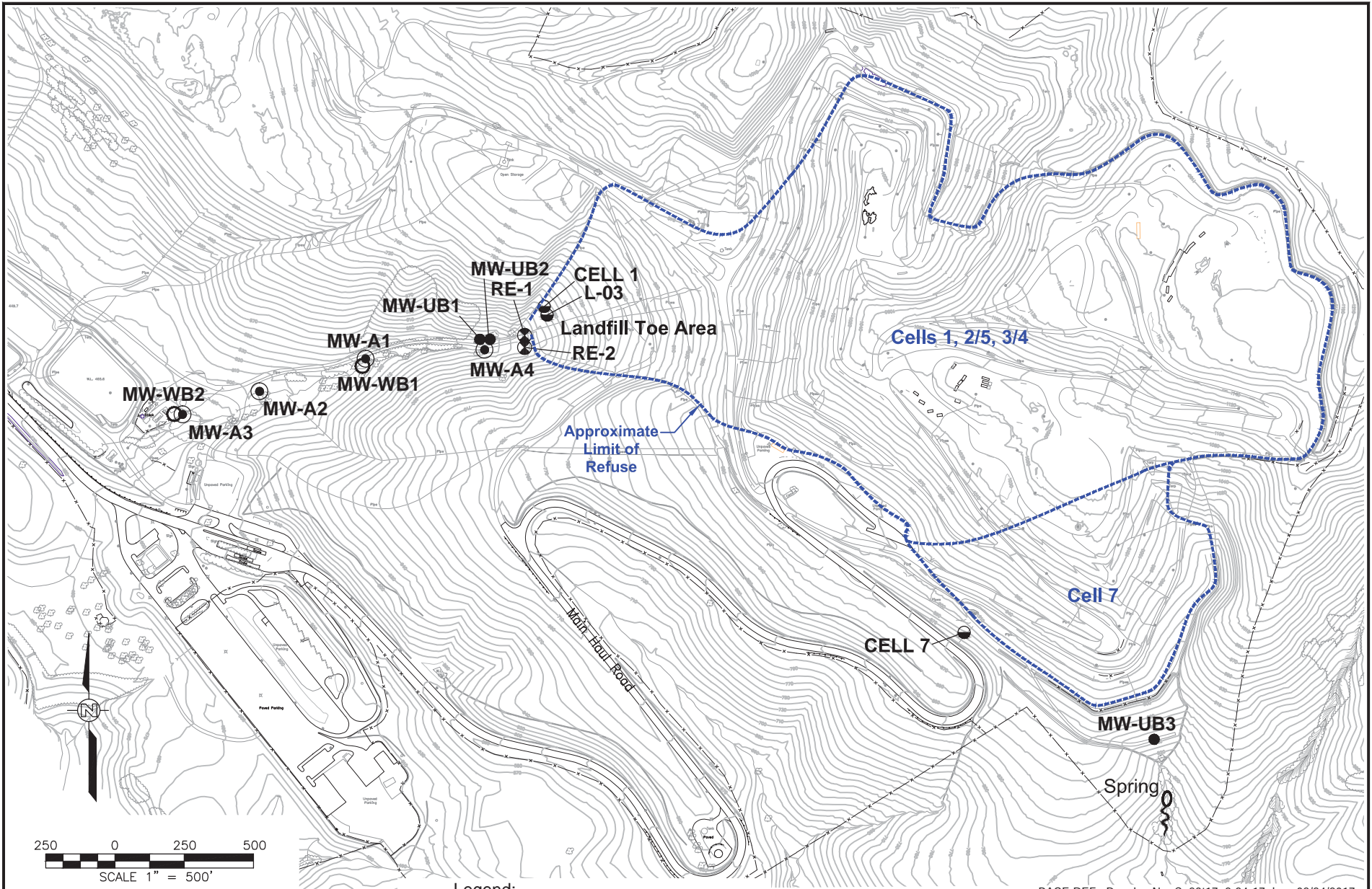
NOTE

1. TOPOGRAPHIC INFORMATION PROVIDED BY AERO-METRIC. DATE OF TOPOGRAPHY: JANUARY 28, 2015. TOPOGRAPHIC DATUM: NAD27 CA STATE PLANE ZONE III.
2. FINAL COVER GRADES OBTAINED FROM GEOSYNTEC.



FINAL GRADING PLAN

FIGURE 4



BASE REF.: Drawing No. Ca23117_2-24-17.dwg, 02/24/2017.

