



August 31, 2026

Kathy Ton
Solid Waste Management Program-Permitting and Surveillance Unit
Los Angeles County Public Health Department
5050 Commerce Drive
Baldwin Park, California 91706

Dear Ms. Ton:

Subject: Transmittal of Updated Preliminary Closure and Post-Closure Maintenance Plan
CEC Project 350-750

Attached, please find an updated Preliminary Closure and Post-Closure Maintenance Plan (PCPMP) for the Chiquita Canyon Landfill (CCL). This updated PCPMP has been prepared at the request of Chiquita Canyon, LLC (Chiquita) in response to a letter from the Los Angeles County Public Health Department acting as the Local Enforcement Agency (LEA) on behalf of the California Department of Resources Recycling and Recovery (CalRecycle) dated January 28, 2026. From subsequent discussions with the Chiquita team, it is our understanding that the LEA is primarily seeking an updated cost estimate for closure and post-closure maintenance of CCL in a post Elevated Temperature Landfill (ETLF) event condition.

We also understand that there is a consensus that beginning formal closure of CCL should be deferred until such time as the ETLF event has stabilized and significant changes to the landfill geometry of the landfill are no longer likely. Consequently, this PCPMP identifies the reduced closure limits of the landfill, additional earthwork necessary to ensure slopes are within the minimum and maximum steepness limits, and the cost of placing the ET cover system. Due to the ongoing ETLF event, this submittal does not include updates to the Water Release Corrective Action Plan cost estimate or to the Non-Water Release Corrective Action Plan cost estimate. Attached to this PCPMP are the current financial assurance documents, which were updated in May 2026 and do not require further updating at this time.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Robert Van Hyning, PE
Senior Principal

Attachment: Preliminary Closure and Post-Closure Maintenance Plan

ATTACHMENT

**PRELIMINARY CLOSURE AND POST-CLOSURE
MAINTENANCE PLAN**

**PRELIMINARY CLOSURE AND
POST-CLOSURE MAINTENANCE PLAN**

**CHIQUITA CANYON LANDFILL
LOS ANGELES COUNTY, CALIFORNIA**

Prepared For:
CHIQUITA CANYON LANDFILL
29201 HENRY MAYO DRIVE
CASTAIC, CALIFORNIA 91384

Prepared By:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
GOLD RIVER, CALIFORNIA

CEC Project 350-750

AUGUST 2026



Civil & Environmental Consultants, Inc.

CERTIFICATION

Preliminary Closure and Post-Closure Maintenance Plan Chiquita Canyon Landfill Los Angeles County, California

This report has been prepared in compliance with the requirements of California Code of Regulations Title 27 (CCR Title 27) §§ 21769 and 21770. The format and the content are consistent with § 21600.

Since approximately May 2022, Chiquita Canyon Landfill has been experiencing an Elevated Temperature Landfill (ETLF) event and as of January 2025, Chiquita Canyon Landfill ceased accepting waste. On January 28, 2026, the Local Enforcement Agency (LEA) directed Chiquita Canyon Landfill, LLC to update the Preliminary Closure and Post-Closure Maintenance Plan (PCPMP).

This PCPMP update has been prepared in response to the LEA directive. The primary intent of this PCPMP is to assess the potential cost of closing the landfill once subsurface conditions return to their pre-ETLF state. The timing of this is still uncertain. This PCPMP assumes, however, that that state has been achieved. Consequently, while some supporting studies (e.g., hydrology) have been updated to reflect the revised configuration of the landfill or have been superseded, others such as the settlement and stability analyses have not. These studies are part of the ongoing assessment of the ETLF event, and it is anticipated that they will be further updated once the ETLF event has stabilized. Where applicable, documents that are no longer relevant are so noted (e.g., *Waste Acceptance Plan*). This PCPMP has been prepared under the overall direction of the undersigned individual and the information presented is consistent with CCR Title 27 §§ 21769 and 21770.

The facility owner has retained many professional consulting firms to complete environmental and engineering studies. This previous work has included site characterization and planning studies, preparations of permit documents, preparations of engineering plans, construction quality assurance for liner construction, and environmental monitoring, as required by applicable federal and state regulations. Civil and Environmental Consultants, Inc. (CEC) was retained by Chiquita Canyon, LLC to compile existing information and studies into this PCPMP. CEC understands that these studies were submitted to and accepted by the applicable regulatory agencies as meeting federal and/or state regulations applicable to solid waste landfills.

This PCPMP is intended to provide a single document that provides reference to the various studies that have been completed to comply with regulations as required by CCR Title 27. Some of the referenced documents are provided as appendices to the PCPMP. By referencing these previous studies, it is CEC's sole intent to document that these studies were completed with the purpose of satisfying applicable regulations including Title 27. By referencing studies, designs, or reports of other firms, CEC is not certifying, warranting, or guaranteeing their accuracy or completeness.



TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Regulatory Background	3
1.2	Report Submittal	4
2.0	PRELIMINARY CLOSURE PLAN	6
2.1	Site Location (CCR Title 27 § 21790(b)(2)).....	6
2.2	Landfill Topography (CCR Title 27 §§ 21790(2) and 21142)	7
2.2.1	Current Topography.....	7
2.2.2	Pre-Landfill Topography	8
2.2.3	Post-Excavation	8
2.2.4	Proposed Final Grades	8
2.3	Maximum Closure Area (CCR Title 27 § 21790(b)(6))	8
2.4	Current Monitoring and Control Systems (CCR Title 27 §§ 21790(b)(4) and 20180)	9
2.5	Land Use	9
2.6	Closure Date (CCR Title 27 § 21600(b)(3)(C)).....	11
2.7	Description of Closure (CCR Title 27 § 21790(b)(8)).....	11
2.7.1	Closure Sequence.....	11
2.7.2	Closure Schedule	12
2.7.3	Removal of Landfill Structures (CCR Title 27 §§ 21790(b)(8)(A) and 21137)	12
2.7.4	Decommissioning of Environmental Control Systems (CCR Title 27 § 21137)	13
2.7.5	Security at Closed Sites (CCR Title 27 §§ 21790(b)(8)(A) and 21135)	14
2.7.6	Final Cover (CCR Title 27 §§ 21790(b)(8)(B), 21790(b)(8)(c), 21140, 21090(a), and 21769(b)(2)).....	15
2.7.6.1	Background and Present Conditions	15
2.7.6.2	Regulatory Requirements.....	15
2.7.6.3	Proposed Final Cover.....	15
2.7.7	Final Grading (CCR TITLE 27 §§ 21790(b)(8)(B), 21142, and 21769(b)(2)).....	18
2.7.7.1	Background and Existing Conditions	18
2.7.7.2	Regulatory Requirements.....	18
2.7.7.3	Proposed Final Grades	18
2.7.8	Final Site Face (CCR Title 27 §§ 21145 and 21769(b)).....	19
2.7.9	Final Drainage (CCR Title 27 §§ 21790(b)(8)(D), 21150, 20365, and 21090)	20
2.7.9.1	Existing Conditions.....	20
2.7.9.2	Regulatory Requirements.....	21
2.7.9.3	Proposed Drainage System	21
2.8	Slope Protection and Erosion Control (CCR Title 27 §§ 21145, 21150, and 20365(c)).....	22
2.8.1	Background and Existing Conditions	22

2.8.2	Regulatory Requirements.....	23
2.8.3	Proposed Method of Slope Protection and Erosion Control	23
2.9	Leachate Monitoring and Control Systems (CCR title 27 §§ 21790(b)(8)(F), 21160(d), and 20340).....	24
2.9.1	Existing Conditions.....	24
2.9.2	System Operation.....	26
2.9.3	Monitoring Tasks and Frequency	27
2.9.4	Reporting Requirements	27
2.9.5	System Decommissioning.....	28
2.10	Groundwater Monitoring System (CCR Title 27 §§ 20385 and 20415)	28
2.10.1	Existing Conditions.....	28
2.10.2	Proposed Monitoring System.....	29
2.10.3	System Operation.....	29
2.10.4	Monitoring Tasks and Frequency	29
2.10.5	Reporting Requirements	30
2.10.6	System Decommissioning.....	30
2.11	Stormwater Discharge Monitoring System.....	31
2.12	Landfill Gas Monitoring System (CCR title 27 §§ 21790(b)(8)(E) and 20921)	32
2.12.1	Existing Conditions.....	33
2.12.2	Proposed Monitoring System.....	33
2.12.3	Monitoring Tasks and Frequency	33
2.12.4	Reporting Requirements	34
2.12.5	System Decommissioning.....	35
2.13	Landfill Gas Control System (CCR Title 27 §§ 20921 and 20937)	35
2.13.1	Existing Conditions.....	35
2.13.2	System Operation.....	35
2.13.3	Monitoring Tasks and Frequencies	36
2.13.4	Reporting Requirements	36
2.13.5	System Decommissioning.....	36
3.0	PRELIMINARY POST-CLOSURE MAINTENANCE PLAN.....	37
3.1	Current Monitoring and Control Systems (CCR Title 27 §§ 21825(b)(2) and 21180)	37
3.2	Post-Closure Land Use (CCR Title 27 §§21790(b)(5), 21825(b)(1), and 21190)	37
3.3	Final Cover Inspection and Maintenance Program (CCR Title 27 § 21090)	38
3.4	Drainage System Inspection and Maintenance Program (CCR Title 27 §§ 21090(b)(3), 20365, and 21150)	39
3.5	Vegetative Cover Inspection and Maintenance Program (CCR Title 27 §§ 21150, 20365(f), and 21090(a)(4)(D)).....	39
3.6	Leachate Control System Inspection and Maintenance Program (CCR Title 27 §§ 21160, 21090(c)(2), and 20340)	40
3.7	Landfill Gas Monitoring and Control System Inspection and Maintenance Program (CCR Title 27 §§ 20921 et seq. and 21180(a)(2))	41

3.8	Groundwater Monitoring System Inspection and Maintenance Program (CCR title 27 §§ 20380 et seq., 20950(a)(1), and 21180).....	41
3.9	Final Grading Inspection and Maintenance Program (CCR Title 27 §§ 21090(b) and 21142).....	42
4.0	CLOSURE AND POST-CLOSURE MAINTENANCE COST ESTIMATES.....	43
4.1	Closure Cost Estimate (CCR Title 27 §§ 21820 and 21769(b)(2)(A))	43
4.2	Post-Closure Maintenance Cost Estimate (CCR TITLE 27 §§ 21840 and 21769(b)(2)(A))	43
5.0	FINANCIAL RESPONSIBILITY AND FINANCIAL ASSURANCE (CCR TITLE 27 §§ 20950(F), 20380(B), AND 21640).....	44
6.0	LIMITATIONS.....	45
7.0	BIBLIOGRAPHY.....	46

FIGURES

Figure 1	Site Vicinity Map
Figure 2	Site Location Map
Figure 3	Pre-Landfill Topography
Figure 4	Land Use Map
Figure 5	100-Year Floodplain Map
Figure 6	Environmental Monitoring Location Map

DRAWINGS

Drawing 1	Existing Site Plan
Drawing 2	Proposed Soil Cover

TABLES

Table 1	CalRecycle Joint Technical Document Index
Table 2	SWRCB Joint Technical Document Index
Table 3	Site Capacity and Earthwork
Table 4	Water Quality Monitoring System
Table 5	Monitoring Program
Table 6	Constituents of Concern for Groundwater Monitoring Program
Table 7	Closure Cost Estimate
Table 8	Post-Closure Maintenance Cost Estimate

APPENDICES

Appendix A	Construction Quality Assurance Plan
Appendix B	Closure Cost Estimate Backup Calculations
Appendix C	Post-Closure Maintenance Cost Estimate Backup Calculations
Appendix D	Financial Assurance Mechanism

1.0 INTRODUCTION

On January 28, 2026, the County of Los Angeles (or Los Angeles County) Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA) directed Chiquita Canyon Landfill, LLC (Chiquita) to prepare an update to the existing Preliminary Closure and Post-Closure Maintenance Plan (PCPMP) for the Chiquita Canyon Landfill (CCL, Landfill, Site, or Facility). This PCPMP update has been prepared in response to that directive, as amended by subsequent correspondence and conversations.

CCL is located within the northwestern portion of Los Angeles County, directly east of the Ventura County line and approximately 3 miles west of the junction of Interstate 5 (I-5) and State Route 126 (SR-126), also referred to as Castaic Junction (Figure 1).

CCL opened around 1970. The Landfill is currently owned and operated by Chiquita Canyon, LLC, a wholly-owned subsidiary of Waste Connections, Inc. It stopped receiving waste after December 31, 2025.

Originally, the landfill site was leased from the Newhall Land and Farming Company (Newhall) and operated by Chiquita Canyon Landfill Company, a division of Blue Barrel Disposal Company. The GSX Corporation acquired Chiquita Canyon Landfill Company's lease interest in CCL in 1986 and was itself subsequently acquired by Laidlaw Waste Systems, Inc. (Laidlaw) in 1987. Allied Waste Industries, Inc. (Allied) bought Laidlaw in December 1996, and USA Waste Services, Inc. (USA) acquired CCL from Allied through a stock purchase in June 1997. USA subsequently merged with Waste Management Industries (WMI) and took on the WMI name. Republic Services, Inc. (Republic) acquired the operating lease for CCL from WMI in February 1999. Republic purchased the landfill property from Newhall in June 2001. Republic merged with Allied in December 2008 and, as a condition of the merger, was required by the U.S. Department of Justice to divest Chiquita Canyon Landfill. Waste Connections, Inc. acquired the Landfill from Republic in April 2009.

The entire CCL facility is approximately 639 acres (Figure 2). The portion permitted for waste disposal consists of three major areas: the Primary Canyon, Canyon B, and the Main Canyon area, which, in aggregate, are approximately 400 acres of the entire 639-acre facility. The Primary Canyon (56.8 acres) Canyon B (11.9 acres) were closed in late 1989. As of January 2025, approximately 213 acres of the permitted Main Canyon area had been developed for waste disposal. Only 281.7 acres (or about 70%) of the 400 acres permitted for waste disposal received waste.

CCL has been experiencing an elevated temperature landfill (ETLF) event, also referred to as a landfill reaction. ETLF events are uncommon, and their exact causes remain an active area of scientific study. However, it is understood that during an ETLF event, heat accumulates in the waste mass faster than it can be removed through the existing infrastructure and best management practices, resulting in increasing pressures and temperatures. The heat spreads until an equilibrium is reached between the rate of heat generation and rate of heat dissipation.

CCL is working actively with its regulators to address the ETLF event, which is subject to various enforcement documents including the following:

- The United States Environmental Protection Agency (U.S. EPA) Unilateral Administrative Order (UAO) issued on February 21, 2024;
- The South Coast Air Quality Management District (SCAQMD) Stipulated Order for Abatement (SOFA), dated November 13, 2024, and most recently modified on June 24, 2025;
- The two Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the LEA Compliance Orders issued on June 6, 2024, and May 1, 2025;
- The California Regional Water Quality Control Board, Los Angeles Region (RWQCB) Investigative Order issued on March 20, 2024; and
- The Department of Toxic Substances Control (DTSC) Imminent and Substantial Endangerment Order (ISE Order) issued on April 2, 2025

It is a fundamental assumption of this PCPMP that closure (in accordance with CCR Title 27) occurs after the ETLF event has stabilized, and the extraordinary oversight of CCL has largely ceased. Consequently, the various closure actions considered in this PCPMP are generally consistent with previously submitted preliminary closure plans.

On January 1, 2025, CCL ceased accepting waste for disposal. Since that time, work at CCL has been focused on responding to the ETLF event, coordination with the regulators, and compliance with the various orders they have issued. On January 28, 2026, one of those regulators, the LEA, directed CCL to provide an update of the PCPMP. This PCPMP has been prepared in response to that directive, as amended by subsequent correspondence and conversations.

It is our understanding that an important need for this update is to revise the closure cost estimates to be consistent with the reduced limits of the Landfill. In addition, however, it has also been

prepared to comply with the requirements of CCR Title 27 § 21790. Consequently, it includes or assumes the following:

- Closure is limited to the 213 acres that received waste prior to January 1, 2025, exclusive of the Primary Canyon and Canyon B, which have already been closed;
- Closure cost estimates prepared in accordance with CCR Title 27 §§ 21815 and 21820;
- The current locations of leachate, stormwater, and erosion control features¹;
- After closure, the areas used for waste disposal will be unirrigated open space;
- The maximum closure extent is the current condition;
- Closure will be deferred until the ETLF event has been addressed, the timing of which is currently unknown;
- Infrastructure required solely to address the ETLF event will be removed prior to implementation of a finalized version of the PCPMP; and
- Closure activities consistent with previous PCPMPs, but accounting for the reduced size of the final landfill footprint.

1.1 REGULATORY BACKGROUND

The following discussion addresses the typical landfill regulatory setting and the relevant CCL permits. For information on the regulatory requirements associated with the ETLF event, the reader is directed to the documents listed in the section above.

Landfills within the State of California are primarily regulated by two state agencies: the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) and the California Department of Resources Recycling and Recovery (CalRecycle). CalRecycle's regulatory activities are normally conducted by a local regulatory agency, referred to as a LEA.

The SWRCB, through CCR Title 27 § 21750(i), requires landfill operators to submit a preliminary PCPMP as part of a Report of Waste Discharge (ROWD) for receiving or revising Waste Discharge Requirements (WDRs) from the applicable RWQCB. Likewise, CalRecycle, per CCR Title 27 § 21590, requires landfill operators to submit a PCPMP as part of a Report of Disposal Site Information (RDSI) for receiving or revising a Solid Waste Facility Permit (SWFP). As allowed by CCR Title 27 §§ 21590 and 21769(b)(2), the PCPMP can be submitted as either an

¹ Many of these features (e.g., landfill gas [LFG] collectors) are being actively modified in response to the ETLF event and those modifications will need to be fully captured at the time a Final Closure and Post-Closure Maintenance Plan is prepared.

integral or separable part of a joint technical document (JTD). The PCPMP must include an index specifically for use by the LEA/CalRecycle to review the PCPMP for compliance with PCPMP requirements listed in CCR Title 27 §§ 21790 and 21825. Similarly, the JTD is to include an index to review the PCPMP for compliance to CCR Title 27 §§ 21769 and 20950, which specifies PCPMP requirements. A CalRecycle index for the PCPMP is included as Table 1. A SWRCB PCPMP index is included as Table 2.

A JTD, including a PCPMP, was initially prepared for CCL in 1998 in conjunction with the expansion of CCL. The JTD was subsequently revised in 2003, 2017, and 2021 to address changes in the landfill owner and the operator as well as landfill operational changes.

In 2004, CCL proposed a new expansion that included a lateral and vertical expansion, relocated entrance, and increased daily and weekly disposal tonnage. An Environmental Impact Report (EIR) was prepared for the proposed project, and the final EIR was certified by the Los Angeles County Board of Supervisors on July 25, 2017. The Notice of Determination was filed on July 28, 2017, a copy is found in Appendix A of the JTD.

The Los Angeles County Board of Supervisors also issued CUP 2004-00042-(5) on July 28, 2017, a copy is found in Appendix A of the JTD.

CCL operates in accordance with SWFP No. 19-AA-052. The current SWFP was issued October 18, 2016. The Landfill also is operated in accordance with WDRs contained in Order No. 98-086, adopted on November 2, 1998, by the RWQCB. Copies of the SWFP and WDRs are found in Appendix A of the JTD.

1.2 REPORT SUBMITTAL

This PCPMP (1) describes how CCL will close and maintain the landfill consistent with the regulations promulgated in CCR Title 27, (2) provide updates of the preliminary closure and post-closure maintenance cost estimates, and (3) enables the LEA, CalRecycle, and RWQCB to assess the reasonableness of the cost estimates.

Section 2 of this report presents the preliminary closure plan for the Landfill, which identifies and describes tasks involved in closing the Landfill in a manner consistent with applicable regulations and acceptable standards to protect public health and safety and the environment. The contents of this preliminary closure plan are consistent with the requirements of CCR Title 27 §§ 20950 and 21790.

Section 3 of this report describes the tasks for implementing the post-closure maintenance activities. The contents of this portion of the report are consistent with the requirements of CCR Title 27 §§ 20950 and 21825.

The preliminary closure and post-closure maintenance cost estimates, consistent with the requirements of CCR Title 27 §§ 20950, 21820, and 21840, respectively, are presented in Section 4.

2.0 PRELIMINARY CLOSURE PLAN

2.1 SITE LOCATION (CCR TITLE 27 § 21790(B)(2))

CCL, located in the northwestern portion of Los Angeles County, is approximately 3 miles west of the Interstate 5 (I-5) and State Route 126 (SR-126) intersection, at Castaic Junction, California (Figure 1). The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The site latitude and longitude are 34°25'N and -118°39'E, respectively.

The site has the following physical address:

29201 Henry Mayo Drive
Castaic, California 91384

It occupies the following parcels:

- 3271-002-011;
- 3271-002-013;
- 3271-002-019;
- 3271-002-036;
- 3271-002-039; and
- 3271-005-034.

These parcels measure approximately 639 acres and are zoned A-2-2 heavy agriculture, which allows for the construction and operation of solid waste landfills. The surrounding area consists of land zoned industrial, agricultural, and residential. A legal description of the site is found in Appendix A of the JTD.

Access to the site is currently from State Route (SR) 126, a four-lane paved highway running east-west along the southern boundary of CCL (Figure 2 and Drawing 1). Access to CCL at SR-126 includes left- turn and right-turn deceleration lanes for traffic entering the Site.

Figure 2 and Drawing 1 show the site boundaries. Within that boundary, approximately 400 acres are permitted for waste disposal. Drawing 1 presents the existing and permitted limits of waste placement and the existing topography. Drawing 2 shows the proposed grading for the final cover.

On-site ancillary facilities currently existing at CCL include a scale house, landfill office, and equipment maintenance facility. These facilities are near the existing site entrance, as shown on Drawing 1.

Other on-site structures include: (1) water storage tanks, (2) several Southern California Edison electric towers, (3) groundwater monitoring wells, (4) leachate storage tanks; (5) LFG collection (wells, collectors, and piping) and control (blowers and flare) system, and (6) LFG electrical generation facility. It is assumed for the purposes of this PCPMP that existing facilities required solely to address the ETLF event will be decommissioned and removed from the Site prior to implementing a finalized version of the PCPMP. The approximate locations of non-ETLF event related structures, with the exception of the groundwater monitoring wells and landfill gas collection and control systems (GCCS), are shown on Drawing 1. The existing and proposed groundwater monitoring wells are shown on Figure 6. The existing and proposed GCCS is shown in Appendix L of the JTD.

In addition to landfill operations, resource recovery facilities are also permitted for the Site including a public drop-off area, an enclosed organic waste facility, and a household hazardous waste (HHW) drop-off facility. For the purposes of this PCPMP, it is assumed that the closed facility will not include composting, resource recovery, or HHW infrastructure.

2.2 LANDFILL TOPOGRAPHY (CCR TITLE 27 §§ 21790(2) AND 21142)

The following sections describe the current, pre-landfill, post-excavation, and proposed final grading topography of the proposed CCL expansion. Consistent with CCR Title 27 § 21790(b)(2), maps depicting these topographic conditions are also presented. Note that the post-excavation topography is found in Appendix B of the JTD.

2.2.1 Current Topography

CCL is at the western edge of the Santa Clarita Valley, in the central portion of the Transverse Mountain Ranges. Topography to the north, west, and east of the site is characterized by east-west oriented steep-sided canyons with slopes that in some cases are nearly vertical. The relatively flat terrain immediately south and southeast of the site defines the limits of the Santa Clara River floodplain.

Within the landfill site, steep-sided canyons with lengthy slopes approaching 1:1 (horizontal to vertical) are generally east-west trending. The ridge lines range in height from 300 to 600 feet above the canyon floors. Landfilling has reduced the length of some slopes and has provided more gentle terrain with flatter, rounded slopes. On-site ground elevations range from approximately 1,500 feet (National Geodetic Vertical Datums [NGVD] 29) in the northwestern corner to

approximately 900 feet (NGVD 29) in the lower canyon floor. The current site topography (2026), based on aerial photography, is depicted on Drawing 1.

2.2.2 Pre-Landfill Topography

CCL originally opened around 1970 with landfill operations beginning in the Primary Canyon. Site-specific pre-landfill topography is not available. However, a 1940 United States Geological Survey (USGS) 7.5 minute quadrangle, Castaic, California (Figure 3), shows the original floor elevation of the Primary Canyon, which is estimated to at approximately 1,100 feet above mean sea level (NGVD 29) sloping southwesterly at approximately 5%. Photographs taken during early operations of the Primary Canyon landfill area indicate that daily and intermediate cover soil was obtained from within the limits of the Primary Canyon landfill area.

2.2.3 Post-Excavation

The base preparation plan (Appendix B of the JTD) shows the general design of the landfill base and the leachate collection and removal system (LCRS) for CCL. Landfill areas were excavated sequentially in a series of cells that supplied the soils necessary for landfill development and operations, and to allow the base and sideslopes of the excavated cells to be prepared for lining and landfilling. The approximate top of liner grades is shown on Drawing 2 of Appendix B in the JTD. Note that Cell 7, Cell 9, Cell 10, Cell 11, Cell 12, and Cell 13 were not constructed. Soils have been excavated from Cell 7 for construction activities at the Site. The anticipated soil borrow area for closure is shown on Drawing 2 of this PCPMP.

2.2.4 Proposed Final Grades

The final grading plan (Drawing 2) shows: (1) the proposed contours for the landfill development, (2) the location and sizing of the final (permanent) stormwater drainage control facilities, and (3) the alignment of the final access roads on the completed Landfill. It is assumed for the purposes of this PCPMP that final cover consists of installing the 4-foot thick evapotranspirative (ET) cover that was proposed for the Main Canyon Landfill in the JTD. It is assumed that a minimum of one-foot of foundation layer/intermediate cover is already in place across the waste disposed of in the Main Canyon. Additional fill is added, as needed, to ensure that the flat areas have at least a 3% fall and that the maximum steepness of the slopes is limited to 3:1 (horizontal: vertical). A detailed description of the final landfill grades is presented in Section 2.7.5, Final Grading.

2.3 MAXIMUM CLOSURE AREA (CCR TITLE 27 § 21790(B)(6))

As noted previously, approximately 213 acres of the Main Canyon area were developed for waste disposal and had received waste by January 1, 2025. This is, therefore, the maximum closure area of CCL since both the Primary Canyon and Canyon B are already closed.

2.4 CURRENT MONITORING AND CONTROL SYSTEMS (CCR TITLE 27 §§ 21790(B)(4) AND 20180)

The current monitoring and control systems at CCL consist of leachate monitoring and control system, a groundwater monitoring system, a stormwater discharge monitoring system, and an LFG monitoring and control system. The Primary Canyon was not developed with a leachate monitoring and control system. The anticipated monitoring and control systems (post-ETLF event) are described in detail in the following sections:

- Section 2.9 - Leachate Monitoring and Control System
- Section 2.10 - Groundwater Monitoring System
- Section 2.11 - Stormwater Discharge Monitoring System
- Section 2.12 - Landfill Gas Monitoring System
- Section 2.13 - Landfill Gas Control System

2.5 LAND USE

Much of the area surrounding CCL consists of undeveloped open space as a result of steep topography. Surrounding land uses include mostly open lands to the north; rural residential developments and light industrial developments are located to the west and northwest along Chiquito Canyon Road and in the Val Verde Area, respectively. Relatively new suburban residential areas are located to the northeast. The closest of these residential dwellings is located approximately 500 feet from the northwest site boundary corner and 1,200 feet from the landfill footprint. The intervening topography prevents views of the operating Landfill from these locations. Industrial/commercial uses are located to the northeast, east, and southeast. The U.S. Postal Service has a General Mail Facility adjacent to the eastern edge of the site boundary. The property immediately west and south of the Landfill is owned by Newhall and is currently either vacant or is used for agricultural activities. Oil extraction fields and associated storage areas are located less than 1 mile from the Landfill to the west and south. Valencia Travel Village, a short- and long-term campground, is located approximately 1 mile east of the Landfill on the south side of SR-126.

The area south and west of the landfill is proposed for commercial and residential development as part of the Newhall Ranch Specific Plan. There are four residential and commercial developments planned for the land adjacent (south and west of the landfill) to SR-126: Landmark Village, Mission Village, Homestead Village, and Portero Village. The villages will provide numerous dwelling units and thousands of square feet of commercial space. The area immediately south of the Landfill, designated as Landmark Village, is planned to be the first phase of development.

Although the first development phase was originally planned to have begun in 2007, there is currently no firm schedule for the development.

The entirety of the Site is designated as a non-urban (R) in the Los Angeles County General Plan. Additionally, the General Plan Special Management Areas map designates CCL as Hillside Management (HM), and the General Plan Solid Waste Management Plan map identifies CCL as an existing landfill. Existing zoning for the Site is Heavy Agriculture (A-2-2 and A-2-5). The remainder of the property, primarily the easterly portion to be occupied by the Materials Recovery Facility (MRF), is zoned as Restricted Heavy Manufacturing Development Program (M-1½ DP). The landfill site is designated as public or semi-public land. The Landfill conforms to the goals and policies of the Area Plan, as well as to the Castaic Corridor amendment. The landfill design is consistent with existing and planned land uses and zoning requirements. Most of the Site is designated as a non-urban hillside management (HM) in the Santa Clarita Valley Area Plan. In addition to HM, the southeastern part of the Site is designated as industrial (M) in the Santa Clarita Valley Area Plan. Industrial uses must be clean, nonpolluting, with no offensive odors, and visually attractive. Also, part of CCL is designated as Public Services Facilities (P).

The Landfill conforms to the goals and policies of the Santa Clarita Valley Area Plan, as well as to the Castaic Corridor amendment. The landfill design is consistent with existing and planned land uses and zoning requirements. The Site is zoned for agricultural and manufacturing land uses (A2-2, A-2-5, and M-1½ DP), for which landfills and resource recovery facilities are a permitted use provided that the operation conforms to conditions of approval for the requisite CUP. The Landfill is compatible with the proposed scenic trails planned in the nearby area. The Landfill is consistent with the policies set forth by the Los Angeles County Department of Parks and Recreation Riding and Hiking Trails Plan.

The landfill's conformance with the Los Angeles County General Plan and Santa Clarita Valley Area Plan is as follows: Most of the landfill site is designated for non-urban uses, which include solid waste facilities. The remaining portions of the landfill site are designated for industrial land uses with which the landfill is compatible. The proposed land use can therefore be found in conformance with the Area Plan as well as the Castaic Corridor Plan.

A map depicting land use in the site area is included as Figure 4.

2.6 CLOSURE DATE (CCR TITLE 27 § 21600(B)(3)(C))

The expected closure date for CCL, as defined by CCR Title 27 § 21600, is uncertain at this time. Closure is not limited by available capacity since at the time CCL stopped receiving waste in January 2025, there was over 50 million cubic yards of permitted gross air space available for waste disposal. Rather, the uncertainty is a function of the ETLF event. The current consensus is that closure should be deferred until the ETLF event has been stabilized. For the purpose of this document, ‘stabilized’ is generally understood to mean a state when significant changes to the landfill geometry due to related settlement are no longer expected, and that large-scale closure activities (raising gas wells, relocating headers, increasing weight) will not negatively impact the mitigation measures in place for the ETLF event. CCL proposes annual conferences with the LEA and other regulators to evaluate when this state has been achieved. Once achieved, submission of the Final Closure and Post-Closure Maintenance Plan (FCPMP) would occur within 12 months.

2.7 DESCRIPTION OF CLOSURE (CCR TITLE 27 § 21790(B)(8))

As described above, the following assumes that the ETLF event has stabilized, additional settlement induced by the event is not expected to recur, and the infrastructure solely required to address the ETLF event has been removed.

2.7.1 Closure Sequence

The sequence of closure activities is based on approval of the FCPMP by the RWQCB, LEA, and CalRecycle. To complete closure of CCL, the following activities will be performed:

- Prepare and submit the FCPMP to the Los Angeles RWQCB, LEA, and CalRecycle for review and approval at a time to be determined based on concurrence that the necessary site conditions have been achieved. The FCPMP will provide detailed plans and schedules for all closure activities and will include construction quality assurance (CQA) procedures and slope stability evaluations.
- Remove existing facilities no longer needed to support operations or maintenance.
- Place final cover consistent with the approved FCPMP
- Install final drainage structures (overside drains, diversion berms, swales and ditches, outlet energy dispersion aprons, etc.)
- Establish vegetative cover
- Prepare the as-built topographic map for CCL
- Remove unnecessary structures
- Establish additional site security, as needed
- Prepare the as-built topographic map for CCL
- Perform post-closure maintenance and monitoring

2.7.2 Closure Schedule

CCL will be closed in general conformance with the final grading plan shown on Drawing 2. The closure activities will include the placement of final cover, vegetation of the completed areas, construction of permanent drainage features, removal of landfill structures (if necessary), and provisions for site security. The environmental control systems (ECS) will be decommissioned after the post-closure maintenance period, or until landfill by-products, such as leachate and LFG, are demonstrated to no longer pose a threat to the environment and when proper regulatory agency approval for decommissioning has been obtained.

Closure activities will begin in accordance with the schedule to be provided in the approved FCPMP.

The closure construction time is contingent on the performance of the contractor, and weather and site conditions.

The following sections present a general description of the closure activities.