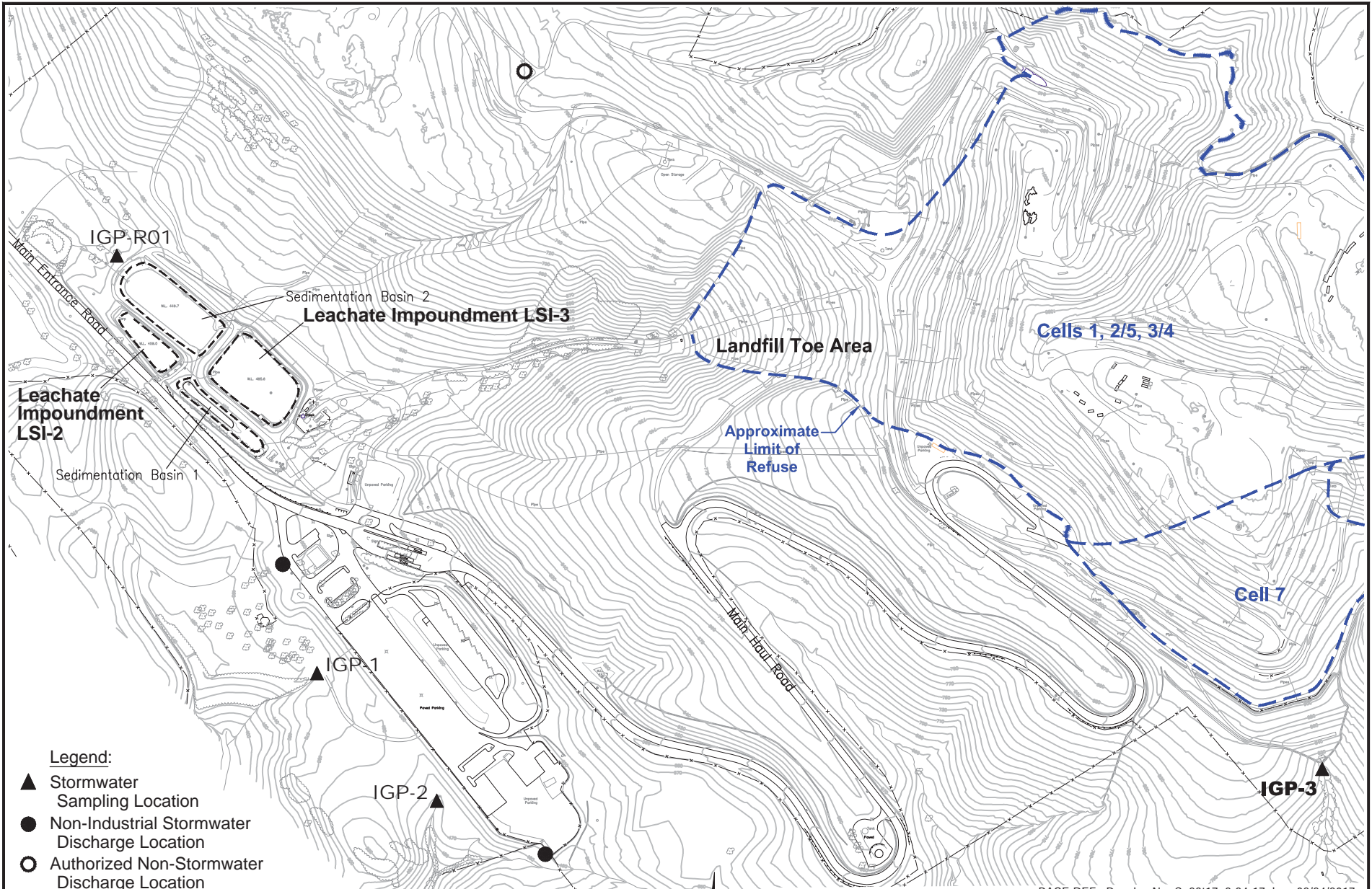
Legend:

- Alluvium Monitoring Well
- Weathered Bedrock Monitoring Well
- Unweathered Bedrock Monitoring Well
- Leachate Sampling Point
- Leachate / Groundwater Extraction Well
- Spring Sampling Point

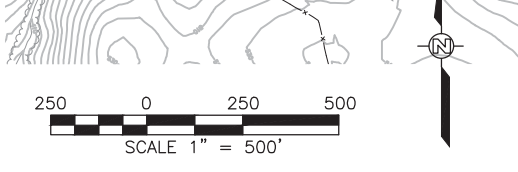


**FIGURE 5
GROUNDWATER AND LEACHATE
MONITORING LOCATIONS**
WASTE MANAGEMENT OF CALIFORNIA, INC.
KIRBY CANYON RECYCLING & DISPOSAL FACILITY
SANTA CLARA COUNTY, CALIFORNIA

| | |
|-----------|--------------|
| DATE: | 02/12/18 |
| FILENAME: | SITE0817.DWG |
| PROJ. No. | WM8701 |



BASE REF.: Drawing No. Ca23117_2-24-17.dwg, 02/24/2017.



**FIGURE 6
STORMWATER
MONITORING LOCATIONS**
WASTE MANAGEMENT OF CALIFORNIA, INC.
KIRBY CANYON RECYCLING & DISPOSAL FACILITY
SANTA CLARA COUNTY, CALIFORNIA

| | |
|-----------|--------------|
| DATE: | 01/05/18 |
| FILENAME: | SITE0118.DWG |
| PROJ. No. | WM8701 |

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

WASTE MANAGEMENT OF CALIFORNIA, INC.

KIRBY CANYON RECYCLING AND DISPOSAL FACILITY
CLASS III SOLID WASTE DISPOSAL FACILITY
SAN JOSE, SANTA CLARA COUNTY

ORDER No. R2-2018-XXXX

CONSISTS OF

PART A

AND

PART B

PART A

This self-monitoring program (SMP) specifies monitoring and reporting requirements, including:

- General monitoring requirements for landfills and waste management units (Part A)
- Self monitoring report content and format (Part A)
- Self monitoring report submittal frequency and schedule (Part B)
- Monitoring locations and frequency (Part B)
- 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, Division 2, Title 27 (CCR title 27), Subdivision 1, Chapter 3, Subchapter 3, sections 20380 through 20435. The principal purposes of an SMP are: (1) to document compliance with waste discharge requirements and prohibitions established by the Water Board; (2) to facilitate self-policing by the Discharger 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 the Discharger in complying with the requirements of CCR title 27.

B. MONITORING REQUIREMENTS

Monitoring refers to the observation, inspection, measurement, and/or sampling of environmental media, waste management units (WMUs), containment and control facilities, and waste disposed in each WMU. The following defines the types of monitoring that may be required.

Monitoring of Environmental Media

The Water Board may require monitoring of groundwater, surface water, stormwater, 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 site.

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 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 supervision of 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 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.

Standard Observations

Standard observations refer to observations within the limits of each WMU, at their perimeter, and of the receiving waters beyond their limits. Standard observations include:

1. WMUs:
 - a. Evidence of ponded water at any point on the WMU
 - b. Evidence of odors, including their presence or absence, characterization, source, and distance of travel from source
 - c. Evidence of erosion and/or daylighted waste
2. Perimeter of WMUs:
 - a. Evidence of liquid leaving or entering the WMU, estimated size of affected area, and estimated flow rate (show affected area on map)
 - b. Evidence of odors, including their presence or absence, characterization, source, and distance of travel from source
 - c. Evidence of erosion and/or daylighted waste
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, presence or absence, characterization, source, and distance of travel from source
 - d. Evidence of beneficial use: presence of water associated with wildlife
 - e. Estimated flow rate
 - f. Weather conditions: wind direction and estimated velocity, total precipitation

Facilities Inspections

Facilities inspections refer to the inspection of all containment and control structures and devices associated with WMUs. Containment and control facilities may include the following:

1. Asphalt or earthen covers
2. Perimeter drainage or diversion channels
3. Detention ponds or collection tanks

C. REPORTING REQUIREMENTS

Reporting responsibilities of waste dischargers are specified in Water Code sections 13225(a), 13267(b), 13383, and 13387(b) and this Water Board's Resolution No.73-16 and Order No. R2-2018-00XX. At a minimum, each Self Monitoring Report (SMR) shall include the following information:

1. **Transmittal Letter:** A cover letter transmitting the essential points 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 Discharger's 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, sampling, and observation point locations, WMUs, containment and control structures, treatment facilities, surface water bodies, and site/property boundaries
 - b. Groundwater level/piezometric surface contour maps for each groundwater-bearing zone of interest showing inferred groundwater gradients and flow directions under/around each WMU, based upon the past and present water level elevations and pertinent visual observations
 - c. Post-plot maps with analyte concentration posted adjacent to each sampling location and/or isoconcentration contour maps displaying analyte concentrations and sample locations
 - d. Concentration vs. time graphs for key sampling parameters for each sampling location
 - e. Geologic cross-sections showing groundwater-bearing zones, sample locations, contaminant sources, and the extent of contamination
 - f. 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 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, and screen interval elevation)
 - d. Groundwater depths
 - e. Groundwater elevations
 - f. Horizontal groundwater gradients
 - g. Vertical groundwater gradients (including comparison wells from different zones)
 - h. Phase-separated product elevations
 - i. Phase-separated product thicknesses
 - j. Current analytical results (including analytical method and detection limits for each constituent)
 - k. Historical analytical results (including at least the past five years unless otherwise requested)
 - l. Measurement dates
 - m. Groundwater extraction, including:
 - (1) Average daily extraction rate
 - (2) Total volume extracted for monitoring period
 - (3) Cumulative total volume extracted since system inception

- n. Contaminant mass removal, including:
 - (1) Average daily removal rate
 - (2) Total mass removed for monitoring period
 - (3) Cumulative total mass removed since system inception

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 quantity and types of wastes disposed of during the past quarter, and the locations of the disposal operations, if applicable
- c. A description of the waste stream including the percentage of each waste type (e.g., residential, commercial, industrial, construction/demolition), if applicable
- d. The signature of the laboratory director or his/her designee indicating that he/she has supervised all analytical work in his/her laboratory
- e. Provide a discussion of the field and laboratory results that includes the following information:
 - (1) Data Interpretations
 - (2) Conclusions
 - (3) Recommendations
 - (4) Newly implemented or planned investigations and remedial measures
 - (5) Data anomalies
 - (6) Variations from protocols
 - (7) Condition of wells
 - (8) Effectiveness of leachate monitoring and control facilities

5. Appendices: The following information shall be provided as appendices in electronic format only, unless requested otherwise by Water Board staff and unless the information is already contained in a Sampling and Analysis Plan approved by Water Board staff.