2.7.3 Removal of Landfill Structures (CCR Title 27 §§ 21790(b)(8)(A) and 21137)

Numerous structures on the site supported landfill operations, most of which are still present. These include a scale house, landfill office, equipment maintenance facility, mothballed LFG electrical generation facility, LFG combustion flare, water storage tanks, leachate storage tanks, and associated utilities. Other similar structures related to resource recovery activities (HHW facility, composting facility) may be constructed at the Site in the future, consistent with the CUP, but are not planned at this time.

The scale house, at the landfill entrance, is equipped with incoming and outgoing truck scales. This facility is used not only to collect tipping fees, but also to process each vehicle, to collect data on the type and number of vehicles, to weigh each vehicle, and for other miscellaneous functions. The landfill office, near the scale house at the landfill entrance, houses the site management personnel and the administrative support staff.

At the equipment maintenance facility, landfill equipment is serviced and maintained. Equipment is stored on-site, either adjacent to the working face of the Landfill or at the landfill maintenance building.

LFG collected from the Landfill is combusted in enclosed flares. The LFG electrical generation facility and LFG combustion flares are located north of the Primary Canyon landfill area.

Water storage tanks and leachate storage tanks are located at multiple locations on the Site.

Unneeded on-site structures shown on Drawing 1 will be removed in a cost-effective manner and either disposed, sold, or used at another landfill site.

Structures that are no longer needed will be dismantled or demolished, and either sold, reused at another site, or otherwise properly disposed.

2.7.4 Decommissioning of Environmental Control Systems (CCR Title 27 § 21137)

The ECS utilized at the Landfill currently consist of groundwater monitoring wells, vadose-zone monitoring facilities, leachate collection systems, and LFG collection wells and monitoring probes. The locations of each existing system are shown in Figure 6, except the leachate collection systems and LFG collection system. The leachate collection systems are shown in disposal module design plans previously submitted to the RWQCB. The current LFG collection system is shown in Appendix L of the JTD.

All ECS existing at closure are proposed to remain in place upon closure and during the post-closure maintenance period, a minimum of 30 years, or until landfill by-products, such as leachate and LFG, are demonstrated to no longer pose a threat to the environment and when proper regulatory agency approval for decommissioning has been obtained. The accessible portions of the ECS will then be decommissioned, if necessary.

ECS to be decommissioned will either be abandoned in place or be dismantled and properly disposed. Well abandonment techniques for decommissioning the groundwater monitoring system will be consistent with the procedures prescribed in the California Well Standards, Bulletin 74-90, and supplement to Bulletin 74-81 (DWR 1990) or equivalent document applicable at the time of decommissioning. Underground pipe components of the leachate control system and the LFG monitoring and control system will be cut off at the surface, capped, and buried to minimize the disturbance of the landfill final cover. Aboveground components will be dismantled, decontaminated, and salvaged for reuse or otherwise properly disposed. Transportation and disposal will be consistent with federal, state, and local laws and accomplished in a manner that prevents the introduction of LFG condensate, leachate, or waste constituents into the environment. Materials intended for reuse will be cleaned using one or more of the methods listed below, or another appropriate method.

- Washing with water, detergent, or chemical solvents
- Steam-cleaning

- Scrubbing with abrasives
- Sand blasting

The residues produced as a result of cleaning reusable components will be disposed of consistent with applicable federal, state, and local laws.

The decommissioning of each ECS is discussed further in the following sections:

- Section 2.9 - Leachate Monitoring and Control System
- Section 2.10 - Groundwater Monitoring System
- Section 2.11 - Stormwater Discharge Monitoring System
- Section 2.12 - Landfill Gas Monitoring System
- Section 2.13 - Landfill Gas Control System

2.7.5 Security at Closed Sites (CCR Title 27 §§ 21790(b)(8)(A) and 21135)

Access to the Site is via SR-126, approximately 3 miles west of the intersection of I-5 at Castaic Junction (Figure 2). On-site roads provide access to the existing landfill areas, future landfill modules, and closed areas.

Unauthorized access to the Landfill is prevented by fencing and the local canyon topography. In general, most of the Landfill is surrounded by steep topography and is distant from public access areas. The topography to the north, west, and immediate east of the Site is characterized by east-west oriented steep-sided canyons, with slopes that approach 1:1, and are in some cases nearly vertical. Although, the south and southwest boundary areas are relatively flat, they define the limits of the Santa Clara River floodplain.

Security is provided at the Site and includes signs written in English indicating that the Landfill is closed to the public. All entry points to the Site from public roads will be controlled with lockable gates.

A parcel of land east of the Canyon B landfill area has been developed with a U.S. Postal Service regional processing facility. The development includes a flood control basin with an outlet structure connecting to a storm drain system on the U.S. Postal Service property. To prevent unauthorized access to either the Landfill or the postal facility, there is security fencing along the property boundary and at the outlet structure.

2.7.6 Final Cover (CCR Title 27 §§ 21790(b)(8)(B), 21790(b)(8)(c), 21140, 21090(a), and 21769(b)(2))

2.7.6.1 *Background and Present Conditions*

An intermediate cover consisting of at least 12 inches of native soil has been placed over the waste across the Main Canyon disposal area. As previously described, final cover has been placed on the Primary Canyon and Canyon B. Other areas of the Landfill have not received final cover.

2.7.6.2 *Regulatory Requirements*

According to CCR Title 27 § 21140, the final cover shall have a minimum thickness and quality of cover material consistent with the CCR Title 27 § 21090(a) minimum final cover requirements, which consist of the following layers, from bottom to top:

- A minimum of 2 feet of compacted foundation soil
- A minimum of 1 foot of compacted low-hydraulic conductivity soil ($k < 1 \times 10^{-6}$ centimeters per second [cm/sec]) or equal to the hydraulic conductivity of any bottom liner system or underlying natural geologic materials, whichever is less permeable
- A minimum of 1 foot of vegetative cover soil

2.7.6.3 *Proposed Final Cover*

CCR Title 27 § 21140(b) provides for engineering alternatives to the prescriptive design, if approved by RWQCB. This PCPMP proposes an engineered alternative for the CCL final cover design.

An ET cover is proposed as the final cover for the Main Canyon area of CCL. An ET cover consists of a thick layer of finer-textured soil to provide the storage capacity needed to minimize percolation.

Conventional final covers rely on the hydraulic impedance provided by barrier layers having low saturated hydraulic conductivity (e.g., low-permeability soil, geomembrane, etc.) to minimize percolation and consequent leachate generation. In contrast, an ET cover acts like a “sponge” that stores water when the precipitation exceeds evapotranspiration. During drier periods, evaporation from the soil surface and transpiration from vegetation remove the stored water. By providing an ET cover that has sufficient storage capacity to store water during wet periods and vegetation to maximize transpiration, percolation to the underlying waste can be minimized. In recent years, ET covers have been referred to as “water balance covers” because the latter better represents the process involved. The RWQCB has previously approved an ET cover for the Primary Canyon and Canyon B at CCL.

Field studies cited in Winkler (1999) and Apiwantragoon (2007) indicate that an ET cover may be a more reliable alternative to compacted clay covers on landfills located in arid and semiarid regions. The U.S. EPA- sponsored research work (Albright et al., 2004 and 2010) indicates that an ET cover with proper vegetation can be very effective in keeping percolation rates to less than those from conventional covers in arid and semiarid areas.

Typically, a proposed engineered alternative final cover is considered equivalent to a prescriptive design final cover if percolation from the engineered alternative final cover is less than that from the prescriptive design final cover.

CCR Title 27 § 20080(b)(2) requires that alternatives to the prescriptive design afford equivalent protection against water quality impairment as the prescriptive design. Section 21090 (a)(1) describes that closed landfills shall be provided with a low-hydraulic-conductivity (or low through-flow rate) layer consisting of not less than 1 foot of soil containing no waste or leachate that is placed on top of the foundation layer and compacted to attain an hydraulic conductivity of either 1×10^{-6} cm/sec (1 foot/year), or less, or equal to the hydraulic conductivity of any bottom liner system or underlying natural geologic materials, whichever is less permeable, or another design which provides a correspondingly low through-flow rate throughout the post-closure maintenance period.

CCL is located in a semiarid region with an average annual precipitation of approximately 17 inches. Based on analysis of all the data from the Alternative Cover Assessment Program (ACAP) program, Benson (2010) recommended that maximum allowable percolation rates of 125 millimeters per year (mm/year) and 20 mm/year be used as the design criteria for ET covers located in humid and arid/semiarid regions, respectively. Accordingly, a percolation of 20 mm/year has been used as the design criterion for CCL.

To determine the feasibility of an ET final cover at CCL, Golder Associates, Inc. (Golder) reviewed available on-site soil data in 2015, including the following:

- Grain-size distribution
- Atterberg limits
- Proctor compaction
- Saturated hydraulic conductivity

The representative soil suction-water characteristic curves were developed based on published empirical relationships between the curves and grain-size distribution curves.

Based on Golder's preliminary evaluation, it was determined an ET final cover was a suitable final cover for CCL.

In parallel with Golder's preliminary evaluation, eight representative soil samples were obtained from CCL and sent to a soils laboratory for testing to develop laboratory-derived soil-water characteristic curves. Using the laboratory-derived soil-water characteristic curves, water balance modeling was performed using the UNSAT-H computer program. UNSAT-H accounts for runoff, evaporation, and transpiration. The model input parameters are discussed further in *Evaluation of Evapotranspirative Final Cover, Chiquita Canyon Landfill, Los Angeles County, California* (Golder 2017a) in Appendix H of the JTD.

Consistent with the recommended simulation procedure in Albright et al. (2010), each set of water balance simulations were performed in two steps:

- The first step is a “warm-up simulation” to establish initial conditions for the second step. This involved a 5-year repeated simulation using the climate data for a typical (i.e., average) precipitation year.
- The second step is a “design” or “performance simulation” that involved a 5-year repeated simulation using the climate data for the wettest year. The final conditions (suction heads) from the first step above are used as the initial conditions for the second step. It should be noted that this modeling is conservative because it assumes that the wettest year occurs over 5 consecutive years.

The modeling was performed assuming a 4-foot-thick (minimum) ET final cover placed over the 1-foot-thick intermediate cover.

The results of the water balance modeling determined that four of the eight soil samples met the ET final cover requirements. The four samples were obtained from the southern half of the northeastern stockpile.

Based on the particle distribution of the soil samples, Golder developed an acceptable gradation envelope for ET final cover soil. The envelope can be used to verify the acceptability of borrow sources for ET final cover soil. The acceptable gradation, which is shown in Figure 13 of Appendix H of the JTD, has the following general characteristics:

- 99% passing the 1-inch sieve
- 95% passing the No. 4 sieve
- 75% passing the No. 40 sieve

- 40% passing the No. 200 sieve
- Plasticity index of less than 25

The estimated quantity of final cover soils required for the landfill is presented in Table 3. The quantity of final cover soils required for the maximum closure area is presented in Appendix B, Closure Cost Estimate Back-Up Calculations. Final cover will be placed in accordance with the closure schedule to be contained in the FCPMP approved by the RWQCB, LEA, and CalRecycle.

In response to the ETLF event, geomembrane has been deployed across sections of the Main Canyon disposal area to improve LFG collection and odor control. It is assumed that during installation of the final cover that this geomembrane will be cut, punched, or selectively removed to ensure development of adequate interface strength between the cover soil and the existing slope. This assumption will be confirmed as part of the specific slope stability analysis prepared for the FCPMP.

An example CQA plan for the ET final cover is presented in Appendix A. A specific CQA plan will be prepared in conjunction with the final closure design. Final cover construction will be conducted under the supervision of a registered civil engineer.

2.7.7 Final Grading (CCR TITLE 27 §§ 21790(b)(8)(B), 21142, and 21769(b)(2))

2.7.7.1 *Background and Existing Conditions*

The existing landfill grades are largely those existing when CCL stopped accepting waste on January 1, 2025. Some earthwork has been performed to address settlement related to the ETLF event, and for construction of a buttress along the western slope. For the purposes of this PCPMP, it is assumed that the site topography shown on Drawing 1 will be the condition at closure. The existing slopes generally have a maximum angle of approximately 3:1, although some limited areas are as steep as 2:1.

2.7.7.2 *Regulatory Requirements*

According to CCR Title 27 § 21142, the final elevations of the Landfill must be designed to prevent ponding, accommodate anticipated future settlement, and reduce runoff velocities in order to protect the final cover from soil erosion. Additionally, the Site will be designed with final grades consistent with CCR Title 27 § 21090(b).

2.7.7.3 *Proposed Final Grades*

The preliminary final grades are designed consistent with CCR Title 27 requirements. The final grades on the top deck will be constructed with slopes no flatter than 3% to provide sufficient slope

for continued stormwater runoff after waste consolidation and settlement, and to prevent the potential for ponding in the event of differential settlement. The highest elevation is 1,430 (NGVD 29). The proposed final grades are shown on Drawing 2.

The final grades are controlled by surrounding topography, existing waste fill, anticipated waste settlement, and minimum gradients for adequate drainage of the completed fill. Final landfill grades are designed to prevent ponding, to accommodate anticipated future settlement (post ETLF event), and to reduce runoff velocities to minimize erosive conditions. The final landfill grades, shown on Drawing 2, are based on the current grades but will be adjusted in the FCPMP. Post-closure waste settlement is estimated to range from 3% to 7% of the waste thickness. A settlement analysis, based on the permitted final grading plan was prepared for the JTD and is contained in Appendix E of that document. A new settlement analysis will be prepared for the FCPMP.

Permanent survey control monuments, already established on-site, will be maintained to provide reference points for landfill settlement measurements.

To monitor settlement of the Site during the post-closure maintenance period, measuring techniques, such as drone surveys, will be used. The entire Landfill will be surveyed to evaluate landfill settlement. The Landfill will be aerially photographed at the end of closure activities, and every 5 years throughout the post-closure maintenance period. An iso-settlement map will also be produced every 5 years showing changes in elevation from the map produced upon closure and the most recent topographic map. Iso-settlement maps will be produced consistent with CCR Title 27 § 21090(e).

2.7.8 Final Site Face (CCR Title 27 §§ 21145 and 21769(b))

The final landfill configuration for CCL will provide a final site face with slopes no steeper than 3:1 (horizontal:vertical) and with 20-foot-wide benches placed at 50-foot elevation intervals. Minimum final surface slopes of 3% will be used to provide sufficient slope for runoff after waste settlement. Additional soil will be added, as needed, to ensure that the ET cover is installed within these limits.

In response to the ETLF event, geomembrane has been deployed across sections of the Main Canyon disposal area to improve LFG collection and odor control. It is assumed that during installation of the final cover that this geomembrane will be cut, punched, or selectively removed to ensure development of adequate interface strength between the cover soil and the existing slope.

Slope stability analyses were initially performed demonstrating the static and seismic stability of the proposed slopes under normal landfill conditions (Appendix I of the JTD). A global slope

stability analysis is being prepared that considers the effects of the ETLF event, and will be incorporated into future updates of this PCPMP.

The slope stability of the proposed final cover will be evaluated as part of the FCPMP.

2.7.9 Final Drainage (CCR Title 27 §§ 21790(b)(8)(D), 21150, 20365, and 21090)

2.7.9.1 *Existing Conditions*

Regional hydrology in the Transverse Mountain Ranges is controlled by the relatively steep topography and by the precipitation in the area. Because of the area's steep terrain, most of the precipitation is lost to surface-water runoff, which is drained by the west-southwest flowing Santa Clara River. Water not lost to runoff infiltrates the ground surface or is lost to evapotranspiration. The Santa Clara River forms a level and extensive floodplain, which winds through rugged topography to the Pacific Ocean, approximately 40 miles southwest of the Site.

The Site lies in a canyon east of San Martinez Chiquito Canyon and south of Hasley Canyon, and is separated from both by relatively steep ridgelines. The ridgelines define the northern and western boundaries of the site, resulting in minimal contributory drainage areas to the Landfill. Surface water runoff within the Site's drainage basin is directed to the south and east. Most of the Site drains south toward the Santa Clara River, which runs along the southern border of the Site. The northeast portion of the Site drains eastward into a large unnamed canyon, then southeast into Castaic Creek, approximately 3,000 feet from the site boundary. Castaic Creek, seasonally dry, flows south toward the Santa Clara River.

Stormwater exits the existing Site and flows into two natural drainage channels. Drainage from the Primary Canyon and most of the Main Canyon landfill areas flows to the south toward the west-flowing Santa Clara River. The combined stormwater runoff from these areas pass through an existing sedimentation basin that discharges to off-site culverts under SR-126 to an open channel across Newhall Ranch, before discharging into the Santa Clara River. The culvert is currently maintained by the California Department of Transportation (Caltrans).

In general, drainage from the Canyon B landfill area and the northeast corner of the Main Canyon flows northeast and combines with surface flows from the undeveloped areas east of the Landfill. The stormwater runoff flowing in the northeast and east direction discharges into Castaic Creek, a tributary to the Santa Clara River. These flows pass through a debris basin and stormwater drainage pipe, constructed as part of the adjacent U.S. Postal Service development, to its discharge location at Castaic Creek and ultimately to the Santa Clara River. Drainage from the west portion of Canyon B landfill area flows along the access road ditch northwest of the Primary Canyon landfill area and ultimately drains into the Santa Clara River.

The entire Site is well above the 100-year floodplain, as shown in Figure 5, which is based on the Federal Emergency Management Agency Flood Insurance Rate Map (FEMA) for Los Angeles County, California (Panel 06037C0800F, effective September 26, 2008).

2.7.9.2 Regulatory Requirements

The final drainage system will be designed consistent with CCR Title 27 §§ 20365, 21090, 21150, and 21750 requirements, which include the following:

- All permanent drainage facilities on the finished landfill surface will be designed by a Registered Civil Engineer for 100-year, 24-hour precipitation conditions (CCR Title 27 § 20365(c)(1))
- Identify whether the Site is located within the 100-year floodplain (CCR Title 27 § 21750(d)(2))
- Collection and holding facilities shall be emptied immediately following each storm or otherwise managed to maintain their design capacity (CCR Title 27 § 20365(c)(6))
- Holding facilities shall be designed and constructed so they will not be overtopped during a 100-year, 24-hour precipitation event, or the operator may release the water downstream in a manner that will not cause erosion or inundation of the off-site drainage structures (CCR Title 27 § 20365(a))

2.7.9.3 Proposed Drainage System

To minimize run-on to the landfill site, runoff from contributory areas outside the Landfill will be directed around the landfill perimeter. Closure of the Landfill will provide gentler slopes, which should serve to reduce peak runoff flows. The preliminary final grading plan is shown on Drawing 2.

With the early closure of the Landfill, the drainage infrastructure is effectively in place. Since most of the existing infrastructure was designed to accommodate a greater landfill area, it has excess capacity for the current tributary area. Some upgrades are being made to the eastern basin that are expected to be completed in 2026, but no significant additions (e.g., basins, channels) are anticipated between now and the time closure of the Landfill occurs.

The landfill final drainage system is designed to carry the peak discharge from the Landfill resulting from the 100-year, 24-hour storm event, as required by CCR Title 27 §20365(c)(1) for Class III waste management units (WMUs). Since the existing infrastructure was designed to accommodate run-off from a larger landfill, it is assumed to be adequate for the present condition. Stormwater runoff volumes were evaluated using the Modified Rational Method and design criteria prescribed in the Los Angeles County Department of Public Works Hydrology Manual (Hydrology Manual). The Hydrology Manual contains design procedures for calculating peak flows and times of concentration using the Modified Rational Method. Hydrologic modeling was performed using the Modified Rational Hydrology (MODRAT) computer model developed by Environmental Modeling Systems, Inc. (EMS-i), Sandy, Utah.

The drainage control facilities feature a network of diversion berms, drainage ditches, overside drains, and sedimentation basins for surface drainage management of the completed Landfill. Ancillary drainage structures such as drop inlets and catch basins will also be used for proper conveyance of storm runoff into the drainage system. Drainage ditches constructed over waste fill areas will be underlain by a compacted soil layer and lined or vegetated to minimize erosion.

Run-on from tributary canyon sideslopes will be intercepted by ditches constructed along the perimeter access road. These drainage ditches and overside drains will convey the storm runoff away from the completed Landfill to natural downstream channels.

Facilities necessary for collecting and diverting stormwater runoff from the site and its surrounding tributary drainages are drainage diversion berms, various drainage ditches, overside drains and inlets, and energy dissipaters. This drainage network for the completed Landfill is designed to carry stormwater at velocities that should minimize ditch erosion. Sideslope benches (approximately 20 feet wide) and the access road (approximately 30 feet wide) are equipped with drainage ditches for erosion control and drainage needs.

2.8 SLOPE PROTECTION AND EROSION CONTROL (CCR TITLE 27 §§ 21145, 21150, AND 20365(C))

2.8.1 Background and Existing Conditions

Mountain slopes in the Transverse Ranges are typically covered with chaparral, or shrub-like vegetation, and stunted tree forms typical of semiarid climates. Gentler slopes near the Santa Clara River are typically covered with sage or sage-chemise and grass. The north-facing slopes on the undisturbed portion of the landfill site are mostly covered with chaparral brush, and the south-facing slopes contain remnants of coastal sage scrub. Grass grows in much of the area that was previously disturbed by landfill operations.

Current erosion control measures at CCL include the following:

- Construction of a perimeter drainage system along the interface of landfill and natural ground
- Collection and control of surface runoff from highly erodible areas
- Grading of top-deck areas to non-erosive grades
- Construction of temporary and permanent drainage facilities
- Utilization of temporary control measures (mulch, straw bales, matting, etc.) until vegetation is established

2.8.2 Regulatory Requirements

The slope protection and erosion control procedures will comply with CCR Title 27 §§ 20365(c), 21145, and 21150. The requirements include the following:

- Construction of temporary and permanent drainage facilities
- Implementation of procedures to protect the integrity of the final cover and enhance its ability to minimize and prevent erosion
- Establishment and maintenance of the vegetative cover according to the post-closure land use
- Plant species selection based on the criteria of CCR Title 27 § 21090(a)(3)(A)(1)
- Slope stabilization to prevent soil erosion
- A soil loss analysis

2.8.3 Proposed Method of Slope Protection and Erosion Control

The completed Landfill will be provided with permanent drainage facilities designed to divert run-on and runoff away from the Landfill while minimizing erosion damage. Benches, approximately 20 feet wide, constructed on the sideslopes of the Landfill will be provided with drainage ditches to convey runoff to overside drains. Roadside drainage ditches and drainage diversion berms will prevent direct run-on around the Landfill. Locations of the drainage facilities are shown on Drawing 2.

Additionally, final landfill surfaces will be vegetated with grasses and other shallow-rooted vegetation after final cover has been placed. A comprehensive revegetation program will be developed to mitigate potential significant impacts and will include the following:

- The process involved in the design development and implementation of the revegetation program
- The relationship of the revegetation plan to the operational aspects of the Landfill
- The specific criteria and guidelines associated with designing the individual revegetation projects within the revegetation plan
- The time table to initiate and complete identified tasks and subsequent individual projects within the revegetation plan

Erosion control measures include the following:

- Collection and control of runoff, diverting it away from high-erosion areas
- Grading final areas to achieve maximum slopes of 3:1
- Reseeding of intermediate and finished areas, as necessary
- Sedimentation collection basins

Erosion control measures to be implemented at CCL are described in the Site's *Storm Water Pollution Prevention Plan* (Golder 2017d).

2.9 LEACHATE MONITORING AND CONTROL SYSTEMS (CCR TITLE 27 §§ 21790(B)(8)(F), 21160(D), AND 20340)

A typical effect of an ETLF event is a marked increase in the quantity of leachate released from the waste, and this has been the case at CCL. It is uncertain what the post-ETLF event leachate generation rate will be, but for the purposes of this PCPMP, it is assumed that it returns to a rate mirroring the pre-ETLF state. A side effect of deploying the geomembrane to assist in LFG collection and odor control will be a reduction in infiltration, which may also reduce leachate generation in the post-ETLF event condition. This section has been retained from the previous version of the PCPMP as a placeholder for those conditions, but will be updated to reflect actual conditions when it is appropriate to prepare and submit the FCPMP.

2.9.1 Existing Conditions

The Canyon A, B, C, and D landfill areas and Cells 1 through 5 were each developed with a base liner and LCRS. Canyon A, B, and D landfill areas were developed with a combination of high-density polyethylene (HDPE) on the sideslopes, bentonite admix soil for the base liners, and an LCRS. Cells 1 through 5 were developed with a composite liner and LCRS on the base and a geomembrane liner on the sideslopes. All liner and LCRS designs have been approved by the RWQCB.

The sideslopes of the Canyon A, C, and D landfill area were excavated at 2:1 slopes, which created a wide, flat base sloping west at about 2% to 3%. Canyon B sideslopes were excavated at 2:1 with its base sloping east at about 5%. After excavation, the canyon floors were lined with a 1-foot-thick low-hydraulic conductivity bentonite admix soil liner and the slopes were lined with a HDPE liner. The canyon floor also includes a 6-inch-thick sand drainage layer that directs leachate into a collection drain (perforated polyvinyl chloride [PVC]), wrapped with gravel and geotextile fabric, which drains into a leachate collection sump. An 18-inch-thick protective soil cover was placed over the LCRS on the canyon floor. A minimum 2-foot-thick protective soil cover was similarly placed against the HDPE-lined sideslopes as waste lifts were constructed.

The Canyon C landfill area was developed in multiple stages, Cell I and Cell II (Phases 1, 2A, and 2B). The sideslopes were excavated at approximately 2:1, and sideslopes requiring earthfill were constructed at approximately 2.5:1. The base elevation in Canyon C slopes toward the southwest at approximately 4%. The floor in Canyon C, Cell I, is lined with a composite liner (2-foot-thick, low-hydraulic conductivity [$k < 1 \times 10^{-7}$ cm/sec] soil layer and a 60-mil-thick HDPE geomembrane liner). The sideslopes are lined with a 60-mil-thick HDPE geomembrane liner only. Canyon C, Cell II, Phases 1, 2A, and 2B utilize a RWQCB-approved engineered alternative liner design composed of a geosynthetic clay liner (GCL) overlain by a 60-mil-thick geomembrane liner. The sideslopes are also lined with GCL overlain by a 60-mil-thick geomembrane.

The LCRS is a blanket collection system with a 1-foot-thick gravel ($K \geq 1$ cm/sec) drainage layer overlain by a geotextile filter fabric and a system of lateral and main collection pipes. A 1-foot-thick protective soil cover is placed on the LCRS on the canyon floor, and a minimum 2-foot-thick protective soil cover is similarly placed over the HDPE-lined sideslopes as the fill is brought up. Cells 1 through 4 were developed with a RWQCB-approved engineered alternative liner design comprised of a GCL overlain by a 60-mil-thick geomembrane liner on the base and an 80-mil-thick geomembrane on the sideslopes. The LCRS on the base is a geocomposite drainage layer and a system of lateral and main collection pipes. A 2-foot-thick protective soil cover is placed on the LCRS and on the sideslopes.

Cell 5 was developed with a liner design comprised of a 2-foot-thick compacted clay liner overlain by a 60-mil geomembrane liner on the base and an 80-mil-thick geomembrane on the sideslopes. The LCRS on the base is a drainage geocomposite layer and 9-inch-thick gravel layer, and a system of lateral and main collection pipes. A 2-foot-thick protective soil cover is placed on the LCRS and on the sideslopes.

Separate leachate collection sumps were initially constructed for Canyons A, B, C (Cells I and II), and D. With the construction of Cells 1 through 5, the leachate collection sumps, with the exception of the Canyon B sump, have been decommissioned. Currently, there is a temporary leachate collection point comprised of multiple storage tanks, located down canyon of Cell 5.

The leachate collection sump for Canyon B is located just outside the Canyon B fill area at the eastern toe of the Landfill. The sump is HDPE-lined and has been converted to an underground sump. A 6-inch- diameter pipe, which collects leachate from the LCRS at the base of Canyon B, drains into the sump.

2.9.2 System Operation

Leachate generation potential is typically evaluated using the Hydrologic Evaluation of Landfill Performance (HELP) computer simulation developed by the U.S. Army Corps of Engineers for the U.S. EPA. However, the HELP model is not suitable for evaluating leachate generation potential with an ET final cover.

The results of the water balance, using the UNSAT-H model, included in Appendix H of the JTD, show percolation ranging from 0 to 2 millimeters per year for the soil samples meeting ET final cover requirements. Assuming an average annual percolation of 1 millimeter and all percolation collected as leachate, the annual leachate quantity is approximately 107 gallons per acre. The Primary Canyon does not have an LCRS. As a result, at final closure, approximately 345 acres of the Landfill will have a LCRS. Based on this, the total annual leachate collected will be approximately 37,000 gallons.

Leachate is currently collected from Canyons A, C, and D and Cells 1-5 and conveyed to a temporary leachate collection point comprised of multiple storage tanks. In the future, permanent leachate management facilities will be constructed outside the landfill footprint. The facilities will provide storage and a load-out facility. Leachate from Canyon B is collected in an underground sump located outside the Canyon B footprint.

The leachate that is currently collected is most likely generated during the early stages of landfill operation when initial lifts of waste are exposed to significant rainfall events resulting in over-saturation of waste lifts. Infiltration of surface runoff from large, exposed areas of HDPE-lined sideslopes also contributes to leachate generation. Decline in leachate generation is expected as new waste lifts are placed over existing lifts providing additional holding capacity of anticipated precipitation to be absorbed into the waste mass and sideslope areas become smaller resulting in less surface runoff infiltration into the LCRS.

Site personnel will inspect leachate collection sumps and storage tanks regularly. Leachate levels will be monitored and recorded quarterly at a minimum. If leachate is detected, it will be removed from the sump and/or storage tanks using either a vacuum truck or a submersible pump. Leachate, if nonhazardous and meeting RWQCB standards, may be used for dust control or returned to a lined module with an LCRS in accordance with CCR Title 27 and Subtitle D. Otherwise, it will be transported and disposed of at an approved treatment/disposal facility.

2.9.3 Monitoring Tasks and Frequency

Consistent with CCR Title 27 § 20340, the LCRS will be monitored by periodic observation and sampling of collected leachate. Annual LCRS testing will consist of visually monitoring the physical condition of the aboveground components and any leachate in the sump or tank via the riser pipe. The results will be submitted to the RWQCB.

Leachate levels will be monitored and recorded. If collected leachate meets reuse limits of the WDRs, it is proposed to use leachate for dust control at the Landfill or return it to a lined module equipped with an LCRS. Otherwise, leachate will either be treated on-site or transported to a wastewater treatment or other approved facility for disposal. If the leachate is determined to be hazardous, it will be transported by a licensed hazardous waste hauler to an approved treatment and disposal facility.

2.9.4 Reporting Requirements

As currently required by Monitoring and Reporting Program (MRP) No. 6231, dated November 2, 1998, monitoring reports shall be submitted to the RWQCB semiannually, by the end of the reporting period. If no leachate has been detected or pumped during the reporting period, a statement to that effect will be submitted. The RWQCB will be notified within 7 days if leachate is detected in a previously dry LCRS, or if there is a progressive increase in the level of leachate in the sumps.

Leachate monitoring and reporting will be consistent with the groundwater monitoring and reporting schedule presented in Section 2.10. Sampling and analysis of leachate, however, are conducted and reported annually. All monitoring reports are maintained at CCL and are available for review.

2.9.5 System Decommissioning

The leachate control system will remain in operation during the closure and post-closure maintenance periods or until leachate is demonstrated to no longer pose a threat to the environment and proper regulatory agency approval is obtained, at which time the system will be decommissioned. Most of the components of the leachate control system will be underground and remain in place at the time of closure. Underground pipe components will be cut off just below the surface, capped, and buried to minimize the disturbance of the landfill final cover. Aboveground components will be dismantled, decontaminated, and salvaged for sale, reuse, or otherwise properly disposed.

2.10 GROUNDWATER MONITORING SYSTEM (CCR TITLE 27 §§ 20385 AND 20415)

This section has been retained from the previous PCPMP to reflect the anticipated groundwater monitoring and reporting requirements of the post-ETLF event condition.

2.10.1 Existing Conditions

Groundwater monitoring at CCL has been conducted since approximately 1984. Monitoring is currently conducted consistent with MRP 6231, dated November 2, 1998. This program requires monitoring of the groundwater, the unsaturated (vadose) zone, and surface waters.

The current groundwater quality monitoring network consists of 14 groundwater monitoring wells (DW-1, DW-3, DW-7, DW-8, DW-12, DW-14, DW-15, DW-16, dW-17, DW-18, DW-20, DW-21, DW-28, and PZ-4) and four vadose zone monitoring points (VP-1, LP-1, SW-1, and GP-9). Additional points (DW-9, DW-23, DW-24, DW-25, DW-26, DW-27, PZ-3, PZ-5, PZ-6, PZ-7, GP-15, GP-16, GP-17, GP-21, GP-22, GP-25, and GP-26) are monitored for groundwater elevation data only.

Wells DW-23, DW-24, DW-26, PZ-5, and PZ-6, which are located northeast of the current landfill area and are not part of the groundwater monitoring program specified in Order No. 98-086, are being sampled and analyzed for a partial list of constituents of concern (COCs) to provide potential background water quality data for future use.

Monitoring points DW-8, DW-25, DW-27, DW-28, PZ-5, PZ-6, GP-25, and GP-26 are completed within the Pico Formation. The remaining wells and piezometers are completed in the Saugus Formation.