- a. New boring and well logs
- b. Method and time of water level measurements
- c. Purging methods, and method of disposing of the purge water, and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity, pH, temperature, conductivity, and turbidity measurements
- d. Sampling procedures, field 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
- e. Documentation of laboratory results, analytical methods, detection limits, and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling.

D. CONTINGENCY REPORTING

- 1. The Discharger shall report by telephone to the Water Board any discharge from the disposal area immediately after it is discovered. The Discharger shall submit a written

report with the 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)
 - d. Corrective measures underway or proposed
2. The Discharger shall submit a written report to the Water Board within seven days of determining that a statistically significant difference occurred between a self-monitoring sample set and an approved Water Quality Protection Standard (WQPS). The written report shall indicate what WQPS(s) have been exceeded. The Discharger shall resample at the compliance point(s) where this difference has been found within 30 days.
 3. If re-sampling and analysis confirms the earlier finding of a statistically significant difference between self-monitoring results and WQPS(s), the Discharger shall, upon determination by the Executive Officer, submit to the Water Board an amended Report of Waste Discharge as specified in CCR title 27, section 20420 for establishment of an Evaluation Monitoring Program meeting the requirements of CCR title 27, section 20425.

E. ELECTRONIC REPORTING FORMAT

All SMRs submitted pursuant to this SMP must be submitted as electronic files in **PDF format** to GeoTracker. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public during file reviews conducted at the Water Board's office. Email notification should be provided to Water Board staff whenever a file is uploaded to the Water Board's GeoTracker website.

F. MAINTENANCE OF WRITTEN RECORDS

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 this discharge or when requested by the Water Board.

PART B

A. MONITORING LOCATIONS AND FREQUENCY

Monitoring locations, frequencies, parameters, and analytes are specified in Tables B-1, B-2, and B-3 of this SMP and as indicated below. Monitoring locations are shown in Figures B-1 and B-2.

1. Environmental Media

a. Groundwater:

Groundwater shall be monitored at the locations specified in Table B-1 and shown in Figure B-1. 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 in Figure B-1. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1.

c. Stormwater:

Stormwater shall be monitored at the locations specified in Table B-1 and shown in Figure B-2. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1.

2. Standard Observations

Standard observations shall be made within the limits of each landfill cell, at their perimeter, and of the water courses and receiving waters beyond their limits. Standard observations shall be conducted at the locations and frequencies specified in Table B-2.

3. Facilities Inspections

The Discharger shall inspect all containment and control structures and devices associated with each landfill cell and the landfill as a whole to ensure proper and safe operation. Facilities inspections shall be conducted at the locations and frequencies specified in Table B-3.

B. REPORTING SCHEDULE

The Discharger shall submit SMRs to Water Board staff in accordance with the schedule indicated in Table B-4. 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 1
Kirby Canyon Recycling and Disposal Facility
Monitoring Parameters and Frequencies - Order No R2-2018-00xx

| Parameter (Method) | Groundwater | | | | | | | | | | Leachate Sampling Locations | | | Storm Water Sampling Locations | | | |
|--|---------------------|---------|---------|---------|-------------------|----------|-----------|-------------|-------------------|--------|--------------------------------|--------|------|-----------------------------------|-------|-------|---------|
| | Cells 1, 2/5, & 3/4 | | | | | | | | Cell 7 | | | | | | | | |
| | Compliance Points | | | | Water Levels Only | | | | Compliance Points | | Cell 1 | Cell 7 | L-03 | IGP-1 | IGP-2 | IGP-3 | IGP-RO1 |
| | MW-A1 | MW-WB1 | MW-UB1 | MW-UB2 | MW-A2 | MW-A3 | MW-A4 | MW-WB2 | MW-UB3 | SPRING | | | | | | | |
| Date Installed | Jul-91 | Jul-93 | Sep-97 | Sep-97 | Jul-91 | Jul-93 | Sep-97 | Jul-93 | Aug-04 | NA | | | | | | | |
| Total Depth (ft bgs) | 20.5 | 23 | 50 | 28.5 | 21 | 12 | 10 | 21.5 | 56 | NA | | | | | | | |
| Screen Interval (ft bgs) | 5.5 - 20.5 | 18 - 23 | 40 - 50 | 18 - 28 | 6 - 21 | 6 - 12 | 7.5 - 9.5 | 12.5 - 21.5 | 41 - 56 | NA | | | | | | | |
| Zone Screened* | Alluvium | WB | UWB | UWB | Alluvium | Alluvium | Alluvium | WB | UWB | -- | | | | | | | |
| <u>Field Measurements</u> | | | | | | | | | | | | | | | | | |
| Water Elevation | Q | Q | Q | Q | Q | Q | Q | Q | Q | NA | NA | NA | NA | | | | |
| Electrical Conductivity | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| pH | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | QSE | QSE | QSE | QSE |
| Temperature | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Turbidity | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Flow Rate (gallons/month) | NA | NA | NA | NA | | | | | NA | NA | Flow | Flow | Flow | | | | |
| Dry Visual Observations | | | | | | | | | | | | | | M | M | M | M |
| Storm Water Discharge Observations | | | | | | | | | | | | | | SE | SE | SE | SE |
| <u>Laboratory Analyses</u> | | | | | | | | | | | | | | | | | |
| <u>Site-Specific Detection Monitoring Parameters</u> | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids (160.1) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Alkalinity (310.1) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| VOCs (8260B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| THF (8260B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| MTBE (8260B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Magnesium, dissolved (6010B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| <u>Supplemental Hydrochemical Parameters</u> | | | | | | | | | | | | | | | | | |
| Calcium, dissolved (6010B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Sodium, dissolved (6010B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Potassium, dissolved (6010B) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Chloride (300.0) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| Sulfate (300.0) | SA-1,3 | SA-1,3 | SA-1,3 | SA-1,3 | | | | | SA-1,3 | SA-1,3 | A-1 | A-1 | A-1 | | | | |
| <u>Storm Water Parameters</u> | | | | | | | | | | | | | | | | | |
| Oil & Grease (1664A) | | | | | | | | | | | | | | QSE | QSE | QSE | QSE |
| Total Suspended Solids (160.2 or SM 2540-D) | | | | | | | | | | | | | | QSE | QSE | QSE | QSE |
| Iron (200.7) | | | | | | | | | | | | | | QSE | QSE | QSE | QSE |
| <u>Constituents of Concerns (COCs)</u> ⁽¹⁾ | 5-year | 5-year | 5-year | 5-year | | | | | 5-year | 5-year | | | | | | | |

Continued on page 2.

Notes and Explanations:

* Three zones are monitored beneath the site:

Alluvium = 0 to 15 fbg, characterized by alluvial and granular fill materials of sand, silt, & serpentinite chips; $K \sim 10^{-4}$ cm/s.

WB = Weathered Bedrock, 10 to 20 feet thick below alluvium. Gray, weathered serpentinite with iron-stained and limonite-filled fractures; $K \sim 10^{-5}$ cm/s.

UWB = Unweathered Bedrock, to > 100 feet below weathered bedrock. Dark gray-green fractured serpentinite with opaque, light-green clay; $K \sim 10^{-6}$ cm/s.

⁽¹⁾ Next 5-year Constituents of Concern sampling event will occur during third quarter of 2021.

KEY

M = monthly monitoring

Q = quarterly monitoring according to the following schedule:

1st quarter = Jan thru Mar

2nd quarter = Apr thru Jun

3rd quarter = Jul thru Sep

4th quarter = Oct thru Dec

S = Semi-annual monitoring

SA-1,3 = semi-annual monitoring during first and third quarters

A = Annual monitoring

A-1 = annual monitoring during first quarter

2A = biennial monitoring

NA = Not Applicable

QSE = Qualifying discharge requires 2 days without discharge with the sample collected within 4 hours of discharge start time or within 4 hours of initial operating hours if discharge began during the night. Sampling discharge from two Qualifying Storm Events (QSE) from July 1 to December 31 and two QSE from January 1 to June 30. Total events sampled maybe less than four if there were limited QSEs within the storm season.

Discharge = Discharge Event

SE = At time of sampling events

-- = No Data

blank = no sampling required

VOCs = volatile organic compounds by EPA Method 8260B, Appendix I list of compounds.

SVOCs = semi-volatile organic compounds

MTBE = methyl tertiary butyl ether

PCBs = polychlorinated biphenyls

THF = Tetrahydrofuran

Water Quality Protection Standard (WOPS) for the KCRDF

Constituents of Concern: Section 20395 of Title 27 defines Constituents of Concern (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". COCs for the KCRDF include the "site-specific detection monitoring parameters" identified in Table B-1 of this SMP, and all Appendix II parameters in the federal Subtitle D regulations. The Discharger may propose modifications to the parameter list as additional data becomes available concerning site-specific source characteristics and natural background water quality. However, modifications shall only be made upon written concurrence from the Executive Officer.

Monitoring Parameters: Monitoring parameters (MPs), a subset of the COCs, are typically the most mobile and commonly detected COCs in groundwater at the site and are measured on a more frequent basis than the entire list of COCs. The MPs for the KCRDF shall include, at a minimum, all constituents identified as "site-specific detection monitoring parameters" in Table B-1 of this SMP. The Discharger 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.

Concentration Limits: Pursuant to Title 27, Section 20400, the Discharger utilizes both statistically and non-statistically-derived concentration limits (CLs). Statistically-derived CLs that are based upon evaluation of natural background groundwater conditions. Intra-well Shewhart-CUSUM control charts are used to statistically evaluate the inorganic site-specific detection monitoring parameters. The Shewhart-CUSUM analytical test calculates a control limit to which each new result is compared. The cumulative sum of each new result is incorporated into the statistical calculation so that increasing trends are easily detected. In cases where the detection frequency for a given parameter in a given well is less than 25%, a non-parametric prediction limit in lieu of a Shewhart-CUSUM control chart will be used provided sufficient data are available. If the statistical tests indicate no change in groundwater quality, then the background dataset is updated every two-years to provide more robust statistical comparisons for future analysis.