The existing groundwater quality monitoring system is shown in Figure 6.

The groundwater monitoring points are upgradient and downgradient of the WMUs on-site and yield groundwater samples from the uppermost aquifer. The groundwater samples collected from the monitoring wells will represent the quality of groundwater passing the points of compliance in accordance with CCR Title 27 and will allow for early detection of a release from each WMU. A sufficient number of monitoring points are screened in the zone of the uppermost aquifer having the anticipated highest hydraulic conductivity within the Saugus Formation.

2.10.2 Proposed Monitoring System

With the approved landfill lateral expansion, some existing wells will be within the ultimate landfill footprint. As a result, those wells will be decommissioned and replaced by additional monitoring wells. The proposed groundwater monitoring network will consist of 19 groundwater monitoring wells (DW-1, DW-7, DW-8, DW-14, DW-15, DW-16, DW-17, DW-18, DW-23, DW-26, DW-28, DW-29, DW-30, DW-31, DW-32, DW-33, DW-34, DW-35, and PZ-4) three vadose zone monitoring points (SW-1, VP-2, and VP-3), and three groundwater elevation monitoring wells (DW-9, DW-21, and DW-27) as shown in Table 4 and in Figure 6. Thirteen existing groundwater monitoring wells will be decommissioned (LP-1, GP-9, VP-1, DW-3, DW-6, DW-12, DW-20, DW-24, DW-25, PZ-3, PZ-5, PZ-6, and PZ-7). The new groundwater monitoring wells will be installed a minimum of 1 year before decommissioning of existing groundwater monitoring wells.

2.10.3 System Operation

Procedures and techniques for groundwater sample collection, chemical analysis, and chain-of-custody control will be performed as specified in the groundwater monitoring program approved by the RWQCB. This sampling program will continue until termination is approved by the RWQCB. Following defined and established procedures is recommended so that consistent and reproducible methods are used to obtain samples from monitoring wells, and proper analyses are performed on the samples. These procedures are designed consistent with CCR Title 27 § 20380 et seq.

2.10.4 Monitoring Tasks and Frequency

The current monitoring parameters, sampling and analysis procedures, and reporting schedules will be continued. Groundwater samples are currently collected and analyzed quarterly.

Quarterly groundwater monitoring currently consists of the following (RTFA 2017):

- Monitoring vadose zone wells
- Measuring groundwater elevations in all wells

- Collecting groundwater samples from groundwater monitoring wells
- Analyzing samples from the groundwater monitoring wells for the monitoring parameters identified in Table 5

COCs, as listed in Table 6, will be analyzed every 5 years. The last COC event was during the second quarter of 2016.

In addition to collecting water samples from the monitoring wells, other tasks are performed for a typical quarterly monitoring event. These tasks include measuring the depth to water in each well; field measuring the pH, specific conductance, and water temperature; performing and documenting quality assurance and quality control (QA/QC) procedures; and visually inspecting the wells to see that they are in proper working order. Groundwater flow at the Landfill is evaluated based on the water levels measured in the wells. A potentiometric surface map is constructed, and the groundwater flow direction and gradient are estimated.

2.10.5 Reporting Requirements

CCR Title 27 § 20390 requires that water quality monitoring and response programs apply during the active life of the WMU and the closure period of the WMU. These regulations also apply during the post-closure maintenance period of the WMU and during any compliance period under CCR Title 27 § 20410. In general, the compliance period is the number of years equal to the active life of the Landfill plus the closure period. The compliance period is the minimum period of water quality monitoring subsequent to a release from the unit. If the corrective action program (CAP) is in progress at the scheduled end of the compliance period, then the compliance period shall be extended until the WMU has been in continuous compliance with its water quality protection standard for a period of 3 consecutive years.

The semiannual reporting schedule for the detection monitoring program (DMP) and the CAP is shown below.

Semiannual Period	Reporting Period	Sampling Month	Report Due
1	January - June	January & April	June 30
2	July - December	July & October	December 31
Annual	January - December		March 1

2.10.6 System Decommissioning

The groundwater monitoring system will remain in service throughout the closure and post-closure maintenance periods or until landfill by-products, such as leachate and LFG, are demonstrated to

no longer pose a threat to the environment and regulatory agencies agree that groundwater monitoring is no longer necessary. The system will then be decommissioned. The wells will be decommissioned using appropriate well abandonment techniques consistent with the procedures prescribed in the California Well Standards, Bulletin 74-90, and supplement to Bulletin 74-81 (DWR 1990) or equivalent document enforced at the time of decommissioning.

2.11 STORMWATER DISCHARGE MONITORING SYSTEM

A stormwater pollution prevention plan (SWPPP) is currently being implemented at CCL consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Industrial Discharges NPDES No. CAS000001 (General Permit) adopted by the SWRCB on April 1, 2014. The current SWPPP (Golder 2017d) has been placed in the Site's operating record. SWPPP monitoring will continue during closure of the facility and during the post closure monitoring period until a Notice of Termination (NOT) has been submitted and approved by the RWQCB.

The purpose of the SWPPP is to protect surface water quality by reducing the amount of pollutants in stormwater runoff. The SWPPP has three major objectives:

- To identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of stormwater discharges and authorized non-stormwater discharges (NSWDs) from the Facility.
- To identify and describe minimum and site-specific advanced best management practices (BMPs) implemented to reduce or prevent pollutants in stormwater discharges associated with industrial activities and in authorized NSWDs in a manner that reflects best industry practice, considering technological availability and economic practicability and achievability.
- To identify and describe conditions or circumstances that may require future revisions to the SWPPP.

The motor oil and used motor oil aboveground storage tanks, hazardous materials storage area, and miscellaneous drums stored at the equipment maintenance facility are within a covered containment area. Containment structures are present to prevent a release to the stormwater drainage system. All aboveground storage tanks, pumps, and associated aboveground piping are inspected regularly for evidence of leakage.

Stormwater discharge from the Site is sampled and analyzed consistent with the monitoring program contained in the SWPPP. Stormwater discharge is sampled at two locations, at the outfall of the east detention basin along the eastern property boundary and the outfall of the south detention basin west of the site entrance along Henry Mayo Drive. Sampling locations are shown in Figure 6. As required by the General Permit storm, water discharge samples are currently analyzed for pH, total suspended solids, oil and grease, iron, chloride, and coliform bacteria.

The results of the stormwater monitoring are reported in the Annual Report.

Additionally, the following parameters are monitored as required by WDR R4-2011-0052 for Municipal Solid Waste Landfills: volatile organic compounds, priority pollutant metals, sulfate, total dissolved solids, biological oxygen demand (BOD), and chemical oxygen demand (COD). These analyses are separate from the SWPPP requirements and are reported as part of the Landfill's water quality monitoring program.

In addition to the SWPPP, a spill prevention and control plan (SPCC Plan) for CCL (*Spill Prevention, Control, and Countermeasure Plan, Chiquita Canyon Landfill, Valencia, California*, (Golder 2017e), has been developed for the Site. The SPCC Plan was prepared pursuant to U.S. EPA rules and is intended to establish the procedures and equipment required to prevent discharge of oil and hazardous substances in quantities that violate applicable water quality standards, cause a sheen upon or discoloration of the surface of navigable waters or adjoining shorelines, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. The SPCC Plan also establishes the activities required to mitigate such discharges if they occur.

2.12 LANDFILL GAS MONITORING SYSTEM (CCR TITLE 27 §§ 21790(B)(8)(E) AND 20921)

This section has been retained from the previous PCPMP to reflect the anticipated LFG monitoring and reporting requirements of the post-ETLF event condition.

CCR Title 27 §§ 20920 through 20939 requires the owners or operators of all municipal solid waste landfill units to implement routine LFG monitoring programs to ensure that concentrations of methane do not exceed 25% of the lower explosive limit (LEL) in facility structures or the LEL at the facility property boundary. The monitoring program will be based on-site-specific factors, including soil conditions, hydrogeologic and hydraulic conditions, and the location of facility structures and property boundaries.

2.12.1 Existing Conditions

The LFG monitoring network at CCL is consistent with the requirements of CCR Title 27 §§ 20920 through 20939. The LFG monitoring network, as described in *Proposed Landfill Gas Monitoring Plan Revisions for Compliance with CCR Title 27, Chiquita Canyon Landfill* (RTFA 2009a), was approved by the LEA and California Integrated Waste Management Board (CIWMB). The approval letters are included as an appendix to *Installation of Gas Probes for Compliance with Title 27, Chiquita Canyon Landfill* (RTFA 2009b), which is contained in Appendix L of the JTD.

As shown in Figure 6, the existing LFG monitoring network consists of 20 multi-level LFG monitoring points (GP-A, GP-2, GP-8 through GP-25). Fourteen of the monitoring points are at the property line, or as close as possible given the site topography. The remaining six monitoring points are at alternative compliance points closer to the waste footprint. The lateral spacing of the monitoring points ranges from 300 to 970 feet. For each monitoring point, the lower monitoring probe extends to the lowest base waste elevation, except across the northern and most of the western perimeters, where the depth is controlled by the groundwater elevation.

A discussion of the LFG monitoring network and as-built information for the monitoring probes are contained in *Proposed Landfill Gas Monitoring Plan Revisions for Compliance with Title 27, Chiquita Canyon Landfill* (RTFA 2009a) and *Installation of Gas Probes for Compliance with Title 27, Chiquita Canyon Landfill* (RTFA 2009b), which are included in Appendix L of the JTD.

2.12.2 Proposed Monitoring System

The proposed LFG monitoring network will consist of 27 multi-level LFG monitoring probes, as shown in Figure 6. Nine of the existing LFG probes will be decommissioned (GP-A, GP-B, BP-9, GP-10, GP-11, GP-12, GP-24, GP-25, and W-2). The additional LFG monitoring probes to be installed are GP-27, GP-28, GP-29, GP-30, GP-31, GP-32, GP-33, GP-34, and GP-35. The LFG monitoring plan will be revised to delete the LFG monitoring probes to be decommissioned and add the LFG monitoring probes to be added.

2.12.3 Monitoring Tasks and Frequency

LFG monitoring wells and on-site structures will be monitored quarterly, consistent with CCR Title 27 § 20933, using a hand-held measuring instrument. The measuring instrument will be calibrated in accordance with the manufacturer's recommendations.

Specific monitoring activities include:

- Quarterly perimeter probe monitoring to evaluate potential subsurface off-site migration
- Quarterly on-site structure monitoring to evaluate potential presence of LFG in on-site structures

2.12.4 Reporting Requirements

The monitoring results will be reported to the LEA within 90 days of sampling provided that methane concentrations do not exceed regulatory thresholds. The monitoring reports will include:

- Methane concentration, as measured at each probe within each well and within on-site structures
- Concentrations of trace gases, if required by the LEA
- Documentation of date, time, barometric pressure, atmospheric temperature, general weather conditions, and probe pressures at the time the sample was taken or the probe was monitored
- Names of monitoring personnel, measuring instrument, and a description of the methods used
- Map correlating the monitoring results with the corresponding monitoring location

If methane or trace gas concentrations exceed the regulatory thresholds, the following actions will occur:

- Immediately take steps to protect the public health and safety and the environment, and notify the LEA
- Within 7 days of detection of the excessive concentration:
 - verify the validity of the results
 - submit a letter to the LEA, with a copy to the site operating record, describing the levels of methane and trace gas detected, the nature and extent of the problem based on available information, steps taken to protect public health and safety and the environment, and a description of the proposed corrective action to adequately protect public health and safety and the environment prior to implementation of the remediation plan
- Within 60 days of detection of the excessive concentration:
 - implement a remediation plan, approved by the LEA and CalRecycle
 - place a copy of the remediation plan in the site operating record and forward a copy to the LEA and CalRecycle
 - notify the LEA that the remediation plan has been implemented
- Construct an LFG control system, designed by a registered civil or mechanical engineer, that meets the criteria of CCR Title 27 § 20939, consistent with a schedule approved by the LEA

2.12.5 System Decommissioning

When LFG is no longer produced in significant quantities, the gas monitoring system will not be necessary and, with regulatory agency approval, will be decommissioned. The gas probes will be filled with bentonite grout. Access vaults and locking devices will be cleaned, if necessary, and salvaged for reuse at other sites or otherwise properly discarded.

2.13 LANDFILL GAS CONTROL SYSTEM (CCR TITLE 27 §§ 20921 AND 20937)

Significant modification has been made to the LFG control system to address the ETLF event. These have included increasing the number of LFG extraction wells and adding several thermal oxidizers. It is uncertain how much of this LFG control infrastructure will need to be retained in the post-ETLF event condition. This section has been retained from the previous PCPMP, with some relevant updates, as a placeholder for this update. The section will be updated to reflect actual conditions when it is necessary to prepare the FCPMP.

2.13.1 Existing Conditions

A GCCS has been developed at CCL. A drawing showing the existing GCCS is included in Appendix L of the JTD. The system consists of both vertical and horizontal gas collection wells and a flare station. There are currently five thermal oxidizers and three enclosed LFG flares in operation, a fourth enclosed flare under construction. It is assumed that these units will continue operation into the post-closure period.

A 9.2 megawatt LFG electrical generation facility had been constructed by Ameresco, Inc. in mid-2010. This facility has been shut down and mothballed. It is being demolished, and it is assumed that it will have been completely removed at the time a FCPMP is prepared.

2.13.2 System Operation

The existing gas control system operates continuously to maximize gas collection, while avoiding air intrusion into the waste. The system operates under a Title V Permit issued by the SCAQMD. The amount of LFG extracted from a collector is regulated by a valve installed on the exterior end of each collector. The flare operating temperature is continuously monitored and recorded, and is maintained at not less than 1,400 °F, as required by the SCAQMD operating permit. The temperature criterion is specified to maximize hydrocarbon destruction efficiency and minimize the production of nitrogen oxides. The flare operating temperature is regulated by automatic adjustments of combustion airflow dampers. The LFG equipment facility operation is monitored by a remote alarm circuit. Any unscheduled shutdown of the system due to mechanical or gas quality problems is communicated to an alarm which notifies the responsible personnel. System failures that reduce gas collection efficiency and control effectiveness are addressed in accordance with CCL's Start up Shut Down and Malfunction Plan (SSM Plan) required by the SCAQMD. As

gas production declines with time, the periods of system operation may be reduced, as authorized by the SCAQMD.

2.13.3 Monitoring Tasks and Frequencies

An LFG sample will be collected from the main gas collection header line, which enters the LFG flare station, quarterly. Within 72 hours of collection, the samples will be analyzed for total organic compounds (TOC) and for toxic air contaminants.

The landfill operator will implement an LFG leak detection program by inspecting the blowers and all downstream equipment and piping daily, using a combustible gas detector calibrated for methane. A log showing the results of each inspection will be maintained and submitted to the SCAQMD monthly.

The destruction efficiency of the GCCS will be determined by emission source testing, to be performed annually. Reported results will be available to the SCAQMD upon request.

If emission limits are exceeded as determined by any of the above monitoring procedures, the GCCS and operation will be evaluated and modified to meet compliance requirements, upon approval of changes by SCAQMD.

2.13.4 Reporting Requirements

Gas control system monitoring data will be reported to the SCAQMD as required by the operating permit. The results of gas control monitoring will be submitted to the SCAQMD and the LEA within 45 days after the end of the quarterly monitoring period, or 45 days after the analytical results are available, whichever is sooner. Any changes in control system configuration or operation will require approval from the SCAQMD.

2.13.5 System Decommissioning

After LFG production ceases, or decreases to a level that control becomes unnecessary, and approval has been obtained by regulatory agencies, the gas control monitoring system will be decommissioned. Many components of the LFG control system will be underground at the time of closure. Underground pipe components will be cut off from surface access, capped, and buried to minimize disturbance of the landfill final cover.

Aboveground components, such as access vaults and valves, will be cleaned, if possible, and salvaged for reuse at other sites, sold, or otherwise properly disposed. Equipment such as blowers, flares, engine generator sets, electrical control panels, and fencing will be dismantled, steam-cleaned, and salvaged for reuse, or sold as scrap. Pipes, conduits, anchor bolts, and other protrusions will be removed from the concrete foundations, which will remain in place.

3.0 PRELIMINARY POST-CLOSURE MAINTENANCE PLAN

A post-closure maintenance program will be implemented at CCL after closure is completed and will continue to maintain the Landfill for a minimum of 30 years afterwards. As noted previously, this PCPMP assumes that closure, as defined by CCR Title 27, occurs after the ETLF event has stabilized, infrastructure installed to solely address the reaction has been removed, and the extraordinary requirements of the related orders are no longer necessary.

It is assumed that this section, retained from the previous PCPMP, reasonably describes the responsibilities, resources, and inspection frequency for carrying out the post-closure maintenance plan for the conditions that will exist once the reaction has stabilized. Specific inspection and maintenance activities are detailed in subsequent sections.

3.1 CURRENT MONITORING AND CONTROL SYSTEMS (CCR TITLE 27 §§ 21825(B)(2) AND 21180)

The leachate control, groundwater, stormwater discharge, and LFG monitoring systems are described in detail in the following sections:

- Section 2.9 - Leachate Control and Monitoring System
- Section 2.10 - Groundwater Monitoring System
- Section 2.11 - Stormwater Discharge Monitoring System
- Section 2.12 - Landfill Gas Monitoring System
- Section 2.13 - Landfill Gas Control System

3.2 POST-CLOSURE LAND USE (CCR TITLE 27 §§21790(B)(5), 21825(B)(1), AND 21190)

The post-closure end use of the Landfill will be consistent with the surrounding terrain, land uses, and zoning. At closure, it is currently proposed that the Landfill be maintained as a passive park, unirrigated open space, or other type of publicly accessible recreational use. If other end uses are established, final cover design changes may be necessary. Full details of the landfill end use will be presented in the FCPMP.

In addition to landfill operations, resource recovery facilities are also permitted for the Site including a public drop-off area, an enclosed organic waste facility and a HHW drop-off facility. These facilities, if developed, may continue operation after landfill closure.

3.3 FINAL COVER INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 § 21090)

CCL personnel will conduct a post-closure maintenance program at CCL to verify that the landfill final cover retains its integrity and effectiveness. The final cover will be routinely evaluated and inspected (at least twice a year) for any evidence of:

- Soil erosion
- Settlement and subsidence
- Exposed waste
- Cracks
- Ponded water
- Vegetation stress
- Odor
- Slope failure
- Leachate seeps

Deficiencies such as cracks, erosion damage, or settlement in the final cover will be evaluated regarding their extent and depth. The evaluation will include determining the severity of the problem, prioritizing the repair, and determining the best method of repair. Repairs and restoration will be consistent with the final cover construction specifications. If necessary, temporary berms, ditches, and straw mulch will be used to prevent further erosion damage or ponding on damaged soil cover areas until the site conditions permit the final cover areas and vegetation to be re-established. Preventive maintenance for the final cover should preclude problems arising from potential leachate generation from infiltration of surface water causing potential leachate generation or unplanned release of waste from the Landfill.

After closure activities are completed, and once every 5 years during the post-closure maintenance period, aerial topographic maps of the entire Site will be made to maintain and evaluate landfill settlement. Iso- settlement maps, consistent with CCR Title 27 § 21090(e), will be prepared by comparing the elevations on the topographic map produced upon closure and the most recently produced topographic map. The iso- settlement map will be used to determine the amount of differential settlement occurring during the previous 5 years.

CCR Title 27 § 21090(e)(4) requires tracking of differential settlement as follows. Prior to conducting periodic grading operations on the closed Landfill, the discharger shall note on a map of the Landfill the approximate location and outline of any areas where differential settlement is

visually obvious. Each 5-year iteration of the iso-settlement map shall show all areas where differential settlement has been noted since the previous map submittal, and shall highlight areas of repeated or severe differential settlement. Map notations and delineations made need not be surveyed, so long as all areas where differential settlement was visually identifiable prior to regrading can be relocated. Such notation and delineation shall be made by, or under the supervision of, a Registered Civil Engineer or Registered Geologist.

These maps shall be submitted to the RWQCB, CalRecycle, and LEA. Periodic inspections and maintenance will be performed by CCL personnel.

3.4 DRAINAGE SYSTEM INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 §§ 21090(B)(3), 20365, AND 21150)

Drainage facility problems can result in accelerated erosion of the Landfill. Differential settlement of drainage facilities can limit their usefulness and may result in failure of the drainage facilities.

A post-closure maintenance program will be implemented to maintain the integrity and effectiveness of the final drainage system throughout the post-closure maintenance period. The final drainage system will be inspected and evaluated semiannually for:

- Evidence of erosion
- Standing water
- Formation of gullies
- Settlement, blockage, and damage to drainage channels, structures, swales, and culverts

Damage to the drainage system will be addressed immediately after it is identified. Permanent repairs and restoration will be made consistent with final closure construction specifications. Temporary repairs may be utilized until permanent repairs can be scheduled. Culverts and inlet and outlet structures will be cleaned of sediment regularly before their flow capacities are impaired. Drainage inlet grates will be kept free of debris, and drainage channels will be maintained to permit free flow.

Periodic inspections and necessary maintenance will be performed by CCL personnel.

3.5 VEGETATIVE COVER INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 §§ 21150, 20365(F), AND 21090(A)(4)(D))

A post-closure maintenance program will be instituted at CCL to verify that the vegetative cover of the Landfill maintains its integrity. The vegetative cover will be inspected and evaluated

semiannually for the same conditions described in Section 3.4, Final Cover Inspection and Maintenance Program. Vegetation will also be inspected and evaluated semiannually for:

- Signs of stress
- Stunted growth
- Wilting
- Color changes
- Bare spots

Vegetative cover problems identified will be evaluated with regard to their extent and severity. A program will be initiated to determine the best method of restoration. If necessary, repairs and restoration will be consistent with the final cover construction specifications. Temporary erosion control measures may be used to prevent further erosion damage until the vegetative cover is re-established.

Periodic inspection and follow-up maintenance will be provided by CCL personnel.

3.6 LEACHATE CONTROL SYSTEM INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 §§ 21160, 21090(C)(2), AND 20340)

As required by CCR Title 27 § 20340, the depth of fluid in the collection sump shall be kept at the minimum needed to ensure efficient operation. The LCRS will be designed and operated to function without clogging during the post-closure maintenance period. Except as otherwise provided under SWRCB Resolution No. 93-62, collected leachate may be returned to the unit(s) from which it came or discharged in another manner approved by the RWQCB. The discharger shall note, as part of each regularly scheduled monitoring report (§ 20380 et seq.), the total volume of leachate collected each month since the previous monitoring report.

The LCRS for the Landfill will be visually inspected in conjunction with the regulatory monitoring schedule in force at the time and maintained annually to provide reliable operations during the post-closure period. The system will be closely inspected for indications of deterioration. If leachate is present in the sump, the final cover will be evaluated for damage or problems. CCL personnel will be responsible for conducting the periodic inspections.

3.7 LANDFILL GAS MONITORING AND CONTROL SYSTEM INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 §§ 20921 ET SEQ. AND 21180(A)(2))

The LFG migration monitoring system will be inspected in conjunction with scheduled monitoring tasks. The minimum frequency of LFG monitoring will be performed quarterly consistent with CCR Title 27 § 20933. System components will be repaired and replaced as required to maintain full system capabilities, as intended at initial installation.

Operations and maintenance manuals for the GCCS will be maintained and kept current as required by CCR Title 27 § 20937(f). The manuals will provide for periodic inspections and servicing of LFG control equipment. Operation and maintenance records will be recorded and retained by the operator.

Preventive maintenance will be carried out on all mechanical equipment at the manufacturer's recommended intervals, which includes cleaning, lubrication, and replacement of worn parts. The accessible portions of LFG collection piping will be thoroughly inspected annually for detection of potential failure points, and necessary repairs will be noted and implemented. System failures, such as pipe leaks or breaks, which reduce gas collection efficiency and control effectiveness, will be addressed in a timely manner to conform to SCAQMD operating permit conditions. CCL personnel will conduct an LFG leak detection program. The program will include using a combustible gas detector to inspect the blowers and all equipment downstream from the blowers. Results will be submitted to the SCAQMD in accordance with permit conditions.

The LFG monitoring and control system inspection and maintenance program will be performed by CCL personnel for the duration of the 30-year post-closure maintenance period, or until an operating exemption is granted by the CalRecycle, the LEA, and the SCAQMD as allowed per CCR Title 27 § 20921(d).

3.8 GROUNDWATER MONITORING SYSTEM INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 §§ 20380 ET SEQ., 20950(A)(1), AND 21180)

A monitoring well preventative maintenance program was established consistent with the Site's current WDRs. This program was developed in an effort to maintain the integrity and effectiveness of monitoring wells at all times. Elements of this program include periodic visual inspections of well integrity, and if necessary, pump removal and inspection. Additionally, the groundwater monitoring system will be inspected quarterly in conjunction with the scheduled monitoring tasks. All groundwater monitoring wells will be inspected for signs of failure or deterioration during each sampling event. If damage is discovered, the nature and extent of the problem will be recorded. A

decision will be made to replace or repair the well. Possible repairs include partial casing replacement or repair, resealing the annulus, desilting, and chemical treatment. If a well needs to be replaced, it will be properly decommissioned. Damaged wells will be scheduled for repair or replacement within 3 months after problem identification.

3.9 FINAL GRADING INSPECTION AND MAINTENANCE PROGRAM (CCR TITLE 27 §§ 21090(B) AND 21142)

A maintenance program will be implemented at CCL to maintain final grades, preserve final cover integrity, prevent ponding, and minimize infiltration. Inspection and maintenance of the Landfill's final grades will include the items specified in Section 3.4, Final Cover Inspection and Maintenance Program.

Grading repairs or improvements will be performed consistent with final cover construction specifications. Temporary measures or repairs may be utilized until permanent repairs can be implemented.

Inspections and maintenance will be performed by CCL personnel.

4.0 CLOSURE AND POST-CLOSURE MAINTENANCE COST ESTIMATES

This section presents the preliminary closure and post-closure maintenance cost estimates, financial mechanism, and associated supporting documentation for CCL. The cost estimates were prepared consistent with CCR Title 27 §§ 21769(b)(2)(a) and 21780(a)(2).

4.1 CLOSURE COST ESTIMATE (CCR TITLE 27 §§ 21820 AND 21769(B)(2)(A))

The closure cost estimates for the maximum area to be closed, as described in Section 2.3, were prepared based on the closure activities described in this PCPMP. The estimate is based on 2026 dollars and hiring a third party to perform closure activities. It includes the cost of materials, equipment, labor, administration, and quality assurance. Table 7 summarizes the closure cost estimate. Backup calculations are provided in Appendix B.

4.2 POST-CLOSURE MAINTENANCE COST ESTIMATE (CCR TITLE 27 §§ 21840 AND 21769(B)(2)(A))

The post-closure maintenance cost estimates were prepared based on the activities described in the Preliminary Post-Closure Maintenance Plan. The post-closure maintenance cost estimate includes the cost of materials, equipment, labor, and administration. The cost maintenance and monitoring anticipated during the post-closure maintenance period was estimated for 30 years to determine the amount to be covered by the financial assurance mechanism.

The estimate is based on 2026 dollars and the hiring of a third party to maintain, monitor, and inspect the entire closed landfill. Table 8 summarizes the post-closure maintenance cost estimate. Backup calculations are provided in Appendix C.

5.0 FINANCIAL RESPONSIBILITY AND FINANCIAL ASSURANCE (CCR TITLE 27 §§ 20950(F), 20380(B), AND 21640)

Chiquita Canyon, LLC is the operator of the Landfill and retains responsibility for closure maintenance, post-closure maintenance and corrective action.

CCL utilizes performance bonds as the financial assurance mechanism for closure and post-closure maintenance, and corrective action. Annual updates to the financial assurance mechanisms will be submitted as required. Evidence of the most recent financial assurance mechanisms are presented in Appendix D.

6.0 LIMITATIONS

The services described in this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. Information presented in this plan was compiled from existing reports prepared by others. We do not warrant the accuracy of information provided by others, nor the use of segregated portions of this plan.

This plan was prepared solely for the use of our client and should be reviewed in its entirety.

7.0 BIBLIOGRAPHY

Abrahamson, N.A. 1995. MPE Evaluation for Chiquita Canyon Landfill, Cell II. August 18.

Albright, W.H., C.H. Benson, G.W. Gee, A.C. Roesler, T. Abichou, P. Apiwantragoon, B.F. Lyles, and S.A. Rock. 2004. Field Water Balance of Landfill Final Covers. *Journal of Environmental Quality*. Volume 33, November-December, pp. 2317–2332.

Albright, W.H., C.H. Benson, and J.W. Waugh. 2010. Water Balance Covers for Waste Containment, Principals and Practices. ASCE Presentation.

Apiwantragoon, P. 2007. Field Hydrologic Evaluation of Final Covers to Waste Containment, Ph.D. Dissertation, University of Wisconsin-Madison.

Benson, C.H. 2010. Introduction to Water Balance Cover. Presentation at the Seminar on Water Balance Covers, Austin, Texas. March 30–April 1.

California Department of Conservation, Division of Mines and Geology. 1990. Special Publication 103, Mines and Mineral Producers Active in California (1988 to 1989), Rapp, Silva, Higgins, Martin, and Burnett.

CH2M Hill. 2014. Chiquita Canyon Landfill Master Plan Revision Draft Environmental Impact Report, Project No. R2004-00042-(5), State Clearinghouse No. 2005081071. July.

CH2M Hill. 2016. Chiquita Canyon Landfill Master Plan Revision, Partially Recirculated Draft Environmental Impact Report, Project No. R2004-00042-(5), State Clearinghouse No. 2005081071. November.

Cotton, W.R., and Seward, A.E. 1984. Engineering Geologic Investigation of the San Gabriel Fault: Engineering Geologic Report completed for the Newhall Land and Farming Company, Valencia, California. April 11.

County of Los Angeles, Board of Supervisors. 2017. Conditional Use Permit Number 2004-00042-(5). July 28.

Department of Water Resources (DWR). 1990. California Well Standards: Bulletin 74-90 and Supplement to Bulletin 74-81. Division of Mines and Geology. January.

EMCON Associates (EMCON). 1989. Verification Monitoring Plan, Chiquita Canyon Landfill, Los Angeles County, California. November.

EMCON Associates. 1990. Geologic/Hydrogeologic Report, Chiquita Canyon Landfill, Los Angeles County, California. May.

EMCON Associates. 1990a. Drainage Report, Chiquita Canyon Landfill, Los Angeles County, California. July.

EMCON Associates. 1990b. Fault Investigation, Chiquita Canyon Landfill, Los Angeles County, California. October.

EMCON Associates. 1992. Verification Monitoring Report, Chiquita Canyon Landfill, Los Angeles County, California. January.

EMCON Associates. 1992. Proposed Monitoring Plan and Financial Assurance Cost Estimate, Chiquita Canyon Landfill, Los Angeles County, California. June.

EMCON Associates. 1992. Load-Checking Program, Chiquita Canyon Landfill, Los Angeles County, California. September.

EMCON Associates. 1993. Drainage Report, Chiquita Canyon Landfill Expansion, Los Angeles, California. December.

EMCON Associates. 1995a. Chiquita Canyon Landfill Cell Development: Canyon C, Cell II, Phase 1 Subgrade Geologic Mapping. May.

EMCON Associates. 1995b. Construction Quality Assurance Report, Chiquita Canyon Landfill, Canyon C, Cell II, Phase I. August.

EMCON Associates. 1995c. Investigation of Impact to Background Well DW-3, Chiquita Canyon Landfill. October.

EMCON Associates. 1996. Evaluation Monitoring Program Assessment Report for Canyon B Landfill, Chiquita Canyon Landfill. June.

EMCON Associates. 1997a. Chiquita Canyon Landfill Cell Development: Canyon C, Cell II, Phase 2a Subgrade Geologic Mapping. March.

EMCON Associates. 1997b. Application for Finding of Conformance, Chiquita Canyon Landfill Expansion, Los Angeles County. September.

EMCON Associates. 1998. Joint Technical Document, Chiquita Canyon Landfill, Los Angeles County, California. May.

Frankian, R.T. & Associates (RTFA). 2003. Amended Joint Technical Document (Appendix E-5), Proposed Evaluation Monitoring Program and Engineering Feasibility Study for Chiquita Canyon Landfill. October 17.

Frankian, R.T. & Associates. 2005a. Amended Joint Technical Document (Appendix E-6), Proposed Evaluation Monitoring Program for Primary Canyon, Chiquita Canyon Landfill, File No. CI-6231, Valencia, California for California Regional Water Quality Control Board, Los Angeles Region. March 9.

Frankian, R.T. & Associates. 2005b. Engineering Feasibility Study for Primary Canyon, Chiquita Canyon Landfill, Compliance File No. CI-6231, Los Angeles County, California for Chiquita Canyon Landfill. June 7.

Frankian, R.T. & Associates. 2006a. 2005 Annual Groundwater Monitoring Report, Chiquita Canyon Landfill, Compliance File No. CI-6231, Valencia, California for Chiquita Canyon Landfill. February 28.

Frankian, R.T. & Associates. 2006b. Hydrogeologic Report, Chiquita Canyon Landfill, Valencia, California. July 26.

Frankian, R.T. & Associates. 2009a. Proposed Landfill Gas Monitoring Plan Revisions for Compliance with Title 27, Chiquita Canyon Landfill. May 22.

Frankian, R.T. & Associates. 2009b. Installation of Gas Probes for Compliance with Title 27, Chiquita Canyon Landfill. October 22.