The CL for organic compounds, which are not naturally occurring and not detected in background groundwater samples, shall be taken as the contract laboratory's practical quantification limit (PQL) of the analytical method used (e.g., US-EPA Methods 8260 and 8270), provided that the PQL is less than or equal to the applicable and enforceable water quality standard, such as the California maximum contaminant level (MCL) for each constituent. The repeated detection of one or more non-naturally occurring organic compound above the PQL in samples from groundwater monitoring points is evidence of a potential release from the Unit. If the laboratory cannot achieve a PQL that is less than or equal to the water quality standard, re-sampling must occur within 30 days with analysis at a state-approved laboratory that can achieve the CL requirements.

Point of Compliance: Title 27 defines the Point of Compliance (POC) as the "vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit." The POC for the KCRDF shall be the hydraulically downgradient perimeter of the waste fill area.

Monitoring Points: Title 27 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 KCRDF, which are located along the POC and at additional locations, are specified in Table B-1 of this SMP.

Table B-2 Standard Observations

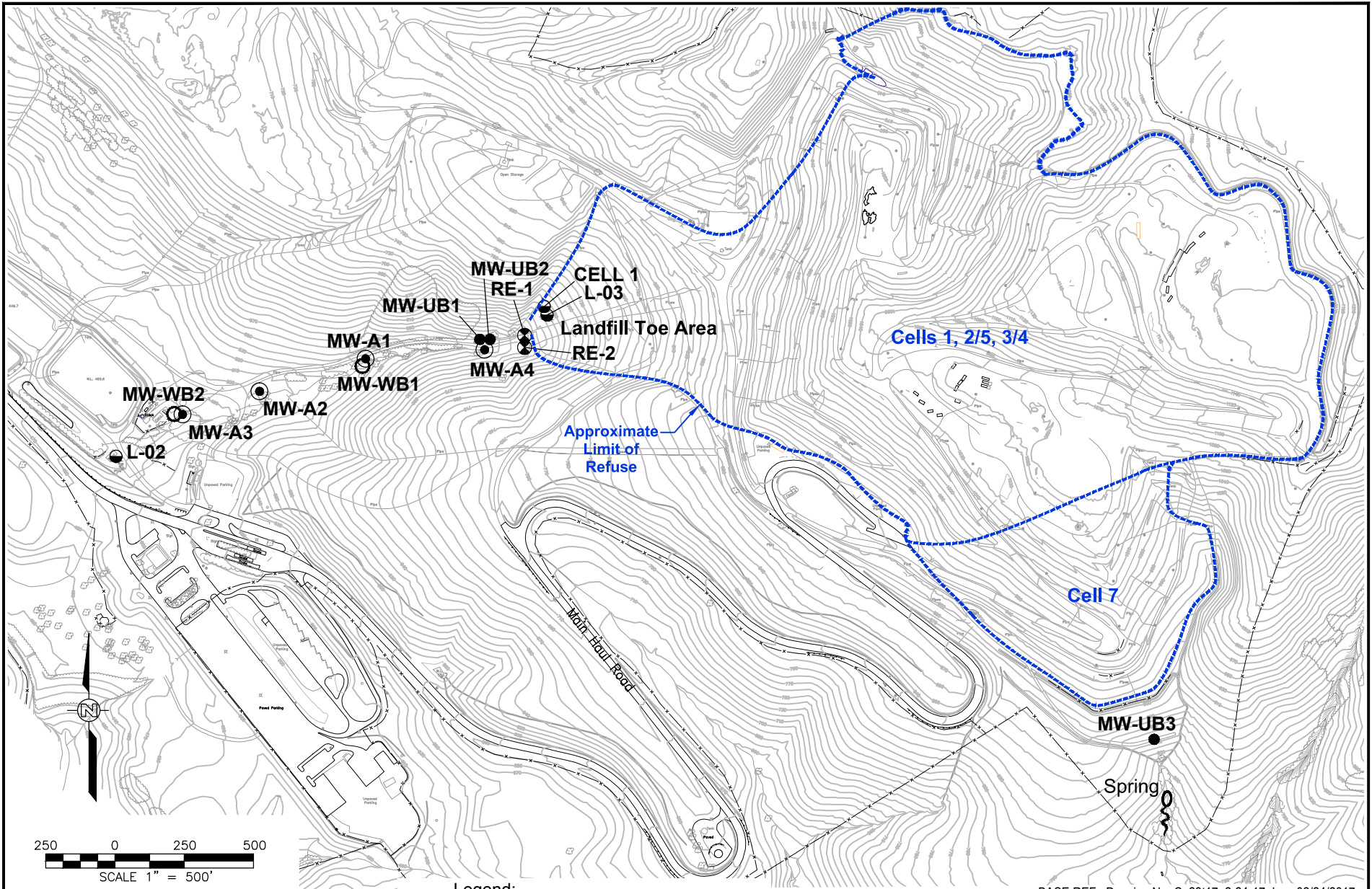
| STATION | FREQUENCY |
|------------------|-----------|
| WMUs | Weekly |
| WMU Perimeter | Weekly |
| Receiving Waters | Weekly |

Table B-3 Facilities Inspections

| CONTAINMENT AND CONTROL FACILITY | FREQUENCY |
|---|-----------|
| Leachate collection and removal systems (LCRS) | Quarterly |
| Stormwater impoundment (Sedimentation Pond) | Quarterly |
| Vadose zone and subdrain collection systems | Quarterly |
| Perimeter diversion channels | Quarterly |
| Leachate management facilities and secondary containment (Leachate storage impoundments, piping, etc.) | Quarterly |

Table B-4 Reports and Due Dates

| Report Type | Reporting Frequency | Report Due Dates |
|---|---------------------|----------------------------|
| Environmental Media Monitoring (Groundwater, Leachate, Stormwater) | Semi-Annual | Aug 15, Feb. 15 |
| Standard Observations and Facilities Inspections | Semi-Annual | Aug 15, Feb. 15 |



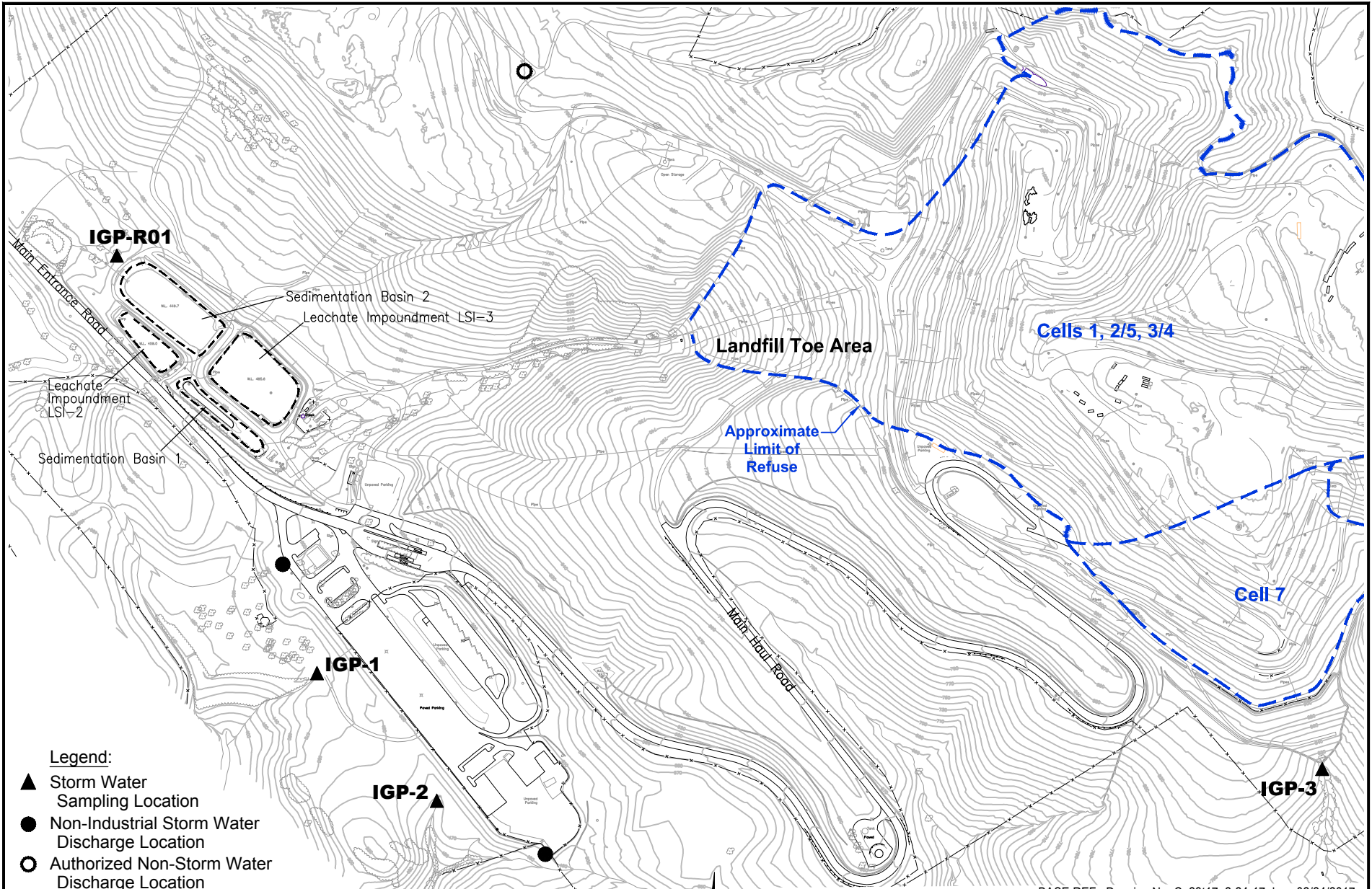
BASE REF.: Drawing No. Ca23t17_2-24-17.dwg, 02/24/2017.