Frankian, R.T. & Associates. 2012. Hydrogeologic Report, Chiquita Canyon Landfill, Castaic, California. January 20.

Frankian, R.T. & Associates. 2017. 2016 Annual Groundwater Monitoring Report, Chiquita Canyon Landfill, Compliance File No. CI-6231, Castaic, California. February 28.

GeoSyntec Consultants, Inc. 2024. Storm Water Pollution Prevention Plan, Chiquita Canyon Landfill, Los Angeles County, California, April 19.

Golder Associates Inc. (Golder). 2012. Static and Seismic Slope Stability Analyses for Master Plan Revision, Chiquita Canyon Landfill. March.

Golder Associates Inc. 2015a. Chiquita Canyon Landfill, Drainage Analysis, Los Angeles County, California. June.

Golder Associates Inc. 2017a. Evaluation of Evapotranspirative Final Cover, Chiquita Canyon Landfill. April.

Golder Associates Inc. 2017b. Joint Technical Document, Chiquita Canyon Landfill, Los Angeles County, California. May.

Golder Associates Inc. 2017c. Preliminary Closure and Post-Closure Maintenance Plan, Chiquita Canyon Landfill, Los Angeles County, California. May.

Golder Associates Inc. 2017d. Storm Water Pollution Prevention Plan (SWPPP), Chiquita Canyon Landfill. May.

Golder Associates Inc. 2017e. Spill Prevention, Control, and Countermeasures Plan, Chiquita Canyon Landfill, Los Angeles County, California. August.

Harding Lawson Associates. 1983. Report of Disposal Site Information, Chiquita Canyon Landfill, Los Angeles County, California.

Harding Lawson Associates. 1987. SWAT Report, Chiquita Canyon Landfill, Saugus, California.

Impact Sciences, Inc. 2006. Construction Health Risk Assessment for Landmark Village. May.

IT Corporation. 2000. Final Report of Performance Monitoring for Alternative Final Cover, Chiquita Canyon Landfill, Primary Canyon and Canyon B. October 30.

Los Angeles County Department of Public Works. 1989. Los Angeles County Department of Public Works Hydrology Manual. Revised March.

Ragan, D.M. 1968. Structural Geology: An Introduction to Geometrical Techniques. John Wiley & Sons, New York, New York.

Regional Water Quality Control Board (RWQCB). 1978. Water Quality Control Plan for the Santa Clara River Basin: Regional Water Quality Control Board, Los Angeles Region, Monterey Park, California.

Robson, S.G. 1972. Water-Resources Investigation Using Analog Model Techniques in the Saugus–Newhall Area, Los Angeles County, California: U.S. Geological Survey, Water Resources Division, Open-File Report.

Rockwell, T. 1988. Neotectonics of the San Cayetano Fault, Transverse Ranges, California. Geological Society of America Bulletin. 100, pp. 500–513.

Seward, A.E. 1989. Geologic Report, Vesting Tentative Tract Parcel Map 19784 Valencia Commerce Center, Hasley Canyon, California: Report completed for the Valencia Company, Valencia, California. August 4.

South Coast Air Quality Management District (SCAQMD). 1987. Guidelines for Implementation of Rule 1150.1. May.

State Clearinghouse No. 9271053. 1997. Findings of Fact and Statement of Overriding Considerations Regarding the Final Environmental Impact Report, Chiquita Canyon Landfill Expansion/Closure and Resource Recovery Facilities. May.

Stirrat, Bryan A. & Associates, Inc. 2007a. Design Report for Cell 5 at the Chiquita Canyon Landfill. September.

Stirrat, Bryan A. & Associates, Inc. 2007b. Geotechnical Quality Assurance Plan for Construction of the Earthwork and Geosynthetic Elements of the Cell 5 Composite Liner System, Chiquita Canyon Landfill. October.

U.S. Army Corps of Engineers. 2025. Hydrologic Evaluation of Landfill Performance, Version 2. September 10.

URS. 2000. Chiquita Canyon Landfill, Revegetation and Erosion Control Plan. December 12.

USPCI. 1996. Spill Prevention, Control and Countermeasures Plan, Laidlaw Waste Systems, Inc., Chiquita Canyon Landfill, Valencia, California.

Weber, F.H. 1982. Geologic and Geomorphic Investigation of the San Gabriel Fault Zone, Los Angeles and Ventura Counties, California. California Division of Mines and Geology Open-File Report 82-2, Sacramento, California.

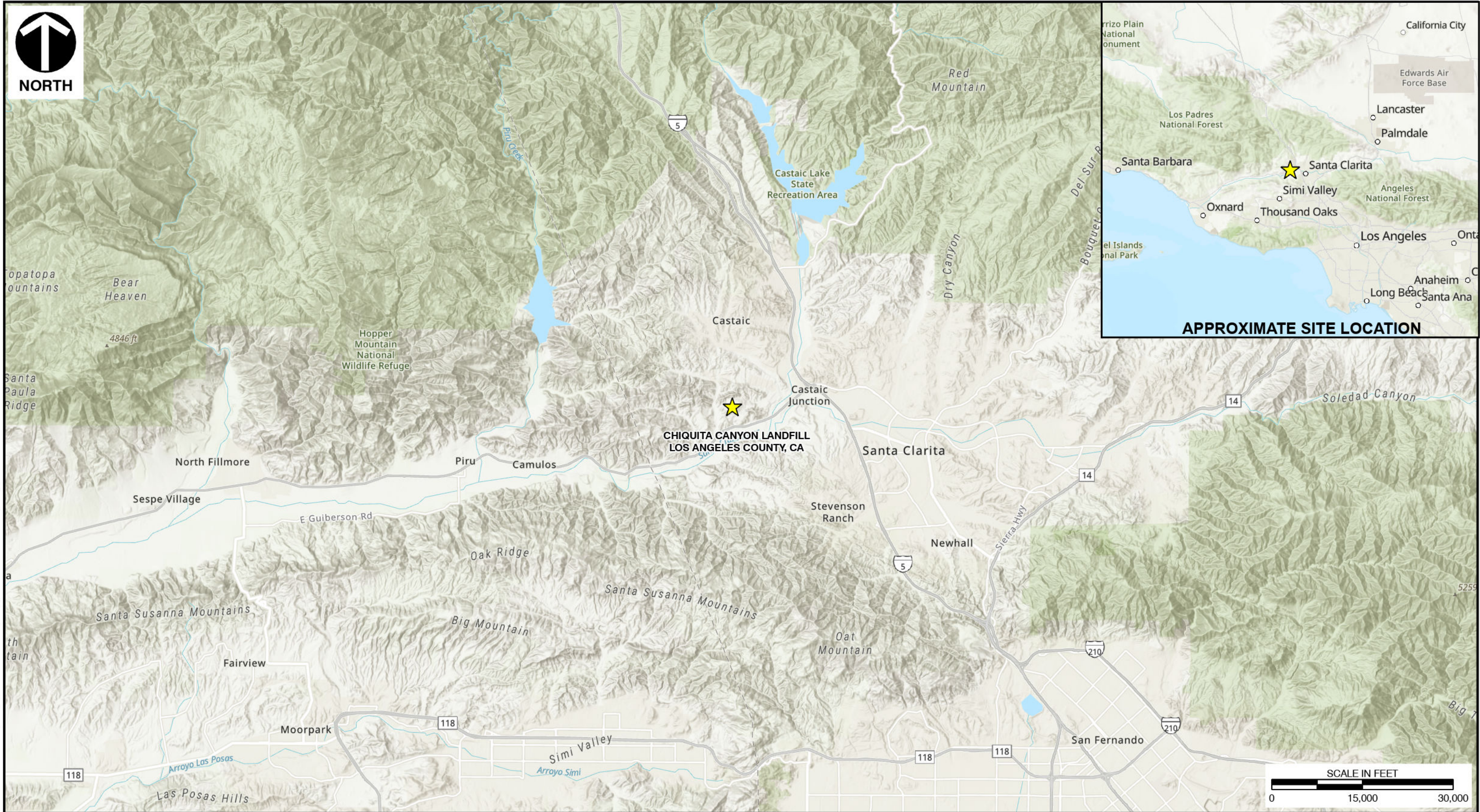
Western Regional Climate Center. 2010. Western U.S. Climate Historical Summaries, Station 046161, Newhall 5 NW.

Winkler, W. 1999. Thickness of Monolithic Covers in Arid and Semi-Arid Climates. M.S. Thesis, University of Wisconsin-Madison, Madison, Wisconsin.

Winterer, E.L., and D.L. Durham. 1962. Geology of Southeastern Ventura Basin, Los Angeles County, California: U.S. Geological Survey Professional Paper 334-H, pp. 275–366.

Yeats, R.S., J.W. McDougal, and L.T. Stitt. 1986. Cenozoic Structure of the Val Verde 7 1/2-Minute Quadrangle and South Half of the Whitaker Peak 7 1/2-Minute Quadrangle, California. U.S. Geological Survey Open-File Report 85-587. 23 p.

FIGURES



LEGEND

★ SITE LOCATION

REFERENCES

1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE. ACCESSED 8/17/2026.
2. MAP WAS DEVELOPED FOR PLANNING PURPOSES ONLY AND MAY NOT BE SUITABLE FOR CERTAIN LEGAL, ENGINEERING, OR SURVEYING PURPOSES. USERS OF THIS INFORMATION SHOULD REVIEW OR CONSULT THE PRIMARY DATA AND INFORMATION SOURCES TO ASCERTAIN THE APPROPRIATE USE OF THE INFORMATION.
3. ALL LENGTHS AND AREAS ARE APPROXIMATE.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.



Civil & Environmental
Consultants, Inc.

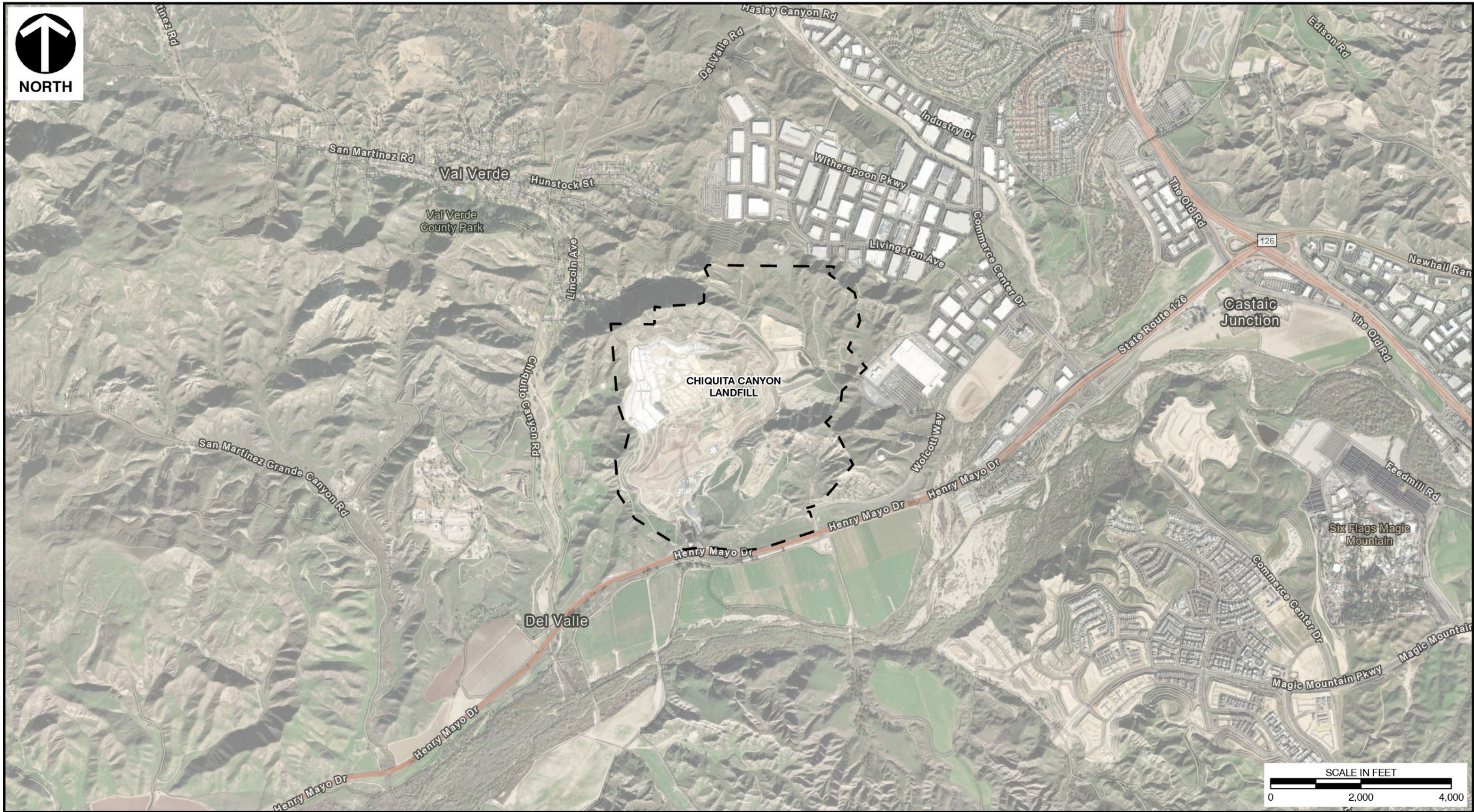
2356 Gold Meadow Way
Suite 120
Gold River, CA 95670
Ph: 916.503.0050 · 800.365.2324
www.cecinc.com

WASTE CONNECTIONS, INC.
CHIKUITA CANYON LANDFILL
LOS ANGELES, CALIFORNIA

SITE VICINITY MAP

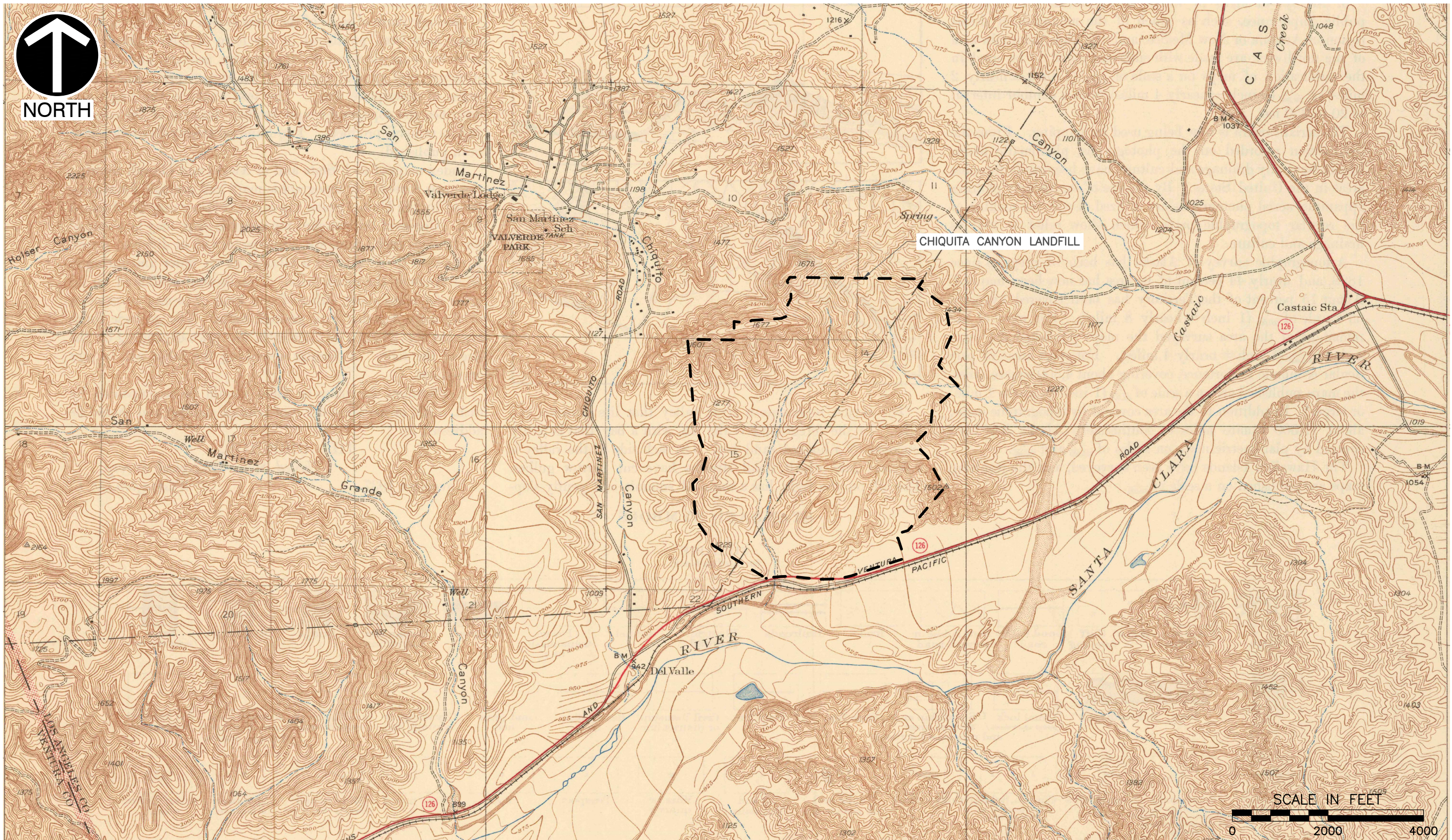
DRAWN BY:	GMM	CHECKED BY:	LMA	APPROVED BY:	RVH	FIGURE NO:	1
DATE:	8/18/2026	SCALE:	1" = 15,000'	PROJECT NO:	350-750		

*Hand Signature on file



LEGEND  APPROXIMATE FACILITY BOUNDARY		REFERENCES 1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE. ACCESSED 8/17/2026. 2. MAP WAS DEVELOPED FOR PLANNING PURPOSES ONLY AND MAY NOT BE SUITABLE FOR CERTAIN LEGAL, ENGINEERING, OR SURVEYING PURPOSES. USERS OF THIS INFORMATION SHOULD REVIEW OR CONSULT THE PRIMARY DATA AND INFORMATION SOURCES TO ASCERTAIN THE APPROPRIATE USE OF THE INFORMATION. 3. ALL LENGTHS AND AREAS ARE APPROXIMATE.		ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.		 Civil & Environmental Consultants, Inc. 2356 Gold Meadow Way Suite 120 Gold River, CA 95670 Ph: 916.503.0050 · 800.365.2324 www.cecinc.com		WASTE CONNECTIONS, INC. CHIKUITA CANYON LANDFILL LOS ANGELES COUNTY, CALIFORNIA	
						SITE LOCATION MAP			
DRAWN BY: CMM		CHECKED BY: LMA		APPROVED BY: RVH		FIGURE NO: 2			
DATE: 8/27/2026		SCALE: 1" = 2,000'		PROJECT NO: 350-750					

P:\350-000\350-750\CADD\DWG\PCMP Update\350-750 - PreDisposal Topography.dwg;FIGURE 3; LS:(8/18/2026 - cmay) - LP: 8/27/2026 12:15 PM



LEGEND

--- APPROXIMATE FACILITY BOUNDARY

REFERENCE

1. U.S.G.S. 7.5' TOPOGRAPHIC MAP, CASTAIC QUADRANGLE, CALIFORNIA DATED: 1940, PHOTOREVISED: 2019.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.

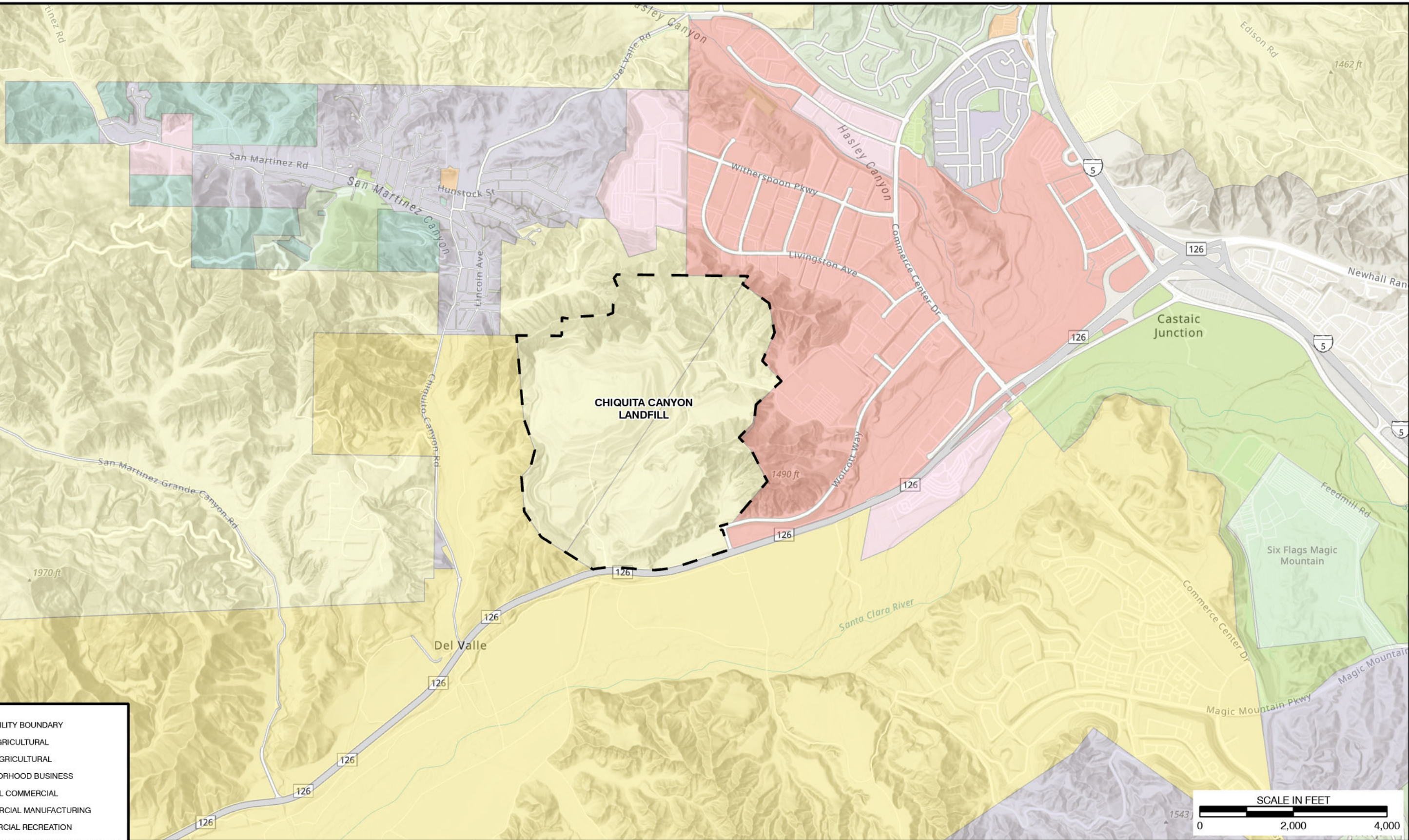
CEC
Civil & Environmental
Consultants, Inc.

2356 Gold Meadow Way
Suite 120
Gold River, CA 95670
Ph: 916.503.0050
www.cecinc.com

WASTE CONNECTIONS, INC.
CHIQUITA CANYON LANDFILL
LOS ANGELES, CALIFORNIA

PRE-LANDFILL TOPOGRAPHY

DRAWN BY:	CMM	CHECKED BY:	LMA	APPROVED BY:	RVH	FIGURE NO.:
DATE:	AUG 2026	DWG SCALE:	1"=2000'	PROJECT NO:	350-750	3



LEGEND	
	APPROXIMATE FACILITY BOUNDARY
	ZONE A-1,LIGHT AGRICULTURAL
	ZONE A-2,HEAVY AGRICULTURAL
	ZONE C-2,NEIGHBORHOOD BUSINESS
	ZONE C-3,GENERAL COMMERCIAL
	ZONE C-M,COMMERCIAL MANUFACTURING
	ZONE C-R,COMMERCIAL RECREATION
	ZONE CPD,COMMERCIAL PLANNED DEVELOPMENT
	ZONE M-1,LIGHT MANUFACTURING
	ZONE M-1.5,RESTRICTED HEAVY MANUFACTURING
	ZONE MPD,MANUFACTURING--INDUSTRIAL PLANNED
	ZONE O-S,OPEN SPACE
	ZONE R-1,SINGLE-FAMILY RESIDENCE
	ZONE R-A,RESIDENTIAL AGRICULTURAL
	ZONE RPD,RESIDENTIAL PLANNED DEVELOPMENT
	ZONE SP,SPECIFIC PLAN

REFERENCES

1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE. ACCESSED 8/17/2026.

2. MAP WAS DEVELOPED FOR PLANNING PURPOSES ONLY AND MAY NOT BE SUITABLE FOR CERTAIN LEGAL, ENGINEERING, OR SURVEYING PURPOSES. USERS OF THIS INFORMATION SHOULD REVIEW OR CONSULT THE PRIMARY DATA AND INFORMATION SOURCES TO ASCERTAIN THE APPROPRIATE USE OF THE INFORMATION.

3. ALL LENGTHS AND AREAS ARE APPROXIMATE.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.



Civil & Environmental Consultants, Inc.

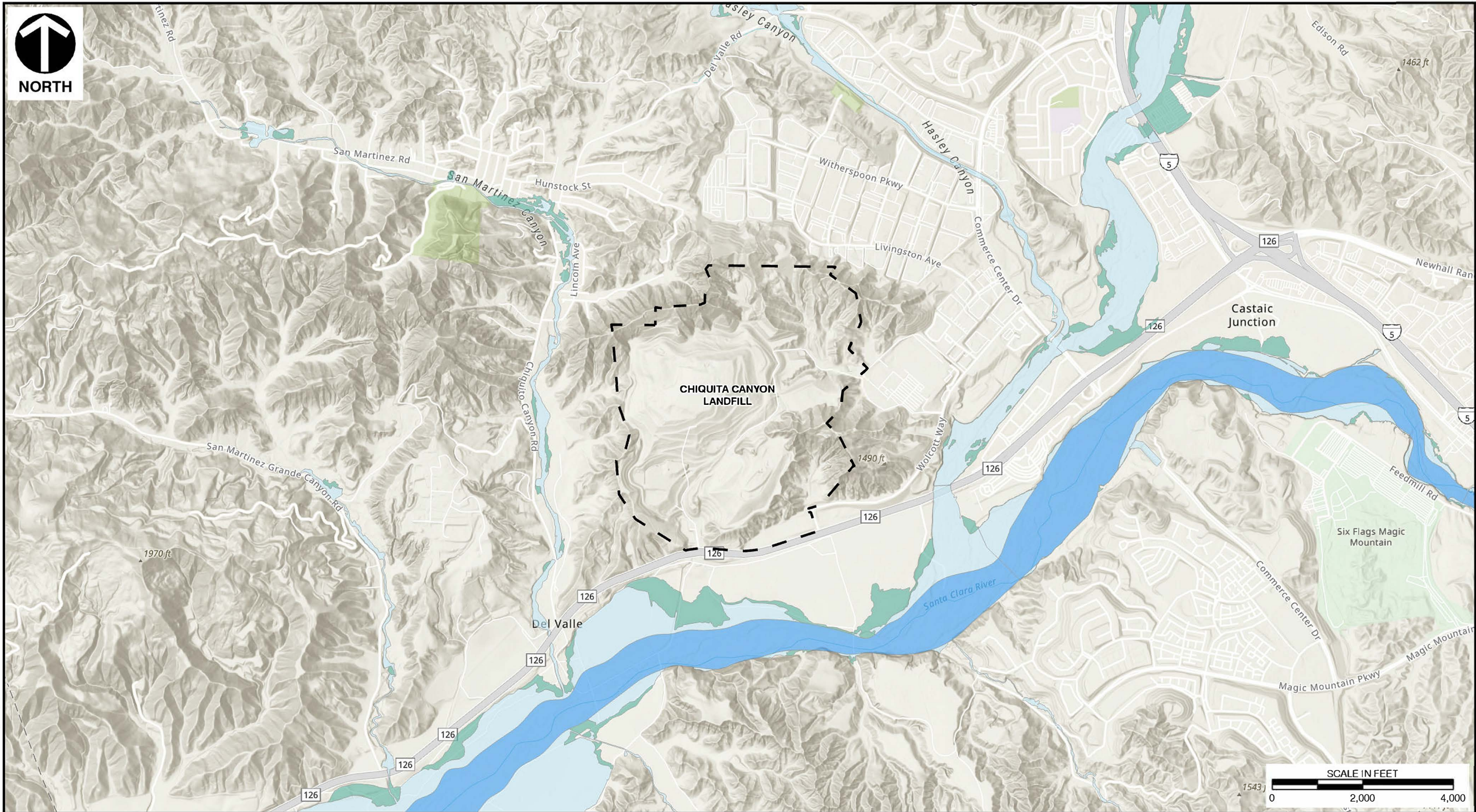
2356 Gold Meadow Way
Suite 120
Gold River, CA 95670
Ph: 916.503.0050 · 800.365.2324
www.cecinc.com

DRAWN BY:	GMM	CHECKED BY:	LMA
DATE:	8/27/2026	SCALE:	1" = 2,000'

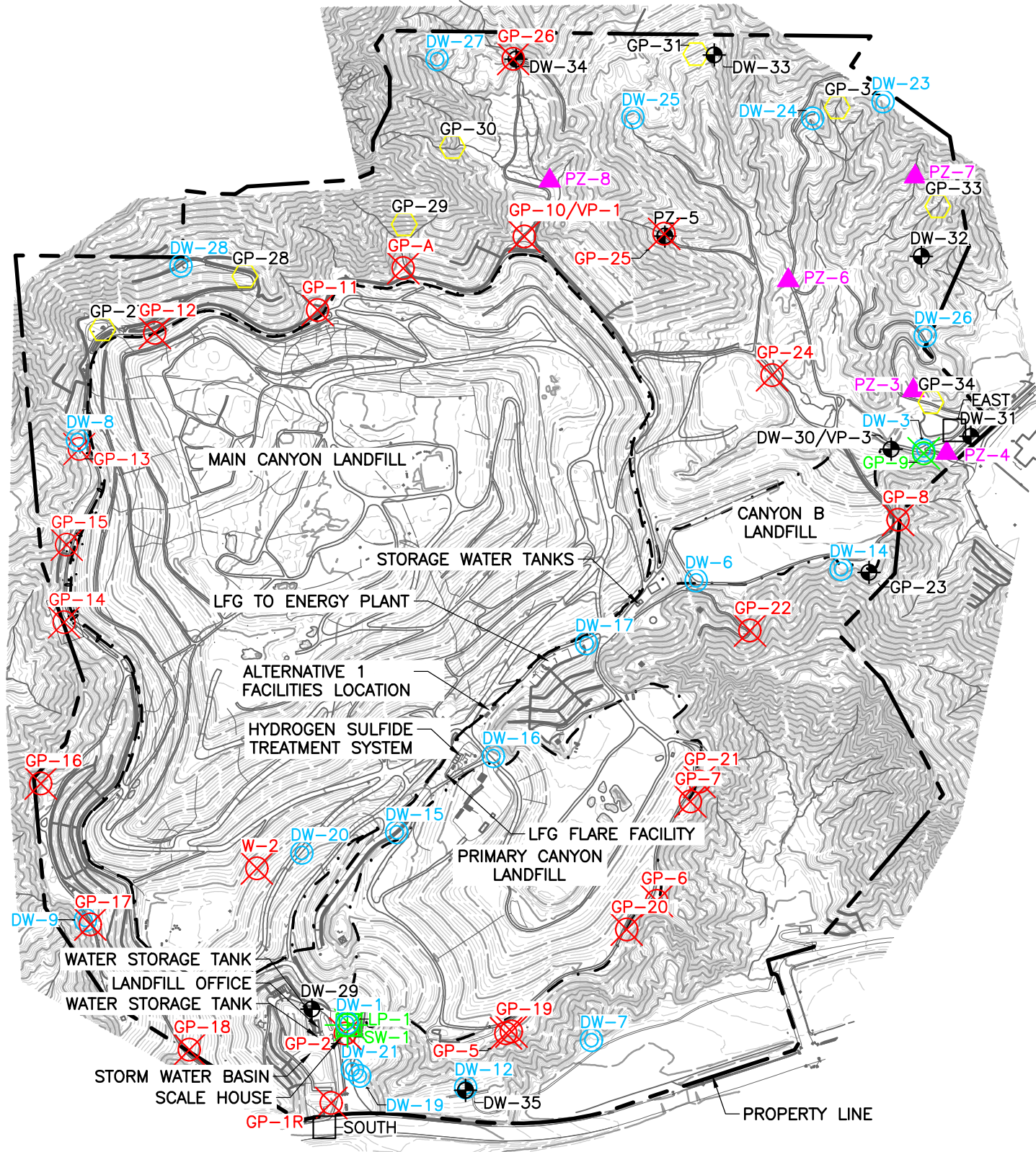
WASTE CONNECTIONS, INC.
CHIQUITA CANYON LANDFILL
LOS ANGELES COUNTY, CALIFORNIA

LAND USE MAP

APPROVED BY:	RVH	FIGURE NO:	4
PROJECT NO:	350-750		



LEGEND APPROXIMATE FACILITY BOUNDARY 0.2% ANNUAL CHANCE FLOOD HAZARD 1% ANNUAL CHANCE FLOOD HAZARD REGULATORY FLOODWAY AREA WITH REDUCED RISK DUE TO LEVEE	REFERENCES 1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE. ACCESSED 8/17/2026. 2. MAP WAS DEVELOPED FOR PLANNING PURPOSES ONLY AND MAY NOT BE SUITABLE FOR CERTAIN LEGAL, ENGINEERING, OR SURVEYING PURPOSES. USERS OF THIS INFORMATION SHOULD REVIEW OR CONSULT THE PRIMARY DATA AND INFORMATION SOURCES TO ASCERTAIN THE APPROPRIATE USE OF THE INFORMATION. 3. ALL LENGTHS AND AREAS ARE APPROXIMATE.	ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.	 Civil & Environmental Consultants, Inc. 2356 Gold Meadow Way Suite 120 Gold River, CA 95670 Ph: 916.503.0050 · 800.365.2324 www.cecinc.com	WASTE CONNECTIONS, INC. CHIQUITA CANYON LANDFILL LOS ANGELES COUNTY, CALIFORNIA		
				100-YEAR FLOODPLAIN MAP		
DRAWN BY: CMM		CHECKED BY: LMA	APPROVED BY: RVH	FIGURE NO: 5		
DATE: 8/27/2026		SCALE: 1" = 2,000'	PROJECT NO: 350-750			



LEGEND

-  EXISTING GROUNDWATER MONITORING WELL
-  EXISTING GROUNDWATER PIEZOMETER
-  EXISTING VADOSE WELL
-  EXISTING VACUUM PRESSURE LYSIMETER
-  EXISTING VADOSE ZONE LANDFILL GAS MONITORING PROBE
-  EXISTING LANDFILL GAS MONITORING PROBE
-  PROPOSED LANDFILL GAS MONITORING PROBE
-  PROPOSED GROUNDWATER MONITORING WELL
-  STORMWATER SAMPLING LOCATOIN



REFERENCE

1. EXISTING PLANIMETRICS PREPARED BY TETRA TECH, DATED JANUARY 16, 2025.
2. EXISTING TOPOGRAPHY CREATED FROM POINT FILE GENERATED BY PROPELLER, INC. DRONE SURVEY FLOWN ON MARCH 11, 2026.
3. WELL LOCATIONS ARE APPROXIMATE.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.

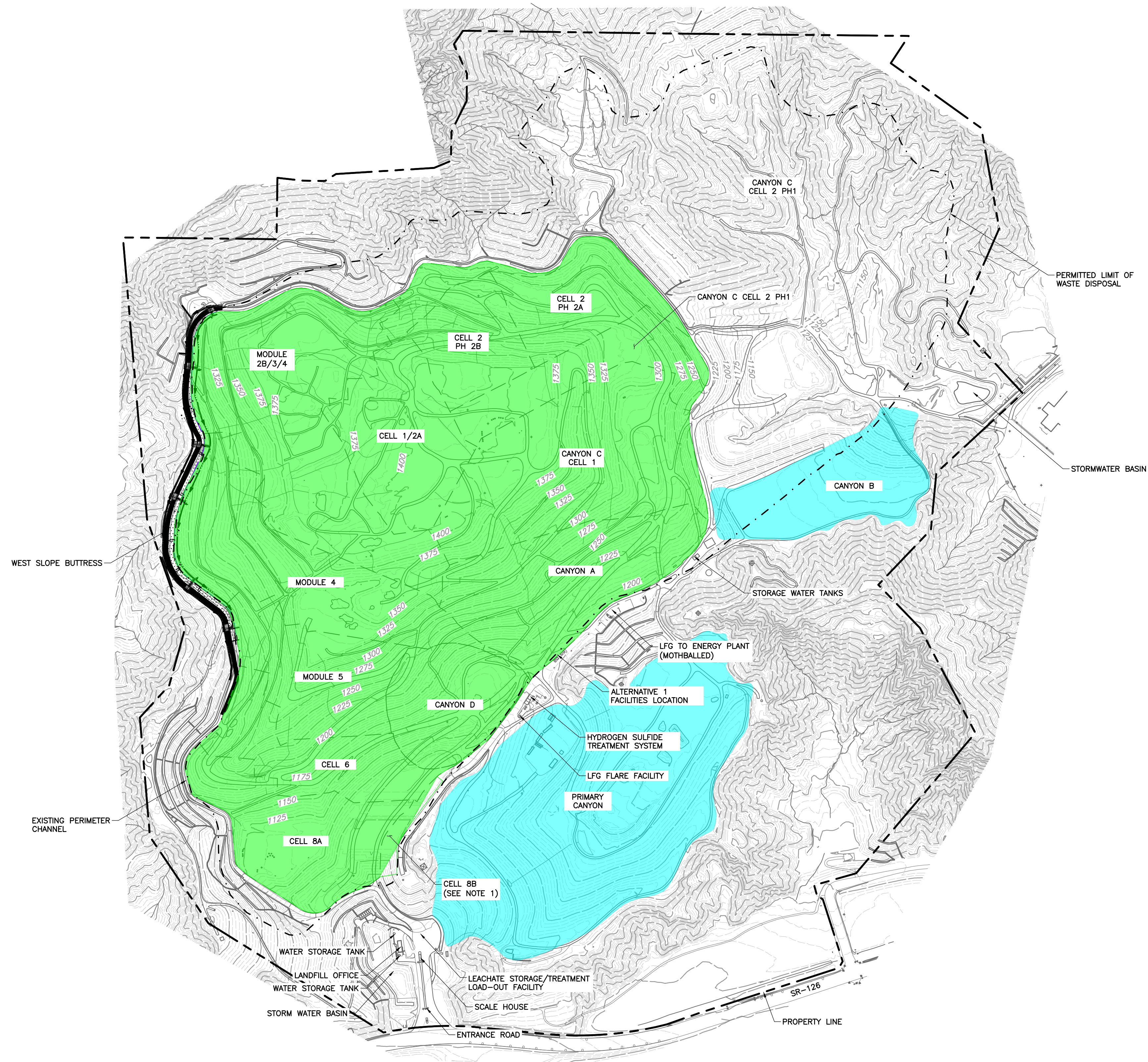

Civil & Environmental
Consultants, Inc.

700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

WASTE CONNECTIONS, INC.
CHIQUITA CANYON LANDFILL
LOS ANGELES COUNTY, CALIFORNIA
ENVIRONMENTAL MONITORING
LOCATION MAP

DRAWN BY:	JAT	CHECKED BY:	CMM	APPROVED BY:	RVH	FIGURE NO.:
DATE:	AUG. 2026	DWG SCALE:	AS SHOWN	PROJECT NO:	350-750	

DRAWINGS



NORTH



LEGEND

- | | |
|---|---|
|  | AREAS OF WASTE DISPOSAL
CLOSED UNDER CCR TITLE 27 |
|  | AREA OF WASTE DISPOSAL TO BE
CLOSED UNDER CCR TITLE 27 |
|  | EXISTING PROPERTY LINE |
|  | CELL/MODULE BOUNDARIES |
|  | LIMIT OF AREA PERMITTED FOR
WASTE DISPOSAL |

NOTES:

1. CELL 8B WAS CONSTRUCTED BUT NEVER APPROVED FOR OPERATION. A SOIL DECK WAS CONSTRUCTED OVER THE CELL AND CURRENTLY SUPPORTS TANK FARM 13. WHICH IS PART OF THE ETLF EVENT RESPONSE.

EXISTING SITE PLAN

DATE:	AUGUST 2026	DRAWN BY:	DLM/JAT
DWG SCALE:		N/A	CHECKED BY:
PROJECT NO:			DRAFT
APPROVED BY:			350-750
			DRAFT

DRAWING NO.:

1

1

OF

3

SUBMITTAL RECORD

NO	DATE	DESCRIPTION
A	08/09/2008	PRELIMINARY CLOSURE AND POST CLOSURE MAINTENANCE PLAN

2356 Gold Meadow Way
Suite 120
Gold River, CA 95670
Ph: 916.503.0050
www.cecinc.com



Civil & Environmental
Consultants, Inc.

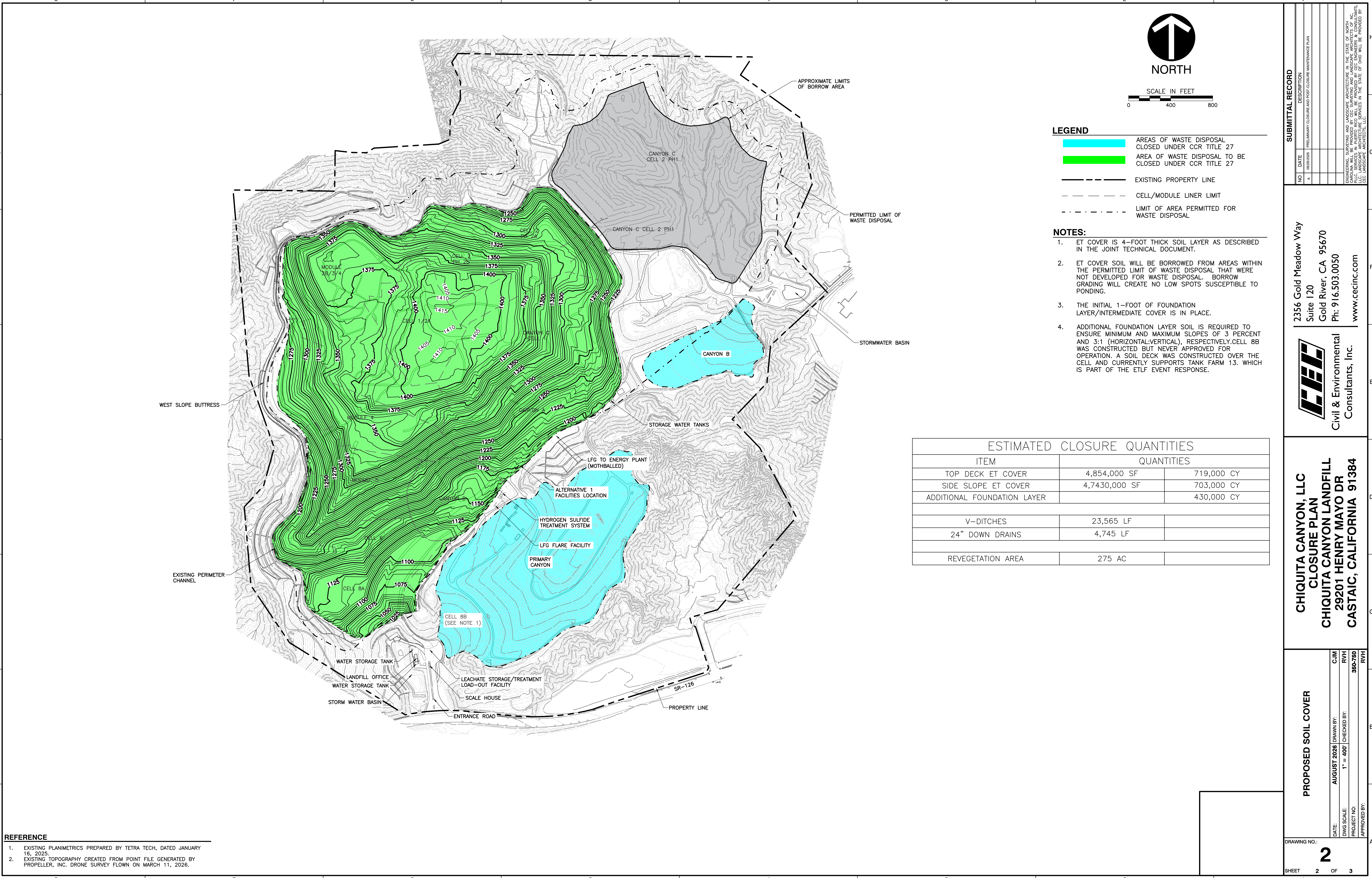
**CHIQUITA CANYON, LLC
CLOSURE PLAN
CHIQUITA CANYON LANDFILL
29201 HENRY MAYO DR
CASTAIC, CALIFORNIA 91384**

REFERENCE

1. EXISTING PLANIMETRICS PREPARED BY TETRA TECH, DATED JANUARY 16, 2025.
2. EXISTING TOPOGRAPHY CREATED FROM POINT FILE GENERATED BY PROPELLER, INC. DRONE SURVEY FLOWN ON MARCH 11, 2026.

P:\350-000\350-750\G402\Draw\Exhibits\350750-CV01-Closure and Postclosure Report Figures Existing.dwg[SITE] LS:(8/27/2026 - jathornton) - LP: 8/27/2026 4:48 PM

P:\1350-200\1350-200-CADD\DWG\Exhibits\1350200-0101-Closure and Postclosure Report Figures-SoilCover.dwg(SOILCOVER) LS(8/28/2026 - emathews) - LP 8/28/2026 3:31 PM



- REFERENCE**
1. EXISTING PLANIMETRICS PREPARED BY TETRA TECH, DATED JANUARY 16, 2025.
 2. EXISTING TOPOGRAPHY CREATED FROM POINT FILE GENERATED BY PROPELLER, INC. DRONE SURVEY FLOWN ON MARCH 11, 2026.

LEGEND

- AREAS OF WASTE DISPOSAL CLOSED UNDER CCR TITLE 27
- AREA OF WASTE DISPOSAL TO BE CLOSED UNDER CCR TITLE 27
- EXISTING PROPERTY LINE
- CELL/MODULE LINER LIMIT
- LIMIT OF AREA PERMITTED FOR WASTE DISPOSAL

- NOTES:**
1. ET COVER IS 4-FOOT THICK SOIL LAYER AS DESCRIBED IN THE JOINT TECHNICAL DOCUMENT.
 2. ET COVER SOIL WILL BE BORROWED FROM AREAS WITHIN THE PERMITTED LIMIT OF WASTE DISPOSAL THAT WERE NOT DEVELOPED FOR WASTE DISPOSAL. BORROW GRADING WILL CREATE NO LOW SPOTS SUSCEPTIBLE TO PONDING.
 3. THE INITIAL 1-FOOT OF FOUNDATION LAYER/INTERMEDIATE COVER IS IN PLACE.
 4. ADDITIONAL FOUNDATION LAYER SOIL IS REQUIRED TO ENSURE MINIMUM AND MAXIMUM SLOPES OF 3 PERCENT AND 3:1 (HORIZONTAL:VERTICAL), RESPECTIVELY.CELL 8B WAS CONSTRUCTED BUT NEVER APPROVED FOR OPERATION. A SOIL DECK WAS CONSTRUCTED OVER THE CELL AND CURRENTLY SUPPORTS TANK FARM 13, WHICH IS PART OF THE ETLF EVENT RESPONSE.

ESTIMATED CLOSURE QUANTITIES		
ITEM	QUANTITIES	
TOP DECK ET COVER	4,854,000 SF	719,000 CY
SIDE SLOPE ET COVER	4,7430,000 SF	703,000 CY
ADDITIONAL FOUNDATION LAYER		430,000 CY
V-DITCHES	23,565 LF	
24" DOWN DRAINS	4,745 LF	
REVEGETATION AREA	275 AC	

CHIQUITA CANYON, LLC
CLOSURE PLAN
CHIQUITA CANYON LANDFILL
29201 HENRY MAYO DR
CASTAIC, CALIFORNIA 91384

PROPOSED SOIL COVER

DRAWING NO.: **2**

SHEET 2 OF 3

CHIQUITA CANYON, LLC
2356 Gold Meadow Way
Suite 120
Gold River, CA 95670
Ph: 916.503.0050
www.cecinc.com

CEC
Civil & Environmental
Consultants, Inc.

SUBMITTAL RECORD

NO	DATE	DESCRIPTION
1	08/28/2026	PRELIMINARY CLOSURE AND POST-CLOSURE MAINTENANCE PLAN

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NORTH CAROLINA, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.

TABLES

TABLE 1
CALRECYCLE JOINT TECHNICAL DOCUMENT INDEX

CalRecycle JTD Requirements	CIWMB Section No.	SWRCB Section No.	JTD Page
------------------------------------	------------------------------	------------------------------	-----------------

GENERAL

Name of Facility, Site Operator and Owner	21600(b)(1)(A)		1-1 to 1-4
Description of Operating Cycle	21600(b)(1)(A)		2-1, 2-2, 5-1 to 5- 8, 6-9, 6-10
Site Plan, Including Boundaries, Acreage, and Buffer Zones	21600(b)(1)(B)		2-4 to 2- 5
Hours of Operation	21600(b)(1)(C)		5-1

WASTE CLASSIFICATION AND MANAGEMENT

Types and Quantities of Waste	21600(b)(2)(A)	21740(a)(1)	2-1, 2-5, 2- 6
-------------------------------	----------------	-------------	-------------------

WASTE MANAGEMENT UNIT CLASSIFICATION AND SITING

Airport Safety	21600(b)(3)(A)		3-2
Volumetric Capacity	21600(b)(3)(B)		3-1
Site Life Estimates	21600(b)(3)(C)		3-1
Site Location	21600(b)(3)(D)		2-2, 2-3, Fig. 2
Surrounding Land Use and Zoning	21600(b)(3)(E)	21750(h)(4)	2-3, 2-4, Fig. 3
Ancillary Facilities	21600(b)(3)(F)		4-2 to 4-3

DESIGN AND CONSTRUCTION STANDARDS

General Design Parameters	21600(b)(4)(A)	21750(a-h)	4-1
Design Responsibility	21600(b)(4)(B)		4-1
Construction Sequencing Plans	21600(b)(4)(C)		4-5 to 4-6
Grading Plans	21600(b)(4)(D)	21090(b)-(b.3.)	4-5 to 4-6
Gas Management Plans	21600(b)(4)(E)		4-6 and 4-7
Engineered Alternative		20080(b-c)	
Classification and Siting Criteria		20220, 20240(c), 20260, 20270, 20310, 20370	2-8, 2-9, 3-1 to 3-14
Construction Standards		20310, 20320, 20323, 20324, 20330, 20340	4-1 to 4-14

OPERATING CRITERIA

Disposal Site Records	21600(b)(5)(A)		5-7 and 5-8
Site Security	21600(b)(5)(B)		5-6
Sanitary Facilities	21600(b)(5)(C)		5-6
Communication Facilities	21600(b)(5)(D)		5-6
Lighting	21600(b)(5)(E)		5-6
Safety Equipment	21600(b)(5)(F)		5-1 and 5-6
Personnel Requirements	21600(b)(5)(G)		5-1 to 5-3
Personnel Training	21600(b)(5)(H)		5-1 to 5-2
Supervisory Structure	21600(b)(5)(I)		5-2
Spreading and Compacting	21600(b)(5)(J)		5-4 to 5-5



COVER

Cover Materials	21600(b)(6)(A)		5-5
Cover Frequency	21600(b)(6)(B)		5-5
Intermediate Cover	21600(b)(6)(C)		5-5

HANDLING

Public Health Design Parameters	21600(b)(7)(A)		5-5, 5-6, 6-8 to 6-10
Salvaging Activities	21600(b)(7)(B)		5-3 to 5-4
Volume Reduction Activities	21600(b)(7)(C)		5-3 to 5-4
Equipment	21600(b)(7)(D)		5-3
Waste Handling	21600(b)(7)(E)	21740(a)(1)	5-3, 5-4, 6-8 – 6-10

ENVIRONMENTAL CONTROLS

Nuisance Control	21600(b)(8)(A)		6-4 to 6-7
Fire Control	21600(b)(8)(B)		6-5
Leachate Control	21600(b)(8)(C)	20340	6-2 to 6-4
Dust Control	21600(b)(8)(D)	21090(a)(5)(B)	6-5 to 6-6
Vector and Bird Control	21600(b)(8)(E)	20425(d)(3)	6-6
Drainage and Erosion Control	21600(b)(8)(F)	21090(c)(4)	6-1 to 6-2
Litter Control	21600(b)(8)(G)		6-6 to 6-7
Noise Control	21600(b)(8)(H)		6-7
Traffic Control	21600(b)(8)(I)		6-7 to 6-8
Hazardous Waste/Load Checking	21600(b)(8)(J)		6-8 to 6-10
Monitoring Programs		See RWQCB JTD Index	7-2 to 7-4



APPROVALS

Compilation of Approvals and Permits	21600(b)(9)		2-8 to 2-9
--------------------------------------	-------------	--	------------

CALRECYCLE – REQUIREMENTS FOR JTD/RCSI AMENDMENTS

CEQA Information	21570(f)(3)(4)		2-1, 2-2, Appendix B
Conformance Finding Information	21570(f)(5)		1-1 to 1-6, Appendix B
Complete Closure/Post Closure Maintenance Plan	21570(f)(6)		*
Financial Assurances Operating Liability Information	21570(f)(7,8)		Appendix J & K
Land Use and Other Conditional Use Permits	21570(f)(9)		1-1 to 1-6, Appendix A

CALRECYCLE – CLOSURE/POST-CLOSURE MAINTENANCE PLAN REQUIREMENTS**PRELIMINARY CLOSURE PLANS**

Closure Cost Estimate	21790(b)(1)	20950(f)	8-2
Location Maps	21790(b)(2,4)		Figure 1
Post-Closure Land Uses	21790(b)(5)		*
Estimate of Required Closure	21790(b)(6)		*
Estimated Closure Date	21790(b)(7)		*
Closure Activities	21790(b)(8)	21090(d)	*
Site Security and Structure Removal	21790(b)(8)(A)		*
Final Cover and Grading	21790(b)(8)(B)	21090(a)(3)-(a)(6), (b)-(b)(3), 21750(f)(5)	*
Construction Quality Assurance	21790(b)(8)(C)		*
Drainage and Erosion Control	21790(b)(8)(D)	21090(a)(3)-(a)(3)(B)	*



Gas Monitoring	21790(b)(8)(E)	20425(d)(3)	*
Leachate Monitoring	21790(b)(8)(F)	21090(c)(2)	*

*April 2014 Preliminary Closure and Post Closure Maintenance Plan

PRELIMINARY POST-CLOSURE MAINTENANCE PLANS

Description of Planned Uses per 21190	21825(b)(1)		
Description of Maintenance per 21180	21825(b)(2)	21769(b)	
Items Under 21790 (Preliminary Plans)	21800(c)	20425(d)(3), 20950(f), 20909(a)-(a)(3) (A)(3), 21090	
Sequence of Closure Stages With Dates	21800(c)	21090(a)-(a)(2), (d)	
Schedule for Disbursement	21800(d)		

REVIEWER CERTIFICATION

Reviewer Certifications	21570(e)		
-------------------------	----------	--	--



TABLE 2
SWRCB JOINT TECHNICAL DOCUMENT INDEX

SWRCB Requirement	SWRCB Citation	Related CIWMB Citation	JTD Page/Section Fulfilling SWRCB Citation
Chapter 1. General			
Article 1. Purpose, Scope and Applicability of this Subdivision			
20080. General Requirements. [engineered alternatives to prescriptive standards]	20080(b-c)		N/A
Chapter 3. Criteria for All Waste Management Units, Facilities, and Disposal Sites **			
Subchapter 2. Siting and Design **			
Article 2. SWRCB - Waste Classification and Management **			
20200. SWRCB - Applicability and Classification Criteria.			
Concept (& describes possible exemption)	20200(a)		N/A
Demonstration proposing to allow discharge of a particular waste to a particular landfill of lower classification	20200(a)(1)		N/A
Dedicated units/cells for certain wastes	20200(b)-(b)(2)(C)		N/A
Waste characterization	20200(c)	21600(b)(2)(A)	2-5 to 2-6
Management of liquids	20200(d)-(d)(3)	21600(b)(2)(A)	4-2, 6-1 to 6-4
20200 Nonhazardous Solid Waste.			
Demonstration by discharger	20220(b)-(b)(2)		2-7, 5-9, 6-9
Dewatered sludge (describes conditions for discharge)	20220(c)-(c)(3)	21600(b)(2)(A)	N/A
Ash (allows discharge of non-hazardous ash to Class III landfills w/o determining of ash is designated waste)	20220(d)		N/A
Article 3. Waste Management Unit, Facility, or Disposal Site Classification and Siting **			
20240. Classification and Siting Criteria.	20240		2-8, 2-9, 3-1 to 3-14
20250. Class II: Waste Management Units for Designated Waste.	20250		N/A
20260. Class III: Landfills for Nonhazardous Solid Waste.	20260		N/A
Article 4. SWRCB - Waste Management Unit Construction Standards **			
20310. General Construction Criteria.	20310		4-1

SWRCB Requirement	SWRCB Citation	Related CIWMB Citation	JTD Page/Section Fulfilling SWRCB Citation
20320. General Criteria for Containment Structures.	20320		4-1 to 4-3, 4-6 to 4-7
20323 & 20324. CQA Plan & Requirements	20323 & 20324		4-1, 4-2, 4-6
20330. Liners.	20330		N/A
20340. Leachate Collection and Removal Systems (LCRS).	20340		4-2, 6-2 to 6-4
20360. Subsurface Barriers.	20360		N/A
20365. Precipitation and Drainage Controls.	20365		3-3, 4-5, 4-6, 6-1, 6-2, 8-2
20370. Seismic Design.	20370		4-7 to 4-14, Tables 3 and 4
20375. Special Requirements for Surface Impoundments.	20375		N/A
Subchapter 3. Water Monitoring **			
Article 1. SWRCB - Water Quality Monitoring and Response Programs for Solid Waste Management Units **			
20380. SWRCB - Applicability.			
Corrective action financial assurance	20380(b)		Appendix K
Duration of applicability	20380(c)-(c)(2)	21900	Appendix K
Limitations on engineered alternatives	20380(e)-(e)(3)		N/A
20385. Required Programs.	20385		7-1 to 7-4
20390. Water Quality Protection Standard (Water Standard).	20390		7-1 to 7-4
20395. Constituents of Concern (COCs).			
COCs	20395(a)		7-2, 7-3
MSW COCs	20395(b)		N/A
20400. Concentration Limits.			
Proposing COCs	20400(a)-(a)(3)		N/A
Adoption of concentration limits	20400(b)-(b)(3)		N/A
Establishing a CLGB (for corrective action only)	20400(c-h)		N/A
Decreasing a CLGB (in DMP following a CAP)	20400(i)		N/A
20405. Monitoring Points and the Point of Compliance.	20405(a-b)		7-1 to 7-4
20410. Compliance Period.	20410(a-c)		Appendix A

SWRCB Requirement	SWRCB Citation	Related CIWMB Citation	JTD Page/Section Fulfilling SWRCB Citation
20415. General Water Quality Monitoring and System Requirements.			
Section applies to all monitoring programs	20415(a)		
Groundwater Monitoring System (general)	20415(b)-(b)(4)(D)		7-1
Surface Water Mon. (general)	20415(c)-(c)(2)(D)		7-4, Appendix F
U.Z. Mon. (general)	20415(d)-(d)(4)		7-1
Monitoring systems designed by RG or RCE	20415(e)(1)		7-1 to 7-3
Logging of borings	20415(e)(2)-(e)(2)(C)		7-1, Appendix G
Shared monitoring system demonstration for contiguous Units	20415(e)(3)		N/A
Monitoring sample QA/QC	20415(e)(4)-(e)(4)(D)		7-3, 7-4
Sampling & analytical methods (perf. std. for)	20415(e)(5)		7-3, 7-4
Monitoring data procurement, analysis, and submittal	20415(e)(6)-(c)(15)		7-3, 7-4
20420. Detection Monitoring Program.	20420		7-1 to 7-4
20425. SWRCB - Evaluation Monitoring Program.	20425	re & (d)(3); 20919 et seq., 21600(b)(8)(E), 21790(b)(8)(E), 21800(c)	3-11 to 3-14
20430. Corrective Action Program.	20430		3-11 to 3-14
Subchapter 4. Criteria for Landfills and Disposal Sites			
Article 2. CIWMB - Daily and Intermediate Cover			
20705. Standards for Daily and Intermediate (Interim) Cover.	20705		5-5
Subchapter 5. Closure and Post-Closure Maintenance **			
Article 1. General Standards For All Waste Management Units **			

SWRCB Requirement	SWRCB Citation	Related CIWMB Citation	JTD Page/Section Fulfilling SWRCB Citation
20950. General Closure and Post-Closure Maintenance Standards Applicable to Waste Management Units (Units) for Solid Waste.	20950	re & (f): 21780(a)(3), 21790(b)(1), 21800(c), 21820, 21840	8-1 to 8-2, *
Article 2. Closure and Post-Closure Maintenance Standards for Disposal Sites and Landfills			
21090. Closure and Post-Closure Maintenance Requirements for Solid Waste Landfills.			
Final cover requirements (general)	21090(a)-(a)(2)	21140, 21790(b)(8)(B), 21800(c)	4-6
Erosion control layer	21090(a)(3)-(a)(3)(A)3.	21140, 21150, 21790(b)(8)(D), 21800(c)	4-6, 6-1, 6-2
Maintenance (& plan for)	21090(a)(4)-(a)(4)(D)		8-1, 8-2
Discharges of liquids to covers (leachate & condensate)	21090(a)(5)(A)		N/A
Discharges of liquids to covers (other liquids)	21090(a)(5)(B)	20800, 21600(b)(8)(D)	N/A
Stability analysis	21090(a)(6)	21145, 21790(b)(8)(B)	4-7 to 4-14, Appendix E
Grading requirements (performance standards)	21090(b)-(b)(3)	20650, 21142(a), 21150, 21600(b)(4)(D), 21790(b)(8)(B)	4-5, 4-6, 5-5
General post-closure duties	21090(c)-(c)(5)	re (c)(2): 21150, 21160, 21180, 21790(b)(8)(F) // re (c)(4): 21600(b)(8)(F)	*
Landfill closure deadline & extension	21090(d)	21110, 21790(b)(8), 21800(c)	*
Final cover survey(s)	21090(e)-(e)(4)	21142(b)	*
Optional clean closure	21090(f)-(f)(2)	21810	*
21132. Landfill Emergency Response Plan Review.	21132		Appendix I
21400. Closure Requirements for Surface Impoundments.	21400		N/A

SWRCB Requirement	SWRCB Citation	Related CIWMB Citation	JTD Page/Section Fulfilling SWRCB Citation
21410. SWRCB - Closure Requirements for Waste Piles.	21410		N/A
Chapter 4. Documentation and Reporting For Regulatory Tiers, Permits, WDRs, and Plans Subchapter 3. Development of Waste Discharge Requirements (WDRs) and Solid Waste Facility Permits Article 2. CIWMB - Applicant Requirements.			
21585. SWRCB - Joint Technical Document (JTD). [format for submittal of 21710, 21750, 21760 information]	21585		Document Submitted
Article 4. SWRCB - Development of Waste Discharge Requirements (WDRs) **			
21710. SWRCB - Report Of Waste Discharge (ROWD) and Other Reporting Requirements. [see also 21585]	21710	re &(c)(1-2): 21145(b), 21200, 21630	Document Submitted
21720. SWRCB - Waste Discharge Requirements (WDRs).	21720(d-f)	re &(f): 20510, 20515	Appendix A
21730. SWRCB - Public Participation. [proposed listing of potentially interested parties]	21730(a)		N/A
21740. SWRCB - Waste Characteristics.	21740	re & (a)(1): 21600(b)(2)(A) & (b)(7)(E)	2-5, 2-6
21750. SWRCB - Waste Management Unit (Unit) Characteristics and Attributes to be Described in the ROWD.			
Analysis of potential for impairment	21750(a)	21600(b)(4)(A)	3-11 to 3-13
Support for proposed Unit classification	21750(b)	21600(b)(4)(A)	3-5 to 3-14
Listing & incorporation of supporting documents	21750(c)	21600(b)(4)(A)	10-1 to 10-4
Topographic map	21750(d)(1)	21600(b)(4)(A)	Figure 4
Floodplain analysis	21750(d)(2)-(d)(2)(C)2.	21600(b)(4)(A)	3-2, 3-3
Climate	21750(e)-(e)(6)	21600(b)(4)(A)	3-3 to 3-5
Geology	21750(f)-(f)(7)	21600(b)(4)(A) // re (f)(5): 21145, 21790(b)(8)(B)	3-5 to 3-8
Hydrogeology	21750(g)-(g)(7)(D)	21600(b)(4)(A)	3-8 to 3-14
Land/Water Use	21750(h)-(h)(5)	21600(b)(4)(A) re ¶(h)(4): 21600(b)(3)(E)	2-3, 2-4, 3-13, 3-14
Preliminary closure plan	21750(i)		8-1, 8-2, *

SWRCB Requirement	SWRCB Citation	Related CIWMB Citation	JTD Page/Section Fulfilling SWRCB Citation
21760. SWRCB - Design Report and Operations Plan.			
Design Report X preliminary and as-built plans	21760(a)(1)		N/A
Design Report	21760(a)(3)-(a)(4)		N/A
Operation Plan	21760(b)-(b)(3)		Appendix C - Drawings 3, 3A, and 4
Subchapter 4. Development of Closure/Post-Closure Maintenance Plans			
21769. SWRCB - Closure and Post-Closure Maintenance Plan Requirements.			
Prelim. CI/P-CI Plan X purpose	21769(b)(1)		*
Prelim. CI/P-CI Plan Contents X cost analysis	21769(b)(2)-(b)(2)(B)5.		*
Final CI/P-CI Plan	21769(c)-(c)(2)(H)3.		*
Chapter 5. Enforcement			
Article 4. Enforcement by Regional Water Quality Control Board (RWQCB) **			
22190. SWRCB - Mandatory Closure (Cease and Desist Orders).	22190(b)		N/A
Chapter 6. Financial Assurances at Solid Waste Facilities and at Waste Management Units for Solid Waste			
Subchapter 2. Financial Assurance Requirements			
Article 1. Financial Assurance for Closure			
22207. SWRCB - Closure Funding Requirements.	22207(a)		8-2, Appendix J
Article 2. Financial Assurance for Postclosure Maintenance			
22212. SWRCB - Post-Closure Funding Requirements.	22212(a)		8-2, Appendix J
Article 4. Financial Assurance Requirements for Corrective Action			
22222. SWRCB - Corrective Action Funding Requirements.	22222		Table 5

Table 3
Site Capacity and Earthwork
Chiquita Canyon Landfill

Item	Quantity
Design Gross Air Space (cubic yards)	110,365,000
Remaining Gross Air Space (cubic yards) ¹	0
Remaining Effective Capacity (cubic yards) ^{1, 3}	0
Earthwork (cubic yards)	
Daily and intermediate cover (cubic yards) ⁴	0
Additional foundation layer (cubic yards)	430,000
Final cover (cubic yards) ⁵	1,422,000
Liner ⁶	0
Earthfills	0
Project earthwork total (cubic yards)	1,852,000
Excavation (cubic yards) ⁷	0
Notes: 1. Assumes remaining permitted air space is not used. 2. Assumes remaining permitted air space is not used. 3. Effective capacity = waste + daily and intermediate cover. 4. Daily cover is no longer needed, and intermediate cover has been applied to the Main Canyon disposal area. 5. Assumes 4-foot thick ET cover placed over existing intermediate cover. 6. No new liner will be constructed. 7. No new excavations are anticipated to be necessary other than soil borrow.	