- Legend:**
- Alluvium Monitoring Well
 - Weathered Bedrock Monitoring Well
 - Unweathered Bedrock Monitoring Well
 - Leachate Sampling Point
 - Leachate / Groundwater Extraction Well
 - Spring Sampling Point

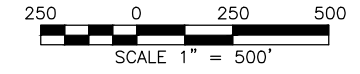
FIGURE B-1
GROUNDWATER AND LEACHATE
MONITORING LOCATIONS
 WASTE MANAGEMENT OF CALIFORNIA, INC.
 KIRBY CANYON RECYCLING & DISPOSAL FACILITY
 SANTA CLARA COUNTY, CALIFORNIA

| | |
|-----------|--------------|
| DATE: | 08/11/17 |
| FILENAME: | SITE0817.DWG |
| PROJ. No. | WM8701 |



BASE REF.: Drawing No. Ca23t17_2-24-17.dwg, 02/24/2017.

- Legend:**
- ▲ Storm Water Sampling Location
 - Non-Industrial Storm Water Discharge Location
 - Authorized Non-Storm Water Discharge Location



**FIGURE B-2
STORM WATER
MONITORING LOCATIONS**
WASTE MANAGEMENT OF CALIFORNIA, INC.
KIRBY CANYON RECYCLING & DISPOSAL FACILITY
SANTA CLARA COUNTY, CALIFORNIA

| | |
|-----------|--------------|
| DATE: | 11/21/17 |
| FILENAME: | SITE1117.DWG |
| PROJ. No. | WM8701 |

Appendix B

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

RESPONSE TO WRITTEN COMMENTS

On the Tentative Order for
Kirby Canyon Recycling and Disposal Facility
San Jose, Santa Clara County

The Water Board received written comments from Geosyntec Consultants and Waste Management of California, Inc., on a tentative order distributed for public comment. The comment period closed February 14, 2018.

Water Board staff has listed the comments below and followed each comment with staff's response. In addition to making the changes as noted below, staff has made minor editorial and formatting changes to the tentative order.

Comment #1, provided by Geosyntec: Based on the information we reviewed for the recently-constructed Cells 3/4 and 7, the suggested edits to the table are shown below. The red items are new. Items are also stricken because they are not needed or have not been used recently.

| <u>Cell Base</u> | <u>Cell Side Slopes & Benches</u> |
|---|---|
| <ul style="list-style-type: none"> • Prepared subgrade | <ul style="list-style-type: none"> • Prepared subgrade |
| <ul style="list-style-type: none"> • 40 mil double sided, textured HDPE | <ul style="list-style-type: none"> • 40 mil double sided, textured HDPE |
| <ul style="list-style-type: none"> • Underdrain system (heat-bonded geocomposite) if needed | <ul style="list-style-type: none"> • Underdrain system (heat-bonded geocomposite) if needed |
| <ul style="list-style-type: none"> • 40 mil double sided, textured HDPE | <ul style="list-style-type: none"> • 2-foot thick compacted clay liner or encapsulated GCL or GCL |
| <ul style="list-style-type: none"> • 2-foot compacted clay layer, or encapsulated GCL | <ul style="list-style-type: none"> • 80-mil single-sided textured HDPE geomembrane, textured side down |
| <ul style="list-style-type: none"> • 80-mil single-sided textured HDPE geomembrane, textured side down | <ul style="list-style-type: none"> • 1-foot gravel layer on benches only |
| <ul style="list-style-type: none"> • 1 foot gravel layer | <ul style="list-style-type: none"> • 1 foot gravel layer |
| <ul style="list-style-type: none"> • Non-woven geotextile | <ul style="list-style-type: none"> • Non-woven geotextile |
| <ul style="list-style-type: none"> • 1-foot min. soil operations layer | <ul style="list-style-type: none"> • Non-woven geotextile on benches only |
| | <ul style="list-style-type: none"> • 1-foot min. soil operations layer |

~~* On sideslopes where refuse height is less than 150 ft, the proposed low permeability component may be a geomembrane-encapsulated GCL rather than a CCL if required to meet slope stability.~~

Response: Thank you for the clarifications; these changes have been incorporated into Finding 38 and Specification B.18.

Comment #2, provided by WMC: Proposed changes to Section C. No 1 (highlighted text):

C. PROVISIONS

1. Self-Monitoring Program: The Discharger shall comply with the Self-Monitoring Program (SMP) attached to this Order (Part A and Part B). Since landfills are the final repository for a heterogeneous mixture of liquid and solid waste from residential, industrial, and commercial sources, the leachate generated can consist of a diverse mixture of chemicals. Therefore, this WDR requires that the Discharger prepare a Work Plan, acceptable to the Executive Officer, to analyze for contaminants of emerging concern (CECs). The Work Plan should include consideration of CEC lists developed by SWRCB and USEPA, and may include testing for pharmaceuticals, steroid hormones, and household and industrial chemicals. The Work Plan should also discuss how the data will be utilized.

COMPLIANCE DATE: Work Plan – June 30, 2018
SMP Compliance - Immediate

Response: We agree that preparation and submittal of a work plan (by the June 30 due date) is a reasonable request. We have accepted the proposed changes with minor editorial modifications.

Comment #3, provided by WMC: On table 1 in the Self-Monitoring Program (SMP), we updated the stormwater sections and footnotes and updated the next 5-year contaminant of concern date to 2021. The contaminants of emerging concern (CECs) were removed from the SMP since we will issue a work plan detailing which CECs will be analyzed, and how often.

Response: We agree with and have accepted the proposed changes to SMP Table 1.