TABLE 4
WATER QUALITY MONITORING SYSTEM
Chiquita Canyon Landfill

Monitored Medium	Area	Background Points	Downgradient Points
Vadose Zone	Main Canyon	VP-2 (GP-29)	SW-1
	North & East Canyons	VP-2 (GP-29)	VP-3 (DW-30)
	Primary Canyon		SW-1
	Canyon B		VP-3 (DW-30)
Groundwater	Main Canyon	DW-8	DW-1
		DW-9 *	DW-15
		DW-17	DW-16
		DW-28	DW-18
			DW-21*
	North & East Canyons		DW-29
		DW-27*	DW-23
		DW-28	DW-26
			DW-30
			DW-31
			DW-32
			DW-33
	Primary Canyon	DW-16	DW-34
		DW-17	DW-1
			DW-7
			DW-18
	Canyon B		DW-21*
			DW-35
		DW-14	DW-30
			DW-31
			PZ-4
* Measured for groundwater elevation only			

TABLE 5
MONITORING PARAMETERS
Chiquita Canyon Landfill

Monitoring Parameter	Analytical Method	Concentration Limit ¹	Monitoring Frequency
Bicarbonate (as CaCO ₃)	Std. Method 2320B	SCL	Quarterly
Boron (total)	EPA 6010	SCL	Quarterly
Chemical Oxygen Demand	EPA 410.4	QTA	Quarterly
Chloride	EPA 300.0	QTA	Quarterly
Nitrate (as N)	EPA 300.0	QTA	Quarterly
Nitrite (as N)	EPA 354.1	QTA	Quarterly
Sodium (total)	EPA 6010	SCL	Quarterly
Sulfate	EPA 300.0	QTA	Quarterly
Total Dissolved Solids	EPA 160.1	SCL	Quarterly
Total Hardness (as CaCO ₃)	Std. Method 2340B	QTA	Quarterly
VOCs	EPA 8260	CL	Quarterly
Electrical Conductivity	Field	QTA	Quarterly
pH	Field	QTA	Quarterly

Notes:

¹ Based on Waste Discharge Requirements contained in RWQCB Order No. 98-086 SCL = Shewhart Control Limit

QTA = Qualitative trend analysis using time-concentration plots

CL = Concentration limit is the lowest method detection limit as specified in the test method

TABLE 6
CONSTITUENTS OF CONCERN FOR GROUNDWATER MONITORING PROGRAM
Chiquita Canyon Landfill

Monitoring Parameter	Analytical Method	Concentration Limit ¹
Aluminum (total and dissolved)	EPA 6010	SCL
Antimony (total and dissolved)	EPA 6010	SCL
Arsenic (total and dissolved)	EPA 7060	SCL
Barium (total and dissolved)	EPA 6010	SCL
Beryllium (total and dissolved)	EPA 6010	SCL
Bicarbonate (CaCO ₃)	Std. Method 2320B	SCL
Biological Oxygen Demand (BOD)	EPA 405.1	SCL
Boron (total and dissolved)	EPA 6010	SCL
Cadmium (total and dissolved)	EPA 6010	SCL
Calcium (total and dissolved)	EPA 6010	SCL
Carbonate (CaCO ₃)	Std Method 2320B	SCL
Chemical Oxygen Demand (COD)	EPA 410.4	QTA
Chloride	EPA 300.0	QTA
Chromium (total and dissolved)	EPA 6010	SCL
Cobalt (total and dissolved)	EPA 6010	SCL
Copper (total and dissolved)	EPA 6010	SCL
Electrical Conductivity (EC)	Field	QTA
Fluoride	EPA 340.2	SCL
Foaming Agents (MBAS)	EPA 425.1	SCL
Herbicides	EPA 8150	CL
Hexavalent Chromium (total and diss.)	Std Method 3500 CrO	SCL
Hydroxide Alkalinity (CaCO ₃)	Field, Std. Method 2320B	SCL
Iron (total and dissolved)	EPA 6010	SCL
Lead (total and dissolved)	EPA 6010	SCL
Magnesium (total and dissolved)	EPA 6010	SCL
Manganese (total and dissolved)	EPA 6010	SCL
Mercury (total and dissolved)	EPA 7470	SCL
Molybdenum (total and dissolved)	EPA 6010	SCL
Nickel (total and dissolved)	EPA 6010	SCL
Nitrate (as N)	EPA 300.0	QTA
Nitrite (as N)	EPA 354.1	QTA
Oil and Grease	EPA 413.2	SCL
Pesticides and PCBs	EPA 3510/8080	CL
pH	Field	QTA
Potassium (total and dissolved)	EPA 6010	SCL
Selenium (total and dissolved)	EPA 7740	SCL
Semi Volatile Organic Compounds	EPA 3510/8270	CL
Silver (total and dissolved)	EPA 6010	SCL
Sodium (total and dissolved)	EPA 6010	SCL
Strontium (total and dissolved)	EPA 6010	SCL
Sulfate	EPA 300.0	QTA
Sulfides	EPA 376.2	SCL
Thallium (total and dissolved)	EPA 6010	SCL
Tin (total and dissolved)	EPA 6010	SCL
Total Cyanide	EPA 335.2	SCL
Total Dissolved Solids (TDS)	EPA 160.1	QTA
Total Hardness (as CaCO ₃)	Std. Method 2340B	QTA
Total Organic Carbon (TOC)	EPA 415.1	SCL
Total Organic	EPA 9020	SCL
Total Phenols	EPA 420.1	SCL
Turbidity	EPA 180.1	SCL
Vanadium (total and dissolved)	EPA 6010	SCL
Volatile Organic Compounds	EPA 8260	CL
Zinc (total and dissolved)	EPA 6010	SCL

Notes:

¹ Based on Waste Discharge Requirements contained in RWQCB Order No. 98-086 SCL = Shewhart Control Limit

QTA = Qualitative trend analysis using time-concentration plots

CL = Concentration limit is the lowest method detection limit as specified in the test method

TABLE 7
2026 CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Item	Unit	Quantity	Unit Cost	Total Cost
1. Pre-Construction Survey and Facilities Support	/hr	40	\$ 282.01	\$ 11,280
1. Final Soil Cover ^{1,2}				
a. Foundation Layer	cy	430,204	\$ 10.63	\$ 4,572,766
b. Evapotranspirative (ET) Layer	cy	1,421,796	\$ 9.89	\$ 14,059,799
3. Closure Design/CQA				
a. Design, Plans, Specifications	ls	1	\$ 251,475	\$ 251,475
b. Post-Closure Maintenance Plan	ls	1	\$ 89,565	\$ 89,565
c. Construction Management	ls	1	\$ 348,894	\$ 348,894
d. CQA	acre	400	\$ 2,236	\$ 894,298
4. Revegetation	acre	400	\$ 2,477	\$ 990,860
5. LCRS Upgrade	ls	1	\$ 254,258	\$ 254,258
6. Gas Control System ³	ls	1	\$ 314,493	\$ 314,493
7. Monitoring Systems ^{4,5}	ls	1	\$ 100,730	\$ 100,730
8. Drainage Structures				
a. Downdrain Installation	lf	4,743	\$ 54.57	\$ 258,810
b. V-Ditches	lf	23,563	\$ 6.03	\$ 142,187
c. Diversion Berms	lf	6,036	\$ 11.91	\$ 71,916
d. Inlet and Outlet Structures	ea	20	\$ 8,043	\$ 160,854
e. Erosion Control	lf	65,231	\$ 3.30	\$ 215,541
9. Security Measures ⁶	ls	1	\$ 29,028	\$ 29,028
10. Closure Survey, Settlement Monuments	ls	1	\$ 40,841	\$ 40,841
11. Structures Removal	ls	1	\$ 500,000	\$ 500,000
Subtotal: \$				23,307,595
Contingency (20%): \$				4,661,519
Total: \$				27,969,114

Notes:

1. Cover Profile - 1 ft foundation layer (existing), additional foundation layer needed to establish grades, and 4 ft ET cover.
2. Final cover design based on Joint Technical Document.
3. Landfill has a gas monitoring network and 27 monitoring probes are already in place.
4. Landfill currently has 5 upgradient wells and 9 downgradient wells in place.
5. All environmental control systems will remain throughout the postclosure maintenance period.
6. Perimeter fence, locks, gates, signs and topographic features already in place.



TABLE 8
2026 POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Item	Unit	Quantity	Unit Cost	Total Cost
1. Vegetation Maintenance				
a. Revegetation ¹	acre	8	\$ 2,767	\$ 22,137
b. Rodent Control	ls	1	\$ 1,206	\$ 1,206
2. Leachate Monitoring and Maintenance ²				
a. Sampling and Inspection	annual	1	\$ 12,007	\$ 12,007
b. Operations and Maintenance	annual	1	\$ 3,243	\$ 3,243
c. Off-site Disposal	annual	1	\$ 14,766	\$ 14,766
3. Landfill Gas Monitoring and Maintenance ²				
a. Monitoring & Inspection	annual	1	\$ 33,160	\$ 33,160
b. Operations and Maintenance	annual	1	\$ 273,848	\$ 273,848
4. Vadose Zone Monitoring and Maintenance ²	annual	1	\$ 17,192	\$ 17,192
5. Groundwater System Maintenance ²				
a. Monitoring and Inspection	annual	1	\$ 86,067	\$ 86,067
b. Operations and Maintenance	annual	1	\$ 30,420	\$ 30,420
6. Surface Water Monitoring ²	annual	1	\$ 12,337	\$ 12,337
7. Drainage Maintenance	annual	1	\$ 140,953	\$ 140,953
8. Security Maintenance	annual	1	\$ 29,028	\$ 29,028
9. Inspections	annual	1	\$ 9,612	\$ 9,612
10. Miscellaneous				
a. Aerial Topography	annual	1	\$ 10,000	\$ 10,000
b. Iso-Settlement Report	every 5 yrs	0.2	\$ 15,523	\$ 3,105
Subtotal: \$				699,079
Cost x 30 Years: \$				20,972,376

Notes:

1. Assumes 2% of total area (400 acres) per year will need hydroseeding.
2. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.

APPENDIX A

CONSTRUCTION QUALITY ASSURANCE PLAN



EXAMPLE

CONSTRUCTION QUALITY ASSURANCE PLAN

EVAPOTRANSPIRATIVE COVER
CHIQUITA CANYON LANDFILL

Prepared for:

Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, California 91384

Prepared By:

Golder Associates Inc.
425 Lakeside Drive
Sunnyvale, California 94085
(408) 220-9223

TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGE</u>
1.0 INTRODUCTION	2
2.0 PARTIES INVOLVED WITH CONSTRUCTION QUALITY ASSURANCE.....	3
2.1 Owner.....	3
2.2 Project Manager	3
2.3 Design Engineer	3
2.4 CQA Engineer and CQA Monitor(s)	3
2.5 Earthworks Contractor.....	3
2.6 CQA Surveyor.....	3
2.7 Independent CQA Laboratory.....	4
3.0 MEETINGS	5
3.1 Pre-Construction Meeting.....	5
3.2 Progress Meetings	5
3.3 Resolution Meetings	5
4.0 EARTHWORK CONSTRUCTION QUALITY ASSURANCE.....	7
4.1 Construction Area Delineation	7
4.2 Construction Monitoring and Testing	7
4.3 Non-Conforming Materials.....	8
4.4 CQA Surveying	9
5.0 DOCUMENTATION	10
5.1 Daily Record Keeping	10
5.2 Observation and Testing Data Sheets	10
5.3 Construction Problem and Resolution Documentation	10
5.4 Photo Documentation	11
5.5 Design and Specification Changes.....	11
5.6 Construction Report.....	11

LIST OF TABLES

Table 1	ET Cover Soil Testing Frequency	8
---------	---------------------------------------	---

LIST OF FIGURES

Figure 1	ET Cover Soil Gradation Requirements	9
----------	--	---

1.0 INTRODUCTION

This plan sets forth the Construction Quality Assurance (CQA) procedures required during the construction of Evapotranspirative (ET) final soil cover at the Chiquita Canyon Landfill, located in Castaic, California. This CQA Plan establishes procedures to verify that construction is in accordance with the approved engineering standards and specifications, meets the appropriate regulatory requirements, and develops the necessary documentation for submittal to the regulatory agencies for project approval.

The objective of this plan is to establish:

- Duties of parties responsible for the CQA program;
- Qualification requirements of the CQA Engineer(s);
- Inspection activities;
- Sampling strategies;
- Document control measures;
- Procedures for approving the materials purchased for construction;
- Methods for assuring compliance to design standards and Project Specifications during construction;
- Procedures for resolving issues that may occur concerning the design and construction; and
- Documentation of construction and testing for submittal to the regulatory agency for their review.

The intent of the CQA Plan is to provide independent third party verification and testing to demonstrate that the Contractors have met their obligations in the supply and installation of components and materials according to the design documents, Project Specifications, and regulatory requirements. Quality control is provided by the Contractors and refers only to their actions taken to ensure that materials and workmanship meet the requirements of the Drawings and Project Specifications.

2.0 PARTIES INVOLVED WITH CONSTRUCTION QUALITY ASSURANCE

The following section provides descriptions of the parties referred to in this Construction Quality Assurance Plan (CQA Plan) including their responsibilities and qualifications.

2.1 Owner

The Owner of the Chiquita Canyon Landfill is Chiquita Canyon, LLC. For the purposes of this CQA Plan and the Project Specifications, all references to the Owner shall mean the Chiquita Canyon, LLC.

2.2 Project Manager

The Project Manager is the official representative of the Owner and is responsible for construction activities at the facility, including oversight and construction management. The Project Manager is responsible for coordinating the construction and quality assurance activities for the project. The Project Manager shall be responsible for the resolution of all quality assurance issues that arise during construction and must be involved in any decisions that may affect future operations at the site.

2.3 Design Engineer

The Design Engineer, also referred to as the "Designer" or "Engineer", is the individual or firm responsible for the design and preparation of the project construction drawings (Drawings) and the technical specifications (Project Specifications). The Designer is responsible for approving all design and project specification changes, modifications, or clarifications encountered during construction. During the course of the project, the Design Engineer shall remain in communication with the Project Manager.

2.4 CQA Engineer and CQA Monitor(s)

The CQA Engineer and CQA Monitor(s) will be responsible for understanding this CQA Plan and shall conduct CQA testing, monitoring, documentation and reporting, as required by this CQA Plan. The CQA Monitor shall be responsible for the field inspections. The CQA Engineer will be the engineer-of-record and will stamp the final CQA report. The implementation and reporting of this CQA Plan shall be conducted under the direct supervision of a State of California registered civil engineer or certified engineering geologist experienced in the construction of landfill liner or cover systems. The CQA Engineer will communicate directly with the Project Manager.

2.5 Earthworks Contractor

The Earthworks Contractor, also referred to as the "Contractor," is responsible for completion of the site work as defined by the contract with the Owner and in accordance with the Drawings and Specifications. The Earthworks Contractor will be responsible for retaining a surveyor to set lines and grades required for excavation and construction. The Earthworks Contractor will communicate directly with the Project Manager.

2.6 CQA Surveyor

The CQA Surveyor is the firm or individual responsible for performing the quality assurance surveying tasks outlined in this plan including the preparation of stamped as-built survey record drawings to be included in the CQA Certification Report. CQA surveying shall be performed under the direction of a California State Licensed Land Surveyor. The CQA Surveyor shall be subcontracted to the Earthworks Contractor, Owner, or Owner's CQA Engineer. The CQA Surveyor will communicate directly with the Earthworks Contractor or Project Manager. If the CQA surveyor is subcontracted to the Earthworks Contractor, the Owner may elect to contract separately with a surveyor to confirm the CQA Surveyor's results.

2.7 Independent CQA Laboratory

The Independent CQA Laboratory (CQA Lab) is the third party responsible for performing the quality assurance soils laboratory testing tasks listed in this CQA Plan in accordance with the specified methodology. Standards for testing include, but are not limited to ASTM International (ASTM) and California Department of Transportation (Caltrans) California Test Methods (CTM). The CQA Lab is directed by the CQA Engineer and may be affiliated with the CQA Consultant firm or company. The CQA Lab will communicate directly with the CQA Engineer.

3.0 MEETINGS

Meetings shall be held during the life of the project to enhance coordination among the various parties involved. Meetings will include a Pre-construction Meeting, Progress Meetings and Resolution Meetings, if necessary.

3.1 Pre-Construction Meeting

A pre-construction meeting will be held at the site prior to the start of construction. The Design Engineer, Project Manager, CQA Monitor, CQA Engineer, Earthworks Contractor, and others designated by the Owner shall attend this meeting. The purpose of this meeting will at a minimum:

- Define lines of communication, responsibility, and authority;
- Conduct a site inspection to discuss work areas, work plans, stockpiling, lay-down areas, access roads, haul roads, and related items;
- Review the project schedule;
- Review the Construction Drawings, CQA Plan, and Project Specifications; and
- Review work area security and safety protocol.

The CQA Engineer or his designee will document this meeting and copies of the meeting minutes will be distributed to all parties.

3.2 Progress Meetings

Periodic progress meetings will be held. At a minimum, the CQA Engineer, the Project Manager and the Contractor(s) will attend these meetings. The CQA Monitor is responsible for organizing and conducting the progress meetings. The purpose of these meetings will be to:

- Review the accomplishments and activities since the previous progress meeting;
- Review upcoming scheduled work and project milestones;
- Discuss any existing problems or potential construction problems; and
- Review the results and status of CQA field and laboratory testing.

The CQA Engineer will document these meetings and the minutes shall be transmitted to all in attendance.

3.3 Resolution Meetings

Special meetings will be held, as needed, to discuss and resolve potential problems or deficiencies. At a minimum, these meetings will be attended by the Project Manager, CQA Engineer, CQA Monitor, and the Installer and/or Contractor. If the problem relates to a design issue, the Design Engineer shall also be present. The CQA Monitor will document the meeting.

When deficiencies (items that do not meet project requirements) are discovered, the CQA Monitor or CQA Engineer shall immediately determine the nature and extent of the problem and notify the Contractor. If unsatisfactory test results identify a deficiency, additional tests will be performed to define the extent of the deficient material or work area.

The Earthworks Contractor shall correct the deficiency to the satisfaction of the CQA Engineer. If unable to correct the problem, the CQA Engineer will notify the CQA Monitor who will assist during

problem resolution. If the solution involves a design revision, the Design Engineer shall also be contacted. Design revisions can only be made by the Design Engineer.

The corrected deficiency shall be re-tested and/or approved before any additional related work is performed by the Earthworks Contractor. Retest results shall be recorded by the CQA Monitor and included in the final report documentation.

4.0 EARTHWORK CONSTRUCTION QUALITY ASSURANCE

Construction of the specified earthwork must be in accordance with the approved design plans and Project Specifications. This CQA Plan establishes the construction quality assurance monitoring and testing program designed to ensure construction compliance. The earthwork quality assurance testing program consists of testing of soil materials used in the ET final cover. CQA testing and observation is required during construction of the ET cover system.

4.1 Construction Area Delineation

The construction plans show the approximate areal delineation for the ET cover. However, the CQA Engineer or Monitor shall verify, and, if required, modify the areal delineation by sampling and laboratory testing of soil samples before construction of the ET cover. The minimum required existing foundation layer soil thickness shall be verified by test pits, hand digging, hand augering, or similar method. The soil samples shall be tested in the laboratory for grain-size and Atterberg limits.

The Design Engineer shall submit a revised plan for use by the Earthworks Contractor that indicates the final areal delineations for the four types of ET cover.

The Earthworks Contractor shall submit for review and approval an ET cover construction phasing plan. The plan shall address the following:

- Demonstrate how that the ET cover construction will be completed in defined sections in a progressive manner. Specified sections shall be defined and the ET cover constructed to the full thickness prior to placing soil in subsequent sections.
- Complete the survey of the base and top of the ET cover to demonstrate that the additional soil thickness meets the required minimum requirement.

4.2 Construction Monitoring and Testing

The ET cover construction shall be observed and tested as required by the CQA Monitor to verify that the construction is in accordance with the Project Specifications. The CQA Engineer shall review the work performed by the CQA Monitor and identify inadequate construction methodologies or materials that may adversely impact the performance of the ET cover. Visual observations and verification of the independent survey required for specific layers throughout the construction process shall be made to evaluate whether the materials are placed to the lines and grades as shown on the Drawings.

The CQA Monitor or CQA Engineer will give the Project Manager sufficient notice of anticipated completion of the construction components so that related CQA documentation may be reviewed and accepted without delay to the contractor.

For soils obtained from onsite borrow areas or imported from offsite sources used for ET cover, the CQA Monitor shall obtain samples for laboratory testing. Soil samples shall be tested for grain-size distribution and Atterberg limits to demonstrate that the material meets the specification requirements. This testing shall be completed at a frequency of at least one test per 5,000 cubic yards (CY) of imported soil.

In addition to the above evaluation testing, CQA observation and testing are required during construction to verify that the materials and construction are in accordance with the Project Specifications. The tests to be performed, including testing frequency, are presented in Table 1 for all soils used in the ET cover. These tests are in addition to the evaluation testing. The testing frequencies specified in Table 1 may be increased when construction conditions warrant additional tests. Additional tests shall be recommended by the CQA Monitor and approved by the CQA Engineer.

TABLE 1
ET COVER SOIL CONSTRUCTION TESTING FREQUENCY¹

Test Designation	ASTM Designation	Testing Frequency ¹
Compaction Characteristics	D1557	1 Per 5,000 CY or Each Material Type
Soil Density and Water Content - Nuclear Methods	D6938	1 Per 500 CY
Particle Size	D422/D1140	1 Per 5,000 CY
Atterberg Limits	D4318	1 Per 5,000 CY

¹Applies to existing stockpile and imported soils

Construction observation and monitoring during ET cover soil layer placement includes:

- Verify that the soils meet the material requirements, including Atterberg Limits, and gradation.
- Verify that fill is placed in loose lifts that result in a nominal compacted thickness of 6 inches.
- Verify that the Contractor adequately moisture conditions the soils.
- Perform field and laboratory testing in accordance with Table 1 to verify that the fill materials are placed to the moisture and density requirements indicated in the Project Specifications.
- Promptly notify the Earthworks Contractor of test results that affect the work. Notify the Project Manager of construction progress and of the results of all testing. In the event of failing tests, verify that the Contractor adequately reworks the areas which do not meet the Project Specifications; and
- Verify that the CQA Survey has been completed and that the Record Drawing furnished by the surveyor indicates compliance with the lines, grades, elevations, and tolerances as indicated by the Project Drawings and Specifications.

4.3 Non-Conforming Materials

The soil gradation that will meet the ET cover requirements is listed below and shown in Figure 1.

- 99% passing the 1-inch sieve
- 95% passing the No. 4 sieve
- 75% passing the No. 200 sieve
- Plasticity index of less than 25

Soil not meeting the material requirements for gradation or Atterberg limits will be classified as non-conforming or “non-spec” material. These soils shall be removed and replaced with conforming soils.

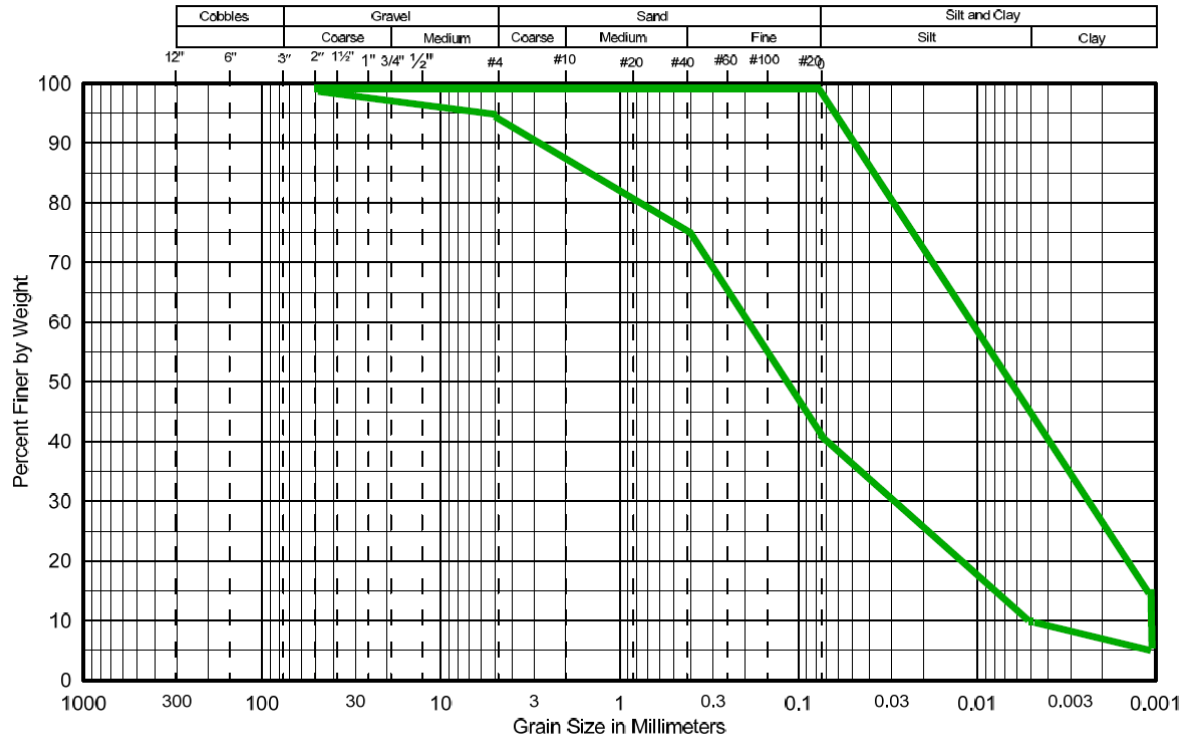


Figure 1 – ET Cover Soil Gradation Requirements

4.4 CQA Surveying

CQA surveying shall be conducted such that all applicable standards are followed. The Surveyor shall furnish "As-built Survey Record Drawings" (also referred to as "as-built" drawings) for review by the CQA Engineer. Required Record Drawings shall be as specified in the Project Specifications. All CQA surveying shall be performed under the direction of a surveyor licensed to perform such work in the State of California. All Record Drawings shall be signed and sealed by the licensed surveyor who directed the CQA survey work. Record drawings shall be at a scale not smaller than 1 inch = 50 feet. The accuracy of the surveying shall be sufficient to determine if the measurements are within the tolerances specified in the Project Specifications and Design Drawings.

The required surveying of ET cover elevations shall be carried out on a 50-foot square grid at the locations designated on the Design Plans. The grid points for each successive earthworks layer shall have the same horizontal locations for comparison of layer thickness.

5.0 DOCUMENTATION

An effective Quality Assurance program depends on thorough monitoring and documentation of all construction activities during all phases of construction. Documentation shall consist of daily record keeping, construction problem resolutions, design and specification changes, photographic records, weekly progress reports, chain of custody forms for test sample tracking, and a certification and summary report. During construction, all documentation shall be kept on site and will be available for review by the Project Manager, CQA Engineer, or CQA Monitors.

No section of the ET cover system may be covered up until the CQA Monitor or CQA Engineer observes, approves and documents the completed section of the cover system and assures that all requirements have been met by the Contractor.

5.1 Daily Record Keeping

Daily records shall consist of field notes, observation and testing data sheets, summary of the daily meetings with the Installer and Contractor, and reporting of construction problems and resolutions. This information shall be submitted weekly along with a weekly CQA Summary Report to the CQA Engineer. Copies of all CQA documentation shall be maintained at the site and be made available for review by the Project Manager.

5.2 Observation and Testing Data Sheets

Soils observation and testing data sheets generally include the following information:

- Date, project name, location, and weather data;
- A reduced-scale site plan, or full-scale plots, showing work areas and test locations;
- Descriptions of ongoing construction;
- Summary of test results and samples taken, with locations and elevations;
- Off-site materials received;
- Test equipment calibrations, if necessary; and
- Signature or initials of the CQA Monitor.

5.3 Construction Problem and Resolution Documentation

Any construction problem which cannot be resolved between the Contractor and CQA Monitor may require a special meeting in order to resolve the problem. The problem should be discussed with the Project Manager, CQA Engineer, and Design Engineer if a design issue is involved. Specific written documentation of that problem should be prepared, if warranted, and will generally include the following information:

- Detailed description of the problem;
- Location and cause of the problem;
- How and when the situation or deficiency was identified;
- How the problem was resolved;
- Any measures taken to prevent similar problems in the future; and

- Signature of the CQA Engineer and CQA Monitor.

Copies of all Construction Problem and Resolution Sheets requiring a Resolution Meeting will be submitted to the Project Manager.

5.4 Photo Documentation

All phases of construction shall be sufficiently photographed by the CQA Monitor. Photographs shall be identified by separate photographic log by location, time, date, and name of the person taking the photograph. A camera that records the time and date shall be used. Representative photographs will be included in the certification report.

5.5 Design and Specification Changes

If it is necessary to address design and specification changes, modifications, or clarifications during construction, the CQA Monitor or CQA Engineer will inform the Project Manager who will notify the Design Engineer. Design and specification changes shall only be made with written agreement from the Project Manager and Design Engineer.

5.6 Construction Report

At the completion of construction, a report shall be prepared and signed by the CQA Engineer documenting that the work has been performed in compliance with the Design Drawings and Project Specifications and will contain the following general information:

- Summary of construction activities;
- Observation and test data summary sheets;
- Sampling, testing locations, and test results;
- A description of significant construction problems and the resolution of these problems; Changes to the Design Drawings or Project Specifications and the justification for these changes;
- Record drawings; and
- A statement signed and sealed by a civil engineer (PE) or engineering geologist (CEG) registered in the State of California, by whom the CQA activities were supervised and work performed in responsible charge.

The as-built record drawings shall be prepared by the CQA Surveyor and shall accurately locate all construction items including the lines, grades, and thickness of all soil components for the cover system.

APPENDIX B

CLOSURE COST ESTIMATE BACKUP CALCULATIONS

TABLE 7
2026 CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Item	Unit	Quantity	Unit Cost	Total Cost
1. Pre-Construction Survey and Facilities Support	/hr	40	\$ 282.01	\$ 11,280
1. Final Soil Cover ^{1,2}				
a. Foundation Layer	cy	430,204	\$ 10.63	\$ 4,572,766
b. Evapotranspirative (ET) Layer	cy	1,421,796	\$ 9.89	\$ 14,059,799
3. Closure Design/CQA				
a. Design, Plans, Specifications	ls	1	\$ 251,475	\$ 251,475
b. Post-Closure Maintenance Plan	ls	1	\$ 89,565	\$ 89,565
c. Construction Management	ls	1	\$ 348,894	\$ 348,894
d. CQA	acre	400	\$ 2,236	\$ 894,298
4. Revegetation	acre	400	\$ 2,477	\$ 990,860
5. LCRS Upgrade	ls	1	\$ 254,258	\$ 254,258
6. Gas Control System ³	ls	1	\$ 314,493	\$ 314,493
7. Monitoring Systems ^{4,5}	ls	1	\$ 100,730	\$ 100,730
8. Drainage Structures				
a. Downdrain Installation	lf	4,743	\$ 54.57	\$ 258,810
b. V-Ditches	lf	23,563	\$ 6.03	\$ 142,187
c. Diversion Berms	lf	6,036	\$ 11.91	\$ 71,916
d. Inlet and Outlet Structures	ea	20	\$ 8,043	\$ 160,854
e. Erosion Control	lf	65,231	\$ 3.30	\$ 215,541
9. Security Measures ⁶	ls	1	\$ 29,028	\$ 29,028
10. Closure Survey, Settlement Monuments	ls	1	\$ 40,841	\$ 40,841
11. Structures Removal	ls	1	\$ 500,000	\$ 500,000
				Subtotal: \$ 23,307,595
				Contingency (20%): \$ 4,661,519
				Total: \$ 27,969,114

Notes:

1. Cover Profile - 1 ft foundation layer (existing), additional foundation layer needed to establish grades, and 4 ft ET cover.
2. Final cover design based on Joint Technical Document.
3. Landfill has a gas monitoring network and 27 monitoring probes are already in place.
4. Landfill currently has 5 upgradient wells and 9 downgradient wells in place.
5. All environmental control systems will remain throughout the postclosure maintenance period.
6. Perimeter fence, locks, gates, signs and topographic features already in place.



**2026 CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Item	Unit	Quantity	Unit Cost	Total Cost
1. Pre-Construction Survey and Facilities Support	/hr	40	\$ 282.01	\$ 11,280
1. Final Soil Cover ^{1,2}				
a. Foundation Layer	cy	430,204	\$ 10.63	\$ 4,572,766
b. Evapotranspirative (ET) Layer	cy	1,421,796	\$ 9.89	\$ 14,059,799
3. Closure Design/CQA				
a. Design, Plans, Specifications	ls	1	\$ 251,475	\$ 251,475
b. Post-Closure Maintenance Plan	ls	1	\$ 89,565	\$ 89,565
c. Construction Management	ls	1	\$ 348,894	\$ 348,894
d. CQA	acre	400	\$ 2,236	\$ 894,298
4. Revegetation ³	acre	400	\$ 2,477	\$ 990,860
5. LCRS Upgrade	ls	1	\$ 254,258	\$ 254,258
6. Gas Control System ³	ls	1	\$ 314,493	\$ 314,493
7. Monitoring Systems ^{4,5}	ls	1	\$ 100,730	\$ 100,730
8. Drainage Structures				
a. Downdrain Installation	lf	4,743	\$ 54.57	\$ 258,810
b. V-Ditches	lf	23,563	\$ 6.03	\$ 142,187
c. Diversion Berms	lf	6,036	\$ 11.91	\$ 71,916
d. Inlet and Outlet Structures	ea	20	\$ 8,043	\$ 160,854
e. Erosion Control	lf	65,231	\$ 3.30	\$ 215,541
9. Security Measures ⁶	ls	1	\$ 29,028	\$ 29,028
10. Closure Survey, Settlement Monuments	ls	1	\$ 40,841	\$ 40,841
11. Structures Removal	ls	1	\$ 500,000	\$ 500,000
Subtotal: \$				23,307,595
Contingency (20%): \$				4,661,519
Total: \$				27,969,114

Notes:

- Cover Profile - 1 ft foundation layer (existing), additional foundation layer needed to establish grades, and 4 ft ET cover.
- Final cover design based on Joint Technical Document.
- Landfill has a gas monitoring network and 27 monitoring probes are already in place.
- Landfill currently has 5 upgradient wells and 9 downgradient wells in place.
- All environmental control systems will remain throughout the postclosure maintenance period.
- Perimeter fence, locks, gates, signs and topographic features already in place.



**2a. FOUNDATION LAYER
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	2	\$ 110.48	/hr	598	\$ 132,019
Grading Dozer Operator	1	\$ 147.38	/hr	598	\$ 88,059
Spreading Dozer Operator	1	\$ 147.38	/hr	598	\$ 88,059
Compactor Operator	2	\$ 147.38	/hr	598	\$ 176,118
Haul Truck Operator	12	\$ 115.38	/hr	598	\$ 827,257
Excavator Operator	3	\$ 146.90	/hr	598	\$ 263,320
Water Truck Operator	1	\$ 114.61	/hr	598	\$ 68,479
Gradesetter	1	\$ 147.38	/hr	299	\$ 44,030
Maintenance Truck Operator	1	\$ 146.90	/hr	598	\$ 87,773
Foreman	1	\$ 108.75	/hr	598	\$ 64,979
Supervisor	1	\$ 145.00	/hr	299	\$ 43,319

Crew Total: \$ 1,883,413

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qty	Subtotal
Mob/Demob	1	\$ 200,000	ls	1	\$ 200,000
Job Trailer	1	\$ 23.55	/hr	598	\$ 14,072
Generator	1	\$ 22.43	/hr	598	\$ 13,399
Pickup Truck	1	\$ 40.23	/hr	598	\$ 24,036
Grading Dozer - CAT D6	1	\$ 112.02	/hr	598	\$ 66,933
Spreading Dozer - CAT D6N	1	\$ 122.67	/hr	598	\$ 73,296
Compactor - CAT 815	2	\$ 131.72	/hr	598	\$ 157,408
Haul Truck	12	\$ 253.30	/hr	598	\$ 1,816,171
Excavator	3	\$ 146.18	/hr	598	\$ 262,024
Water Truck - 4000 Gal	1	\$ 103.79	/hr	598	\$ 62,014

Equipment Total: \$ 2,689,353

Foundation Layer Total: \$ 4,572,766

Foundation Layer Unit Cost: \$ 10.63 /cy

Schedule:

Work Item ^{3, 4, 5}	Qty ²	Units	Production Rate ¹	Days
Foundation Layer	430,204	cy	5,760 cy/day	75

Project Duration: 75

Notes:

1. Foundation Layer production rate assumes that one excavator can efficiently load eight (8) 30cy haul trucks in an hour. One haul truck will be able to transport 2 loads per hour, therefore each excavator will be served by four (4) 40 ton (30 cy) articulated haul trucks. Assuming three (3) excavators, nominal production rate will be 12 haul trucks, 2 loads/hr/haul truck, 8 hrs/day, and 30 cy/load.

2. Assumes Additional Foundation Layer will be placed to ensure slopes are no less than 3 percent in flat areas, and no steeper than 3:1 on the side slopes. Overall grading quantity obtained from AutoCAD Civil 3D. Additional Foundation Layer is the difference between that volume and the four foot thick ET cover layer over the top deck and side slope areas.

Area of Description	Plan Area (sf)	Correction Factor	Corrected Area (sf)
Top Deck	4,854,107	1.000	4,854,107
Side Slopes	4,504,103	1.053	4,743,015
Total Area =			9,597,122

Foundation Layer (cy) = 355,449

Additional Volume for Foundation Layer (cy) = 74,755

Total Foundation Layer (cy) = 430,204

3. Assumes soil available with 15 mile radius of site.

4. Stripping and grubbing is included as part of this line item. The grading dozer is used for stripping and grubbing at the start of the project and for finish grading at the end of the project.

5. Final cover design based on Joint Technical Document.



Civil & Environmental Consultants, Inc.

**2b. EVAPOTRANSPIRATIVE (ET) LAYER
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	2	\$ 110.48	/hr	1,975	\$ 436,316
Compactor Operator	1	\$ 147.38	/hr	1,975	\$ 291,030
Grading Dozer Operator	1	\$ 147.38	/hr	1,975	\$ 291,030
Spreading Dozer Operator	1	\$ 147.80	/hr	1,975	\$ 291,860
Haul Truck Operator	12	\$ 115.38	/hr	1,975	\$ 2,734,031
Excavator Operator	3	\$ 146.90	/hr	1,975	\$ 870,255
Water Truck Operator	1	\$ 114.61	/hr	1,975	\$ 226,318
Maintenance Truck Operator	1	\$ 146.90	/hr	987	\$ 145,042
Gradesetter	1	\$ 147.38	/hr	987	\$ 145,515
Foreman	1	\$ 108.75	/hr	1,975	\$ 214,750
Supervisor	1	\$ 145.00	/hr	1,975	\$ 286,334
Crew Total:					\$ 5,932,480

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qty	Subtotal
Mob/Demob	1	\$ 200,000	ls	1	\$ 200,000
Job Trailer	1	\$ 23.55	/hr	1,975	\$ 46,509
Generator	1	\$ 22.43	/hr	1,975	\$ 44,283
Compactor	1	\$ 131.72	/hr	1,975	\$ 260,112
Grading Dozer - CAT D6	1	\$ 112.02	/hr	1,975	\$ 221,211
Spreading Dozer - CAT D6N	1	\$ 122.67	/hr	1,975	\$ 242,239
Haul Truck	12	\$ 253.30	/hr	1,975	\$ 6,002,325
Excavator	3	\$ 146.18	/hr	1,975	\$ 865,971
Water Truck - 4000 Gal	1	\$ 103.79	/hr	1,975	\$ 204,951
Maintenance Truck	1	\$ 40.23	/hr	987	\$ 39,718
Equipment Total:					\$ 8,127,319

Evapotranspirative (ET) Soil Layer Total: \$ 14,059,799
Evapotranspirative (ET) Soil Layer Unit Cost: \$ 9.89 /cy

Schedule:

Work Item	Qty	Units	Production Rate ¹	Days
ET Cover	1,421,796	cy	5,760 cy/day	247
Project Duration:				247

Notes:

1. ET Cover production rate assumes that one excavator can efficiently load eight 30cy haul trucks in an hour. One haul truck will be able to transport 2 loads per hour, therefore each excavator will be served by four 40 ton (30 cy) articulated haul trucks. Assuming three excavators, nominal production rate will be 12 haul trucks, 2 loads/hr/haul truck, 8 hrs/day, and 30 cy/load.

2. Assumes 4 feet of ET cover will be placed. ET layer quantity obtained from AutoCAD Civil 3D.

Area of Description	Plan Area (sf)	Correction Factor	Corrected Area (sf)
Top Deck	4,854,107	1.000	4,854,107
Side Slopes	4,504,103	1.053	4,743,015
Total Area =			9,597,122
Total Volume for 4 ft thick ET layer (cy) =			1,421,796

3. Assumes soil available within 15 miles radius of site.

4. Final cover design based on Joint Technical Document.

3. CONSTRUCTION QUALITY ASSURANCE (CQA) SERVICES
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

a. Design, Plan, & Specifications

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Engineer of Record	1	\$ 300	/hr	150	\$ 45,000
Sr. Project Manager	1	\$ 200	/hr	250	\$ 50,000
Staff Engineer	1	\$ 160	/hr	600	\$ 96,000
Administrative	1	\$ 100	/hr	80	\$ 8,000
Drafter	1	\$ 130	/hr	300	\$ 39,000
Reproduction costs (3 copies of each report)	--	\$ 500	lump	3	\$ 1,500
Communication Fee	--	5.0%	Labor fees	\$ 239,500	\$ 11,975

Design, Plans, and Specifications Total: \$ 251,475

b. Post-Closure Maintenance Plan

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Engineer of Record	1	\$ 300	/hr	80	\$ 24,000
Sr. Project Manager	1	\$ 200	/hr	100	\$ 20,000
Staff Engineer	1	\$ 160	/hr	150	\$ 24,000
Administrative	1	\$ 100	/hr	28	\$ 2,800
Drafter	1	\$ 130	/hr	100	\$ 13,000
Reproduction costs (3 copies of each report)	--	\$ 500	lump	3	\$ 1,500
Communication Fee	--	5.0%	Labor fees	\$ 85,300	\$ 4,265

PCMP Total: \$ 89,565

c. Construction Management

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Construction Manager (40 hrs/wk @ 65 weeks)	1	\$ 120	/hr	2,600	\$ 312,000
Administrative (4 hrs/week @ 65 weeks)	1	\$ 78	/hr	260	\$ 20,280
Communication Fee	--	5.0%	Labor fees	\$ 332,280	\$ 16,614

Construction Management Total: \$ 348,894



3. CONSTRUCTION QUALITY ASSURANCE (CQA) SERVICES
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

d. Construction Quality Assurance (CQA)

Labor:

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
CQA Officer (8 hrs/wk @ 65 wks)	1	\$ 160	/hr	520	\$ 83,200
CQA Technician (40 hrs/wk @ 65 wks)	1	\$ 81	/hr	2,600	\$ 210,600
Second CQA Technician (40 hrs/wk @ 65 wks)	1	\$ 81	/hr	2,600	\$ 210,600
Admin/Clerical (4 hrs/wk @ 65 wks)	1	\$ 78	/hr	260	\$ 20,280
Communication Fee - 5% on Labor	--	5.0%	Labor fees	\$ 524,680	\$ 26,234

Labor Subtotal: \$ 550,914

Field Equipment Expenses:

Position	No. of Equipment	Wage Rate	Unit	Qty	Subtotal
Field Office/Testing Equipment (PC/Printer, Scales, Ovens, Tools, etc)	--	\$ 5,000	lump sum	1	\$ 5,000
Nuclear Gauge	1	\$ 300	/week	65	\$ 19,500
Field Vehicle	2	\$ 1,500	/month	16	\$ 48,000
Per Diem	2	\$ 875	/week	65	\$ 113,750
Cell Phone	2	\$ 50	/month	16	\$ 1,600
Vehicle - CQA Officer	1	\$ 150	/trip	65	\$ 9,750

Field Expenses Subtotal: \$ 197,600

Soils & Geosynthetics Testing Expenses:

Foundation Layer (430,204 cy)	Number	Unit Rate	Units	Qty	Cost
Moisture - Density (ASTM D1557) - 1/10,000 cy	--	\$ 245	/test	44	\$ 10,780
Particle Size Analysis (ASTM D422/D1140) - 1/5,000 cy	--	\$ 100	/test	87	\$ 8,700
Soil Classification (ASTM D2487) - 1/5,000 cy	--	\$ 8	/test	87	\$ 696
Shipping Charges - Est.	--	\$ 150	/package	50	\$ 7,500

Evapotranspirative Layer (1,421,796 cy)	Number	Unit Rate	Units	Qty	Cost
Moisture - Density (ASTM D1557) - 1/10,000 cy	--	\$ 245	/test	143	\$ 35,035
Particle Size Analysis (ASTM D422/D1140) - 1/10,000 cy	--	\$ 100	/test	285	\$ 28,500
Soil Classification (ASTM D2487) - 1/10,000 cy	--	\$ 8	/test	285	\$ 2,280
Moisture Content (ASTM D2216) - 1/5,000 cy	--	\$ 20	/test	285	\$ 5,700
Shipping Charges - Est.	--	\$ 150	/package	110	\$ 16,500

Soils Testing Expenses Subtotal: \$ 115,691



3. CONSTRUCTION QUALITY ASSURANCE (CQA) SERVICES
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

CQA Report and Certification:

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Engineer of Record	1	\$ 300	/hr	4	\$ 1,200
CQA Officer	1	\$ 160	/hr	16	\$ 2,560
Sr. Project Manager	1	\$ 200	/hr	32	\$ 6,400
Staff Engineer	1	\$ 160	/hr	80	\$ 12,800
Administrative	1	\$ 100	/hr	16	\$ 1,600
Drafter	1	\$ 130	/hr	20	\$ 2,600
Reproduction Costs (3 copies of each report)	--	\$ 500	lump	3	\$ 1,500
Communication Fee	--	5%	/hr	28,660	\$ 1,433

CQA Report and Certification Subtotal: \$ 30,093

CQA Total: \$ 894,298

CQA TOTAL (per acre): \$ 2,236



**4. REVEGETATION
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Laborer	1	\$ 110.48	/hr	160	\$ 17,676
Hydroseed Truck Operator	1	\$ 147.22	/hr	160	\$ 23,555

Crew Subtotal: \$ 41,231

Materials:

Item	Rate per Unit	Unit	Qty	Subtotal
Planting & Seed Mix ¹	\$ 2,000	acre	400	\$ 800,000

Materials Subtotal: \$ 800,000

15% Material Mark Up: \$ 120,000

Materials Total: \$ 920,000

Equipment, Maintenance and Fuel Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qty	Subtotal
Mob/Demob	1	\$ 2,000	ls	1	\$ 2,000
Pickup Truck	1	\$ 40.23	/hr	160	\$ 6,436
Seed Truck	1	\$ 132.46	/hr	160	\$ 21,193

Equipment Subtotal: \$ 29,629

Revegetation Total: \$ 990,860

Revegetation Unit Cost: \$ 2,477 /ac

Schedule:

Work Item	Qty	Units	Production Rate	Days
Planting & Seed Mix ¹	400	acres	20 ac/day	20

Project Duration: 20

Notes:

1. Planting includes sprigs, plugs, fertilizer, and mulch. Seed mix based on EIR draft revegetation plan.
2. Assumes 400 acres need to be hydroseeded.



**5. LCRS UPGRADE
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	1	\$ 100.14	/hr	241	\$ 24,100
Grader Operator	1	\$ 141.03	/hr	241	\$ 33,940
Backhoe Operator	1	\$ 143.03	/hr	241	\$ 34,422
Foreman	1	\$ 108.75	/hr	241	\$ 26,173

Crew Total: \$ 118,635

Equipment Costs:

Item	Personnel	Wage Rate	Units	Qty	Subtotal
Mob/Demob	1	\$ 5,000	ls	1	\$ 5,000
Pickup Truck	1	\$ 41.23	/hr	241	\$ 9,922
Grader - CAT 140G	1	\$ 127.16	/hr	241	\$ 30,602
Backhoe	1	\$ 63.78	/hr	241	\$ 15,349

Reporting Cost per Round: \$ 60,874

Materials:

Item	Number	Rate	Units	Qty	Subtotal
Upgrade Leachate Pump	--	\$ 50,000	ls	1	\$ 50,000
Security Enclosures for Sumps	--	\$ 5,000	each	3	\$ 15,000

Material Subtotal: \$ 65,000

15% Material Mark Up: \$ 9,750

Material Total: \$ 74,750

LCRS UPGRADE TOTAL: \$ 254,258

Schedule:

Work Item	Qty	Units	Production Rate		Days
Bury Leachate Piping	3,250	lf	200	lf/day	16
Remove and Replace Leachate Piping	3,250	lf	300	lf/day	11
Leachate Sump Enclosures	3	ea	1	ea/day	3

Project Duration: 30



**6. GAS CONTROL SYSTEM
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	1	\$ 100.14	/hr	136	\$ 13,619
Grader Operator	2	\$ 141.03	/hr	136	\$ 38,359
Backhoe Operator	2	\$ 143.03	/hr	136	\$ 38,904
Foreman	1	\$ 108.75	/hr	136	\$ 14,790

Crew Subtotal: \$ 105,672

Equipment Costs:

Item	No. of Equip.	Rate per Unit ²	Unit	Qty	Subtotal
Mob/Demob	1	\$ 5,000	ls	1	\$ 5,000
Pickup Truck	1	\$ 41.23	/hr	136	\$ 5,607
Grader - CAT 140G	2	\$ 127.16	/hr	136	\$ 34,586
Backhoe	2	\$ 63.78	/hr	136	\$ 17,348

Equipment Subtotal: \$ 62,541

Materials:

Item	No. of Equip.	Rate per Unit ²	Unit	Qty	Subtotal
Wellhead Extensions and Boots	--	\$ 300	ea	424	\$ 127,200

Materials Subtotal: \$ 127,200

15% Material Mark Up: \$ 19,080

Materials Total: \$ 146,280

GAS CONTROL TOTAL: \$ 314,493

Schedule:

Work Item	Qty	Units	Production Rate	Days
Wellhead Extensions and Boots	424	ea	25 ea/day	17

Project Duration: 17

Notes:

1. Assumes LFG system is constructed as landfill is developed.
3. Assumes 5 foot LFG extension pipes and pipe boots.



**7. MONITORING SYSTEMS
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Labor:

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	16	\$ 3,200
Sr. Project Manager	1	\$ 156	/hr	40	\$ 6,240
Staff Engineer	1	\$ 113	/hr	80	\$ 9,040
Administrative	1	\$ 78	/hr	8	\$ 624
Drafter	1	\$ 93	/hr	24	\$ 2,232

Labor Subtotal: \$ 21,336

Crew & Equipment Costs:

Position	Personnel	Rate	Units	Qty ¹	Subtotal
Field Technician	1	\$ 81.00	/hr	40	\$ 3,240
2-Man Survey Crew	1	\$ 252.62	/hr	40	\$ 10,105
Truck	1	\$ 41.23	/hr	40	\$ 1,649

Crew & Equipment Subtotal: \$ 14,994

Materials:

Item	Number	Rate ²	Units	Qty	Subtotal
Adjust Wellheads	--	\$ 2,000	each	16	\$ 32,000
Upgrade Security Enclosures	--	\$ 1,500	each	16	\$ 24,000

Material Subtotal: \$ 56,000

15% Material Mark Up: \$ 8,400

Materials Total: \$ 64,400

MONITORING TOTAL: \$ 100,730

Notes:

1. Assumes five 8-hour days to complete inspections and survey.
2. Unit rate includes labor.



**8a. DOWNDRAIN INSTALLATION
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
Laborer	2	\$ 110.48	/hr	192	\$ 42,423
Trackhoe Operator	1	\$ 101.31	/hr	192	\$ 19,452
Foreman	1	\$ 108.75	/hr	192	\$ 20,880
Crew Subtotal:					\$ 82,754

Materials:

Item	Rate per Unit	Unit	Qty	Subtotal
24" Downdrain	\$ 28.00	lf	4,743	\$ 132,804
Materials Subtotal:				\$ 132,804
15% Material Mark Up:				\$ 19,921
Material Total:				\$ 152,725

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qty	Subtotal
Mob/Demob	-	\$ 1,000	ls	1	\$ 1,000
Job Trailer	1	\$ 23.55	/hr	192	\$ 4,522
Pickup Truck	1	\$ 40.23	/hr	192	\$ 7,724
Trackhoe	1	\$ 52.53	/hr	192	\$ 10,086
Equipment Subtotal:					\$ 23,331

DOWNDRAIN INSTALLATION TOTAL: \$ 258,810
Downdrain Installation Unit Cost: \$ 54.57 /lf

Schedule:

Work Item	Qty	Units	Production Rate	Days
Downdrain Installation	4,743	lf	200 lf/day	24
Project Duration:				24

Notes:

1. Production includes time to move and reinstall downdrains at closure.
2. Culvert and downdrain quantities obtained from AutoCAD Civil 3D.

8b. V-DITCHES
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	1	\$ 110.48	/hr	192	\$ 21,211
Grader Operator	1	\$ 147.38	/hr	192	\$ 28,297
Backhoe Operator	1	\$ 146.90	/hr	192	\$ 28,205
Foreman	1	\$ 108.75	/hr	192	\$ 20,880

Crew Subtotal: \$ 98,593

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qty	Subtotal
Mob/Demob	-	\$ 1,000	ls	1	\$ 1,000
Pickup Truck	1	\$ 40.23	/hr	192	\$ 7,724
Grader - CAT 140G	1	\$ 121.21	/hr	192	\$ 23,272
Backhoe	1	\$ 60.41	/hr	192	\$ 11,599

Equipment Subtotal: \$ 43,595

V-DITCH TOTAL: \$ 142,187

V-Ditch Unit Cost: \$ 6.03 /lf

Schedule:

Work Item	Qty ²	Units	Production Rate		Days
V-Ditches (Grass Lined) ^{1,3}	23,563	lf	1,000	lf/day	24

Project Duration: 24

Notes:

1. Assumed grass lined channels.
2. V-Ditch quantities obtained from AutoCAD Civil 3D.
3. Seed mix for v-ditch area included in Item 4 - Revegetation.



**8c. DIVERSION BERMS
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	1	\$ 110.48	/hr	104	\$ 11,489
Grader Operator	1	\$ 147.38	/hr	104	\$ 15,327
Trackhoe Operator	1	\$ 101.31	/hr	104	\$ 10,536
Foreman	1	\$ 108.75	/hr	104	\$ 11,310

Crew Subtotal: \$ 48,663

Equipment Costs:

Position	No. of Equip.	Rate per Unit	Units	Qty	Subtotal
Mob/Demob	-	\$ 1,000	ls	1	\$ 1,000
Pickup Truck	1	\$ 40.23	/hr	104	\$ 4,184
Grader - CAT 140G	1	\$ 121.21	/hr	104	\$ 12,606
Trackhoe	1	\$ 52.53	/hr	104	\$ 5,463

Equipment Subtotal: \$ 23,253

DIVERSION BERMS TOTAL: \$ 71,916

Diversion Berms Unit Cost: \$ 11.91 /lf

Schedule:

Work Item ¹	Qty	Units	Production Rate	Days
Diversion Berms	6,036	lf	500 lf/day	13

Project Duration: 13

Notes:

1. Diversion berms quantities obtained from AutoCAD Civil 3D.



**8d. INLET AND OUTLET STRUCTURES
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	1	\$ 110.48	/hr	80	\$ 8,838
Grader Operator	1	\$ 147.38	/hr	80	\$ 11,790
Trackhoe Operator	1	\$ 101.31	/hr	80	\$ 8,105
Foreman	1	\$ 108.75	/hr	80	\$ 8,700

Crew Subtotal: \$ 37,433

Equipment Costs:

Position	No. of Equip.	Rate per Unit	Units	Qty	Subtotal
Mob/Demob	-	\$ 1,000	ls	1	\$ 1,000
Pickup Truck	1	\$ 40.23	/hr	80	\$ 3,218
Trackhoe	1	\$ 52.53	/hr	80	\$ 4,202

Equipment Subtotal: \$ 8,421

Materials:

Item	Number	Rate per Unit	Unit	Qty	Subtotal
Inlet/Outlet Structures	--	\$ 5,000	ea	20	\$ 100,000

Materials Subtotal: \$ 100,000

15% Material Mark Up: \$ 15,000

Materials Total: \$ 115,000

INLET STRUCTURES TOTAL: \$ 160,854

Inlet Structures Unit Cost: \$ 8,043 ea

Schedule:

Work Item ¹	Qty	Units	Production Rate	Days
Inlet/Outlet Structures	20	ea	2 ea/day	10

Project Duration: 10

Notes:

1. Inlet/Outlet structures quantities obtained from AutoCAD Civil 3D.



Civil & Environmental Consultants, Inc.

**8e. EROSION CONTROL
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty	Subtotal
Laborer	6	\$ 110.48	/hr	176	\$ 116,662
Foreman	1	\$ 108.75	/hr	176	\$ 19,140

Crew Subtotal: \$ 135,802

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qty	Subtotal
Mob/Demob	-	\$ 1,000	ls	1	\$ 1,000
Pickup Truck	1	\$ 40.23	/hr	176	\$ 7,080
Job Trailer	1	\$ 23.55	/hr	176	\$ 4,145

Equipment Subtotal: \$ 12,225

Materials:

Item	Number	Rate per Unit	Unit	Qty	Subtotal
Straw Wattles	--	\$ 0.90	ea	65,231	\$ 58,708

Materials Subtotal: \$ 58,708

15% Material Mark Up: \$ 8,806

Materials Subtotal: \$ 67,514

EROSION CONTROL TOTAL: \$ 215,541

Erosion Control Unit Cost: \$ 3.30 /lf

Schedule:

Work Item	Qty	Units	Production Rate	Days
Erosion Control	65,231	lf	3,000 lf/day	22

Project Duration: 22

DRAINAGE TOTAL: \$ 849,308

Notes:

1. Erosion control straw wattle quantities obtained from AutoCAD Civil 3D.



**9. SECURITY MEASURES
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty ¹	Subtotal
Laborer	1	\$ 110.48	/hr	40	\$ 4,419

Crew Total: \$ 4,419

Equipment Costs:

Item	Number	Rate	Units	Qty ¹	Subtotal
Pickup Truck	1	\$ 40.23	/hr	40	\$ 1,609

Equipment Total: \$ 1,609

Materials:

Item	Number	Rate	Units	Qty ¹	Subtotal
Site Security & Installation ²	--	20,000	ls	1	\$ 20,000

Material Subtotal: \$ 20,000

15% Material Mark Up: \$ 3,000

Material Total: \$ 23,000

Security Measures Total: \$ 29,028

Notes:

1. Assumes five 8-hour days for installation for security upgrades. Perimeter fence, locks, gates, signs and topographic features already in place.
2. Cost includes installing a security fence, access gates with locks, and informational signs to protect equipment and the public, compatible with postclosure use. Site security will remain in place during final closure.



10. CLOSURE SURVEY/SETTLEMENT MONUMENTS
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Crew Costs:

Position	Personnel	Wage Rate	Unit	Qty	Subtotal
2-Man Survey Crew	1	\$ 252.62	/hr	8	\$ 2,021
Licensed Surveyor	1	\$ 145.00	/hr	2	\$ 290
Crew Subtotal:					\$ 2,311

Materials:

Item	Number	Rate per Unit	Unit	Qty	Subtotal
Temporary Survey Monuments	--	\$ 2,000	each	5	\$ 10,000
Permanent Survey Monuments	--	\$ 4,000	each	2	\$ 8,000
Materials Subtotal:					\$ 18,000
15% Material Mark Up:					\$ 2,700
Materials Total:					\$ 20,700

Equipment Costs:

Item	No. of Equip.	Rate per unit	Unit	Qty	Subtotal
Pickup Truck	1	\$ 41.23	/hr	8	\$ 330
Equipment Subtotal:					\$ 330

Aerial Survey:

Item	Number	Rate	Unit	Qty	Subtotal
Aerial Survey Contractor	--	\$ 12,300	/hr	1	\$ 12,300
Survey Plate and Recording		\$ 5,200	ls	1	\$ 5,200
Aerial Survey Subtotal:					\$ 17,500

Closure Survey/Settlement Monuments Total: \$ 40,841

Schedule:

Work Item	Qty	Units	Production Rate	Days
Monument Install ¹	7	each	7 monuments/day	1
Project Duration:				1

Notes:

1. Assumed 5 temporary and 2 permanent monuments will be installed.

**11. STRUCTURES REMOVAL
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Position	Rate	Units	Qty	Subtotal
Building Demolition and Removal ¹	\$ 500,000	ls	1	\$ 500,000

STRUCTURES REMOVAL TOTAL: \$ 500,000

Notes:

1. Assumes demolition of existing structures at the landfill.



Civil & Environmental Consultants, Inc.

**LABOR & EQUIPMENT COSTS
CLOSURE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Source ¹	Operator Group	Base Wage Rate	+35% Labor Mark-Up ²	+10% Labor Surcharge ³	Wage Rate	Unit
2 Man Survey Crew ⁴	--	--	\$ 194.49	\$ 68.07	\$ 19.45	\$ 282.01	/hr
Licensed Surveyor	--	--	\$ 100.00	\$ 35.00	\$ 10.00	\$ 145.00	/hr
Laborer	Laborer	3	\$ 76.19	\$ 26.67	\$ 7.62	\$ 110.48	/hr
Backhoe Operator	Operator	4	\$ 101.31	\$ 35.46	\$ 10.13	\$ 146.90	/hr
Compactor Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Excavator Operator	Operator	4	\$ 101.31	\$ 35.46	\$ 10.13	\$ 146.90	/hr
Foreman ⁵	--	--	\$ 75.00	\$ 26.25	\$ 7.50	\$ 108.75	/hr
Grader Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Gradesetter	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Grading Dozer Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Haul Truck Operator	Teamster	VIII	\$ 79.57	\$ 27.85	\$ 7.96	\$ 115.38	/hr
Maintenance Truck Operator	Operator	4	\$ 101.31	\$ 35.46	\$ 10.13	\$ 146.90	/hr
Scraper Operator - Mixing	Operator	12	\$ 101.93	\$ 35.68	\$ 10.19	\$ 147.80	/hr
Scraper Operator - Placement	Operator	12	\$ 101.93	\$ 35.68	\$ 10.19	\$ 147.80	/hr
Seed Truck Operator	Operator	6	\$ 101.53	\$ 35.54	\$ 10.15	\$ 147.22	/hr
Skid Track Loader Operator	Operator	3	\$ 99.82	\$ 34.94	\$ 9.98	\$ 144.74	/hr
Spreading Dozer Operator	Operator	6	\$ 101.53	\$ 35.54	\$ 10.15	\$ 147.22	/hr
Supervisor ⁵	--	--	\$ 100.00	\$ 35.00	\$ 10.00	\$ 145.00	/hr
Water Truck Operator - Mixing	Teamster	V	\$ 79.04	\$ 27.66	\$ 7.90	\$ 114.61	/hr
Water Truck Operator - Placement	Teamster	V	\$ 79.04	\$ 27.66	\$ 7.90	\$ 114.61	/hr

Engineering Costs:

Item	Rate per Unit	Unit
Engineer of Record	\$ 300.00	/hr
Sr. Project Manager	\$ 200.00	/hr
Staff Engineer	\$ 160.00	/hr
CQA Officer	\$ 160.00	/hr
CQA Technician	\$ 81.00	/hr
Drafter	\$ 130.00	/hr
Administrative	\$ 100.00	/hr

Equipment, Maintenance and Fuel Costs:

Item	Source	CalTrans Base Rate ⁶	15% Overhead & Profit ²	Unit Rate per Hour	Unit
Job Trailer	100	\$ 20.48	\$ 3.07	\$ 23.55	/hr
Generator	GEN1	\$ 19.50	\$ 2.93	\$ 22.43	/hr
Pickup Truck	00-06	\$ 34.98	\$ 5.25	\$ 40.23	/hr
Spreading Dozer - CAT D6M-LGP	3745	\$ 106.67	\$ 16.00	\$ 122.67	/hr
Push Dozer - CAT D8N	4864	\$ 208.59	\$ 31.29	\$ 239.88	/hr
Excavator - CAT 325	0330	\$ 127.11	\$ 19.07	\$ 146.18	/hr
Haul Truck	32-40	\$ 220.26	\$ 33.04	\$ 253.30	/hr
Grading Dozer - CAT D6	3720	\$ 97.41	\$ 14.61	\$ 112.02	/hr
Scraper 1 - CAT 637 - Placement	2375	\$ 343.85	\$ 51.58	\$ 395.43	/hr
Scraper 1 - CAT 637 - Mixing	2375	\$ 343.85	\$ 51.58	\$ 395.43	/hr
Compactor - CAT 815	2300	\$ 114.54	\$ 17.18	\$ 131.72	/hr
Grader - CAT 140G	3260	\$ 105.40	\$ 15.81	\$ 121.21	/hr
Water Truck - 4000 Gal - Placement	48-60	\$ 90.25	\$ 13.54	\$ 103.79	/hr
Water Truck - 4000 Gal - Mixing	48-60	\$ 90.25	\$ 13.54	\$ 103.79	/hr
Maintenance Truck	00-06	\$ 34.98	\$ 5.25	\$ 40.23	/hr
Mixer	11-16	\$ 7.49	\$ 1.12	\$ 8.61	/hr
Skid Track Loader	1623	\$ 101.92	\$ 15.29	\$ 117.21	/hr
Seed Truck	5AXL	\$ 115.18	\$ 17.28	\$ 132.46	/hr
Drill Rig - Atlantic 4500LH	5054	\$ 237.39	\$ 35.61	\$ 273.00	/hr
Backhoe - CAT 426	1862	\$ 52.53	\$ 7.88	\$ 60.41	/hr
Forklift	080-120	\$ 79.02	\$ 11.85	\$ 90.87	/hr

Notes:

- From the General Prevailing Wage determination made by the Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1; Tables: Craft: TEAMSTER, Craft: OPERATING ENGINEER, Craft: #OPERATING ENGINEER (HEAVY AND HIGHWAY WORK), and Craft: #LABORER AND RELATED CLASSIFICATIONS effective August 22, 2025.
- Mark-up and overhead based on the 2025 Caltrans Standard Specifications, Section 9-1.04B and 9-1.04D.
- Labor surcharge based on the State of California State Transportation Agency Labor Surcharge and Equipment Rental Rates effective April 1, 2026 to March 31, 2027.
- 2 man survey crew includes one instrumentman and one chainman/rodman at a rate of \$97.56 and \$96.93, respectively. Los Angeles County determination LOS-2026-1.
- Wage is not determined by the General Prevailing Wages.
- CalTrans Labor Surcharge and Equipment Rental Rates effective April 1, 2026 to March 31, 2027.



APPENDIX C

POST-CLOSURE MAINTENANCE COST ESTIMATE BACKUP CALCULATIONS

TABLE 8
2026 POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Item	Unit	Quantity	Unit Cost	Total Cost
1. Vegetation Maintenance				
a. Revegetation ¹	acre	8	\$ 2,767	\$ 22,137
b. Rodent Control	ls	1	\$ 1,206	\$ 1,206
2. Leachate Monitoring and Maintenance ²				
a. Sampling and Inspection	annual	1	\$ 12,007	\$ 12,007
b. Operations and Maintenance	annual	1	\$ 3,243	\$ 3,243
c. Off-site Disposal	annual	1	\$ 14,766	\$ 14,766
3. Landfill Gas Monitoring and Maintenance ²				
a. Monitoring & Inspection	annual	1	\$ 33,160	\$ 33,160
b. Operations and Maintenance	annual	1	\$ 273,848	\$ 273,848
4. Vadose Zone Monitoring and Maintenance ²	annual	1	\$ 17,192	\$ 17,192
5. Groundwater System Maintenance ²				
a. Monitoring and Inspection	annual	1	\$ 86,067	\$ 86,067
b. Operations and Maintenance	annual	1	\$ 30,420	\$ 30,420
6. Surface Water Monitoring ²	annual	1	\$ 12,337	\$ 12,337
7. Drainage Maintenance	annual	1	\$ 140,953	\$ 140,953
8. Security Maintenance	annual	1	\$ 29,028	\$ 29,028
9. Inspections	annual	1	\$ 9,612	\$ 9,612
10. Miscellaneous				
a. Aerial Topography	annual	1	\$ 10,000	\$ 10,000
b. Iso-Settlement Report	every 5 yrs	0.2	\$ 15,523	\$ 3,105
Subtotal: \$				699,079
Cost x 30 Years: \$				20,972,376

Notes:

1. Assumes 2% of total area (400 acres) per year will need hydroseeding.
2. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.

**2026 POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Item	Unit	Quantity	Unit Cost	Total Cost
1. Vegetation Maintenance				
a. Revegetation ¹	acre	8	\$ 2,767	\$ 22,137
b. Rodent Control	ls	1	\$ 1,206	\$ 1,206
2. Leachate Monitoring and Maintenance ²				
a. Sampling and Inspection	annual	1	\$ 12,007	\$ 12,007
b. Operations and Maintenance	annual	1	\$ 3,243	\$ 3,243
c. Off-site Disposal	annual	1	\$ 14,766	\$ 14,766
3. Landfill Gas Monitoring and Maintenance ²				
a. Monitoring & Inspection	annual	1	\$ 33,160	\$ 33,160
b. Operations and Maintenance	annual	1	\$ 273,848	\$ 273,848
4. Vadose Zone Monitoring and Maintenance ²	annual	1	\$ 17,192	\$ 17,192
5. Groundwater System Maintenance ²				
a. Monitoring and Inspection	annual	1	\$ 86,067	\$ 86,067
b. Operations and Maintenance	annual	1	\$ 30,420	\$ 30,420
6. Surface Water Monitoring ²	annual	1	\$ 12,337	\$ 12,337
7. Drainage Maintenance	annual	1	\$ 140,953	\$ 140,953
8. Security Maintenance	annual	1	\$ 29,028	\$ 29,028
9. Inspections	annual	1	\$ 9,612	\$ 9,612
10. Miscellaneous				
a. Aerial Topography	annual	1	\$ 10,000	\$ 10,000
b. Iso-Settlement Report	every 5 yrs	0.2	\$ 15,523	\$ 3,105
Subtotal: \$				699,079
Cost x 30 Years: \$				20,972,376

Notes:

1. Assumes 2% of total area (400 acres) per year will need hydroseeding.
2. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.



**1. VEGETATION MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

a. Revegetation

Crew Costs:

Position	Personnel	Prevailing Wage Rate	Unit	Qty ¹	Subtotal
Seed Truck Operator	1	\$ 147.22	/hr	8	\$ 1,178
Crew Subtotal:					\$ 1,178

Material Costs:

Item	Number	Rate	Unit	Qty	Subtotal
Seed Mix (2% of 400 acres)	--	\$ 2,000	acre	8	\$ 16,000
Materials Subtotal:					\$ 16,000
15% Material Mark Up:					\$ 2,400
Material Total:					\$ 18,400

Equipment, Maintenance, and Fuel Costs:

Item	No. of Equip.	Rate	Unit	Qty ¹	Subtotal
Mob/Demob	-	\$ 1,500	ls	1	\$ 1,500
Seed Truck	1	\$ 132.46	/hr	8	\$ 1,060
Equipment Subtotal:					\$ 2,560

Revegetation Total: \$ 22,137
Revegetation Unit Cost: \$ 2,767 /ac

Schedule:

Work Item	Qty ²	Units	Production Rate	Days
Seed Mix (2% of 400 acres)	8	acres	8 ac/day	1
Project Duration:				1

Notes:

1. Assumes one 8-hour day for reseeding activities.
2. Assumes 2% of total area (400 acres) will be replanted, fertilized, and mulched each year.

b. Rodent Control

Crew Costs:

Position	Personnel	Wage Rate	Unit	Qty ¹	Subtotal
Laborer	1	\$ 110.48	/hr	8	\$ 884
Crew Total:					\$ 884

Equipment, Maintenance, and Fuel Costs:

Item	No. of Equip	Rate per Day	Unit	Qty ¹	Subtotal
Pickup Truck	1	\$ 40.23	/hr	8	\$ 322
Equipment Total:					\$ 322

Rodent Control Total: \$ 1,206

Notes:

1. Assumes 8 hours of rodent control annually.

**2. LEACHATE MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

a. Sampling & Inspection

Field Sampling Costs:

Item	Personnel	Wage Rate	Units	Qty	Subtotal
Sr. Technician	1	\$ 81.00	/hr	8	\$ 648
Sr. Project Manager	1	\$ 156.00	/hr	8	\$ 1,248
Equipment	1	\$ 50.00	/samples	3	\$ 150
Truck	1	\$ 40.23	/hr	8	\$ 322

Sampling Cost Per Round: \$ 2,368

Rounds per Year: 1

Annual Sampling Cost: \$ 2,368

Lab Testing Costs - Detection:

Monitoring Parameter ²	Number	Unit Cost	Units	Tests per Round ¹	Annual Cost
Chlorinated Pesticides (8081A)	--	\$ 85	/test	3	\$ 255
PCB	--	\$ 60	/test	3	\$ 180
Organophosphorus Pesticides (8141A)	--	\$ 85	/test	3	\$ 255
Chlorinated Herbicides (8151A)	--	\$ 85	/test	3	\$ 255
Volatile Organic Compounds (8260B)	--	\$ 125	/test	3	\$ 375
Semivolatile Organic Compounds (8270)	--	\$ 98	/test	3	\$ 294
Dioxins and Furans (8290A)	--	\$ 850	/test	3	\$ 2,550
Metals (6010B)	--	\$ 143	/test	3	\$ 429
Arsenic (6020)	--	\$ 9	/test	3	\$ 27
Lab EDF Fee	--	1%	/test	1	\$ 46
Administrative Fee	--	10%	/test	1	\$ 462

Detection Testing Cost per Round: \$ 5,128

Rounds per Year: 1

Annual Detection Testing Cost: \$ 5,128

Reporting Cost Per Round:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	2	\$ 400
Sr. Project Manager	1	\$ 156	/hr	10	\$ 1,560
Staff Engineer	1	\$ 113	/hr	16	\$ 1,808
Drafter	1	\$ 93	/hr	4	\$ 372
Administrative	1	\$ 78	/hr	2	\$ 156
Office Service Fee	--	5%	rate		\$ 215

Reporting Cost per Round: \$ 4,511

Rounds per Year: 1

Annual Reporting Cost: \$ 4,511

Total Annual Leachate Monitoring Cost: \$ 12,007

Notes:

1. Number of samples per round include 2 sumps (South Main Canyon and East Canyon) and 1 quality control sample.
2. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.



Civil & Environmental Consultants, Inc.

**2. LEACHATE MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

b. Operations & Maintenance

Crew Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty ¹	Cost
Sr. Technician	1	\$ 81.00	/hr	16	\$ 1,296
Crew Total: \$					1,296

Equipment Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty ¹	Cost
Pickup Truck	1	\$ 40.23	/hr	16	\$ 644
Equipment Total: \$					644

Material Costs:

Item	Rate	Units	Qty	Subtotal
Pump Replacement ²	\$ 4,000	/10 years	2	\$ 800
Leachate Tank Replacement ³	\$ 10,000	/30 years	1	\$ 333
Material Subtotal: \$				1,133
15% Material Mark Up: \$				170
Material Total: \$				1,303

Operations & Maintenance Total Per Year: \$ 3,243

Notes:

- Assumes two 8-hour days per year, to complete landfill leachate operation & maintenance activities.
- Assumes 2 pumps, \$4,000 per pump, every ten years for thirty years.

$$\frac{2 \text{ pumps} \times \$4,000 \text{ each} \times 3 \text{ replacements}}{30 \text{ years}} = \$800$$

- Assumes leachate storage tank to be replaced once in thirty years

$$\frac{1 \text{ tank} \times \$10,000 \text{ each}}{30 \text{ years}} = \$333$$

c. Off-site Disposal

Off-Site Disposal:

Item	Rate	Units	Qty ^{2,3}	Subtotal
Trucking Cost for Offsite Haul ¹	\$ 0.40	/gal	36,915	\$ 14,766
Off-Site Treatment Annual Total: \$				14,766

O&M and OFF-SITE DISPOSAL TOTAL: \$ 14,766

Notes:

- Assumes leachate is hauled at a rate of \$0.40 per gallon.
- Assumes 3,075 gal/month x 12 months/year = 36,915 gal/year.



**3a. LANDFILL GAS MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

a. Monitoring & Inspection

Perimeter Probe Monitoring Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty ¹	Subtotal
Sr. Technician	1	\$ 81.00	/hr	16	\$ 1,296
Sr. Project Manager	1	\$ 156.00	/hr	4	\$ 624
Equipment	--	\$ 125	/day	2	\$ 250
Truck	--	\$ 40.23	/hr	16	\$ 644

Sampling Cost Per Round: \$ 2,814

Rounds per Year: 4

Annual Sampling Cost: \$ 11,255

Surface Emissions Monitoring Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty ²	Subtotal
Sr. Technician	1	\$ 81.00	/hr	8	\$ 648
Sr. Project Manager	1	\$ 156.00	/hr	4	\$ 624
Staff Engineer	1	\$ 113.00	/hr	4	\$ 452
Equipment (GEM)	--	\$ 250	/day	1	\$ 250
Truck	--	\$ 40.23	/hr	8	\$ 322

Sampling Cost Per Round: \$ 2,296

Rounds per Year: 4

Annual Sampling Cost: \$ 9,183

Reporting Cost Per Round:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	4	\$ 800
Sr. Project Manager	1	\$ 156	/hr	4	\$ 624
Staff Engineer	1	\$ 113	/hr	12	\$ 1,356
Drafter	1	\$ 93	/hr	1	\$ 93
Administrative	1	\$ 78	/hr	2	\$ 156
Office Service Fee		5%	rate		\$ 151

Reporting Cost per Round: \$ 3,180

Rounds per Year: 4

Annual Reporting Cost: \$ 12,722

Total Annual LFG Monitoring Cost: \$ 33,160

Sampling and Reporting Cost per Round: \$ 8,290

Notes:

1. Assumes two 8 hour days to monitor perimeter probes with field probe per quarter.
2. Assumes one 8 hour day to monitor the landfill surface emissions with GEM per quarter.
3. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.



**3b. LANDFILL GAS MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

b. Operations & Maintenance

Position	Wage Rate	Units	Qty	Subtotal
Sr. Technician ¹	\$ 81	/hr	192	\$ 15,552
Staff Engineer/Geologist ²	\$ 113	/hr	96	\$ 10,848
Sr. Project Manager	\$ 156	/hr	48	\$ 7,488
Equipment (GEM)	\$ 250	/day	24	\$ 6,000
Truck	\$ 40.23	/hr	192	\$ 61,789
Equipment Maintenance	\$ 5,000	ls	1	\$ 5,000
Flare System Overhaul ³	\$ 600,000	/30 yrs	2	\$ 40,000
Blower Replacement ⁴	\$ 20,000	/15 yrs	2	\$ 2,667
Probe Replacement ⁵	\$ 24,000	/30 yrs	27	\$ 21,600
Probe Maintenance	\$ 5,000	ls	1	\$ 5,000
LFG Well Replacement ⁶	\$ 12,000	/5 yrs	3	\$ 7,200
Annual Power Costs ⁷	\$ 0.18	/kw-hr	407,000	\$ 73,260

Annual O&M Total: \$ 256,403

Flare Source Test:

Item	Personnel	Wage Rate	Units	Qty ¹	Subtotal
Sr. Technician	1	\$ 81.00	/hr	8	\$ 648
Sr. Project Manager	1	\$ 156.00	/hr	2	\$ 312
Truck	--	\$ 40.23	/hr	8	\$ 322
Source Test Contractor	--	\$ 12,000	ls	1	\$ 12,000
Reporting	--	\$ 500	ls	1	\$ 500

Flare Source Test: \$ 13,782

Reporting:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	1	\$ 200
Sr. Project Manager	1	\$ 156	/hr	8	\$ 1,248
Staff Engineer	1	\$ 113	/hr	12	\$ 1,356
Drafter	1	\$ 93	/hr	4	\$ 372
Administrative	1	\$ 78	/hr	4	\$ 312
Office Service Fee	--	5%	rate		\$ 174

Reporting Cost per Round: \$ 3,662

O&M TOTAL PER YEAR: \$ 273,848

Notes:

- Assumes two 8-hour days per month for O&M activities.
- Assumes one 8-hour day per month for O&M activities.
- Assumes two (2) pre-assembled flare system cost of \$600,000 with a service life of thirty years.
- Assumes one (1) blower replacement cost of \$20,000 with a service life of fifteen years.
- Assumes 27 monitoring probes are replaced for \$24,000 each every thirty years.

$$\frac{27 \text{ probes} \times \$24,000 \text{ each}}{30 \text{ years}} = \$21,600 \text{ per year}$$
- Assumes three LFG well is replaced for \$12,000 each every 5 years.
- Based on site records, average monthly power bill is \$6,100.



Civil & Environmental Consultants, Inc.

**4. VADOSE ZONE MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Field Sampling Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Sr. Technician	1	\$ 81.00	/hr	8	\$ 648
Sr. Project Manager	1	\$ 156.00	/hr	4	\$ 624
Equipment	1	\$ 35.00	samples	4	\$ 140
Truck	1	\$ 40.23	/hr	8	\$ 322

Sampling Cost Per Round: \$ 1,734

Rounds per Year: 4

Annual Sampling Cost: \$ 6,935

Lab Testing Costs - Background & Detection:

Monitoring Parameter ¹	Number	Unit Cost	Units	Tests per Round ²	Annual Cost
Bicarbonate	--	\$ 27	/test	4	\$ 108
Boron	--	\$ 9	/test	4	\$ 36
Sodium	--	\$ 27	/test	4	\$ 108
Total Dissolved Solids (160.1)	--	\$ 27	/test	4	\$ 108
Volatile Organic Compounds	--	\$ 125	/test	4	\$ 500
Lab EDF Fee	--	1%	/test	1	\$ 9
Administrative Fee	--	10%	/test	1	\$ 87

Detection Testing Cost per Round: \$ 955

Rounds per Year: 4

Annual Detection Testing Cost: \$ 3,822

Reporting Cost Per Round:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	1	\$ 200
Sr. Project Manager	1	\$ 156	/hr	2	\$ 312
Staff Engineer	1	\$ 113	/hr	6	\$ 678
Drafter	1	\$ 93	/hr	2	\$ 186
Administrative	1	\$ 78	/hr	2	\$ 156
Office Service Fee	--	5%	rate		\$ 77

Reporting Cost per Round: \$ 1,609

Rounds per Year: 4

Annual Reporting Cost: \$ 6,434

Total Annual Vadose Zone Monitoring Cost: \$ 17,192

Notes:

1. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.
2. Includes three vadose zone sampling locations (SW-1, VP-2, and VP-9) and 1 quality control sample.



Civil & Environmental Consultants, Inc.

**5. GROUNDWATER MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

a. Monitoring & Inspection

Field Sampling Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Sr. Technician	1	\$ 81.00	/hr	32	\$ 2,592
Sr. Project Manager	1	\$ 156.00	/hr	4	\$ 624
Equipment	1	\$ 35.00	samples	28	\$ 980
Filters	1	\$ 15.00	each	28	\$ 420
Truck	1	\$ 40.23	/hr	32	\$ 1,287

Sampling Cost Per Round: \$ 5,903

Rounds per Year: 2

Annual Sampling Cost: \$ 11,807

Lab Testing Costs - Inorganic & Supplemental Parameters:

Monitoring Parameter ¹	Number	Unit Cost	Units	Tests per Round ^{2,3}	Annual Cost
Inorganic Parameters					
Alkalinity, CaCO ₃ (SM2320b)	--	\$ 27	/test	28	\$ 756
Ammonia, nitrogen (350.1)	--	\$ 30	/test	28	\$ 840
Chemical Oxygen Demand (410.4)	--	\$ 45	/test	28	\$ 1,260
Chloride (300.0)	--	\$ 27	/test	28	\$ 756
Nitrate as N (353.2)	--	\$ 10	/test	28	\$ 280
Sodium (6010)	--	\$ 9	/test	28	\$ 252
Sulfate (300.0)	--	\$ 27	/test	28	\$ 756
Potassium, total (6010B)	--	\$ 9	/test	28	\$ 252
Total Dissolved Solids (SM2540C)	--	\$ 27	/test	28	\$ 756
Total Organic Carbon (SM5310B)	--	\$ 27	/test	28	\$ 756
Supplemental Parameters					
Bicarbonate, CaCO ₃ (SM2320B)	--	\$ 27	/test	28	\$ 756
Boron, total (6010)	--	\$ 9	/test	28	\$ 252
Calcium-total (6010)	--	\$ 9	/test	28	\$ 252
Carbon Dioxide (SM 4500CO ₂ -D)	--	\$ 40	/test	28	\$ 1,120
Fluoride (300.0)	--	\$ 9	/test	28	\$ 252
Iron, total (6010B)	--	\$ 11	/test	28	\$ 308
Magnesium, total (6010B)	--	\$ 9	/test	28	\$ 252
Manganese, total (6010B)	--	\$ 9	/test	28	\$ 252
Sodium, total (6010)	--	\$ 9	/test	28	\$ 252
Sulfide (SM 4500S ₂ -D)	--	\$ 44	/test	28	\$ 1,232
Lab EDF Fee	--	1%	/test	1	\$ 116
Administrative Fee	--	10%	/test	1	\$ 1,159

Detection Testing Cost per Round: \$ 12,867

Rounds per Year: 2

Annual Detection Testing Cost: \$ 25,734



Civil & Environmental Consultants, Inc.

**5. GROUNDWATER MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Lab Testing Costs - Background & Detection:

Monitoring Parameter ¹	Number	Unit Cost	Units	Tests per Round ^{2,3}	Annual Cost
Appendix I VOCs (8260B)					
Other Organics					
Dichlorodifluoromethane (Freon12) (8260B)	--	\$ 80	/test	28	\$ 2,240
1,4-Dioxane (8270M)	--	\$ 125	/test	28	\$ 3,500
Other COCs					
Antimony, total (6010B)	--	\$ 9	/test	28	\$ 252
Arsenic, total (6010B)	--	\$ 9	/test	28	\$ 252
Barium, total (6010B)	--	\$ 9	/test	28	\$ 252
Beryllium, total (6010B)	--	\$ 9	/test	28	\$ 252
Cadmium, total (6010B)	--	\$ 9	/test	28	\$ 252
Chromium, total (6010B)	--	\$ 9	/test	28	\$ 252
Cobalt, total (6010B)	--	\$ 9	/test	28	\$ 252
Copper, total (6010B)	--	\$ 9	/test	28	\$ 252
Lead, total (6010B)	--	\$ 9	/test	28	\$ 252
Mercury, total (7470A)	--	\$ 34	/test	28	\$ 952
Nickel, total (6010B)	--	\$ 9	/test	28	\$ 252
Selenium, total (6010B)	--	\$ 9	/test	28	\$ 252
Silver, total (6010B)	--	\$ 9	/test	28	\$ 252
Thallium, total (6010B)	--	\$ 9	/test	28	\$ 252
Vanadium, total (6010B)	--	\$ 9	/test	28	\$ 252
Zinc, total (6010B)	--	\$ 9	/test	28	\$ 252
3 & 4 Mehtyphenol (8270C)	--	\$ 130	/test	28	\$ 3,640
Phenol (8270C)	--	\$ 30	/test	28	\$ 840
Lab EDF Fee	--	1%	/test	1	\$ 150
Administrative Fee	--	10%	/test	1	\$ 1,495

Detection Testing Cost per Round: \$ 16,597

Rounds per Year: 2

Annual Detection Testing Cost: \$ 33,193



Civil & Environmental Consultants, Inc.

**5. GROUNDWATER MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

a. Monitoring & Inspection (continued)

Lab Testing Costs - Constituents of Concern:

Monitoring Parameter ¹	Number	Unit Cost	Units	Tests per Round ⁴	Annual Cost
Chlorinated Pesticides (8081A)	--	\$ 85	/test	28	\$ 2,380
PCB	--	\$ 60	/test	28	\$ 1,680
Organophosphorus Pesticides (8141A)	--	\$ 85	/test	28	\$ 2,380
Chlorinated Herbicides (8151A)	--	\$ 85	/test	28	\$ 2,380
Volatile Organic Compounds (8260B)	--	\$ 125	/test	28	\$ 3,500
Semivolatile Organic Compounds (8270C)	--	\$ 98	/test	28	\$ 2,744
Dioxins and Furans (8290A)	--	\$ 850	/test	28	\$ 23,800
Metals (6010B)	--	\$ 143	/test	28	\$ 4,004
Arsenic (6020)	--	\$ 9	/test	28	\$ 252
Lab EDF Fee	--	1%	/test	1	\$ 431
Administrative Fee	--	10%	/test	1	\$ 4,312

5-Year COC Testing Cost: \$ 47,863

Rounds per Year: 0.2

Annual COC Testing Cost: \$ 9,573

Reporting Cost Per Round:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	4	\$ 800
Sr. Project Manager	1	\$ 156	/hr	24	\$ 3,744
Staff Engineer	1	\$ 113	/hr	80	\$ 9,040
Drafter	1	\$ 93	/hr	12	\$ 1,116
Administrative	1	\$ 78	/hr	4	\$ 312
Office Service Fee	--	5%	rate		\$ 735

Reporting Cost per Round: \$ 15,747

Rounds per Year: 2

Annual Reporting Cost: \$ 31,494

Annual Sampling and Reporting Cost: \$ 86,067

Notes:

1. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.

2. Assumes 19 groundwater monitoring locations (DW-1, DW-7, DW-8, DW-14, DW-15, DW-16, DW-17, DW-18, DW-23, DW-26, DW-28, DW-29, DW-30, DW-31, DW-32, DW-33, DW-34, DW-35, PZ-4), six (6) trip blanks, and twelve (12) field blanks.



Civil & Environmental Consultants, Inc.

**5. GROUNDWATER MONITORING & MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

b. Operations & Maintenance

Crew Costs:

Position	Personnel	Prevailing Wage Rate	Units	Qty ¹	Subtotal
Sr. Technician	1	\$ 81.00	/hr	8	\$ 648
Truck	--	\$ 40.23	/hr	8	\$ 322

Crew Annual Total: \$ 970

Subcontractor Costs:

Position	Number	Rate	Units	Qty	Subtotal
C57 License Driller	1	\$ 4,000	/event	1	\$ 4,000

Equipment Total: \$ 4,000

Material Costs:

Item	Number	Rate ²	Units	Qty	Subtotal
Well Replacement	--	\$ 28,800	/yr	1	\$ 28,800

Material Subtotal: \$ 28,800

15% Material Mark Up: \$ 4,320

Material Total: \$ 33,120

Reporting Cost Per Round:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	1	\$ 200
Sr. Project Manager	1	\$ 156	/hr	4	\$ 624
Staff Engineer	1	\$ 113	/hr	6	\$ 678
Drafter	1	\$ 93	/hr	2	\$ 186
Administrative	1	\$ 78	/hr	2	\$ 156
Office Service Fee	--	5%	rate		\$ 92

Reporting Cost per Round: \$ 1,936

Total Cost of One Well: \$ 40,026

Total Cost of all 19 Wells: \$ 760,494

Total Cost of Well Replacement per Year: \$ 30,420

Total Annual Groundwater Monitoring & Maintenance Cost: \$ 116,487

Notes:

1. Assumes one 8-hour day to complete groundwater monitoring well operation & maintenance activities.

2. Assumes 19 total wells, replaced every 25 years, \$160 per linear foot, 180 feet deep.

1 well x \$160/lf x 180 lf = \$28,800

19 wells x \$40,026 each
25 years = \$30,420



Civil & Environmental Consultants, Inc.

**6. SURFACE WATER MONITORING
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Field Sampling Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Sr. Technician	1	\$ 81.00	/hr	4	\$ 324
Sr. Project Manager	1	\$ 156.00	/hr	1	\$ 156
Equipment	1	\$ 35.00	samples	3	\$ 105
Truck	1	\$ 40.23	/hr	4	\$ 161

Sampling Cost Per Round: \$ 746

Rounds per Year: 4

Annual Sampling Cost: \$ 2,984

Lab Testing Costs - Detection:

Monitoring Parameter ¹	Number	Unit Cost	Units	Tests per Round ²	Annual Cost
SWPPP Parameters					
Iron (200.7)	--	\$ 11	/test	3	\$ 33
Total Suspended Solids (160.2) ³	--	\$ 27	/test	3	\$ 81
Oil and Grease (413.2)	--	\$ 10	/test	3	\$ 30
pH (Field pH meter) ³	--	\$ 5	/test	3	\$ 15
303(d) Parameters					
Chloride (300.0)	--	\$ 27	/test	3	\$ 81
Coliform Bacteria-Total (SM9221) ⁴	--	\$ 30	/test	3	\$ 90
40 CFR Subpart N Parameters					
Biological Oxygen Demand (SM5210)	--	\$ 45	/test	3	\$ 135
Ammonia as N (SM4500)	--	\$ 30	/test	3	\$ 90
Zinc (200.7)	--	\$ 9	/test	3	\$ 27
α-Terpineol (8270)	--	\$ 100	/test	3	\$ 300
Benzoic Acid (625)	--	\$ 10	/test	3	\$ 30
p-Cresol (625)	--	\$ 10	/test	3	\$ 30
Phenol (625)	--	\$ 30	/test	3	\$ 90
Lab EDF Fee	--	1%	/test	--	\$ 10
Administrative Fee	--	10%	/test	--	\$ 104

Detection Testing Cost per Round: \$ 1,147

Rounds per Year: 4

Annual Detection Testing Cost: \$ 4,586



**6. SURFACE WATER MONITORING
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL
6. SURFACE WATER MONITORING
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Reporting Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	1	\$ 200
Sr. Project Manager	1	\$ 156	/hr	2	\$ 312
Staff Engineer	1	\$ 113	/hr	4	\$ 452
Drafter	1	\$ 93	/hr	1	\$ 93
Administrative	1	\$ 78	/hr	1	\$ 78
Office Service Fee	--	5%	rate		\$ 57

Reporting Cost per Round: \$ 1,192

Rounds per Year: 4

Annual Reporting Cost: \$ 4,767

Total Annual Surface Water Monitoring Cost: \$ 12,337

Notes:

1. Sampling and testing costs based on testing protocols outlined in the WDR No. R4-2018-0172.
2. Assumes two surface water sampling locations (East and South) and 1 quality control sample.
3. Included in 40 CFR Subpart N parameters.
4. Included in TMDL parameters.



**7a. DRAINAGE MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIKUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Prevailing Wage Rates	Units	Qty ¹	Subtotal
Laborer	2	\$ 110.48	/hr	80	\$ 17,676
Dozer Operator	1	\$ 147.38	/hr	80	\$ 11,790
Grader Operator	1	\$ 147.38	/hr	80	\$ 11,790
Scraper Operator	1	\$ 147.80	/hr	80	\$ 11,824
Gradesetter	1	\$ 147.38	/hr	20	\$ 2,948
Foreman	1	\$ 108.75	/hr	24	\$ 2,610
Water Truck Operator	1	\$ 114.61	/hr	40	\$ 4,584
Excavator Operator	1	\$ 146.90	/hr	40	\$ 5,876

Crew Total: \$ 69,098

Equipment Costs:

Item	Number	Prevailing Wage Rate	Units	Qty ¹	Subtotal
Mob/Demob	1	\$ 1,000	ls	1	\$ 1,000
Pickup Truck	1	\$ 40.23	/hr	80	\$ 3,218
Spreading Dozer - CAT D6M LGP	1	\$ 122.67	/hr	80	\$ 9,814
627E Scraper	1	\$ 395.43	/hr	80	\$ 31,634
14H Grader	1	\$ 121.21	/hr	80	\$ 9,697
312C Excavator	1	\$ 146.18	/hr	40	\$ 5,847
Water Truck	1	\$ 103.79	/hr	40	\$ 4,152

Equipment Total: \$ 65,361

Material Costs:

Item	Number	Rate	Units	Qty ²	Subtotal
Culverts and Downdrains	--	\$ 30	/lf	166	\$ 4,980
Inlet/Outlet Structures ³	--	\$ 1,000	each	20	\$ 667

Material Subtotal: \$ 5,647

15% Material Mark Up: \$ 847

Material Total: \$ 6,494

DRAINAGE MAINTENANCE TOTAL: \$ 140,953

Notes:

1. Assumes two 40-hour weeks to complete grading, drainage, final cover, and erosion repair maintenance activities.
2. Assume 3.5% of total pipe length of 4,743 ft will need to be replaced annually.
3. Assumes each of the inlet/outlet structures will need to be replaced once in the 30-year period.



**4. SECURITY MAINTENANCE
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Personnel	Wage Rate	Units	Qty ¹	Subtotal
Laborer	1	\$ 110.48	/hr	40	\$ 4,419
Crew Total: \$					4,419

Equipment Costs:

Item	Number	Rate	Units	Qty ¹	Subtotal
Pickup Truck	1	\$ 40.23	/hr	40	\$ 1,609
Equipment Total: \$					1,609

Materials:

Item	Number	Rate	Units	Qty ¹	Subtotal
Security Replacement & Installation ²	--	\$ 20,000	ls	1	\$ 20,000

Material Subtotal: \$ 20,000
15% Material Mark Up: \$ 3,000
Material Total: \$ 23,000

Security Maintenance Total: \$ 29,028

Notes:

1. Assumes five 8-hour days for installation for security upgrades. Perimeter fence, locks, gates, signs and topographic features already in place.
2. Cost includes installing a security fence, access gates with locks, and informational signs to protect equipment and the public, compatible with postclosure use. Site security will remain in place during final closure.

9. INSPECTIONS
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL

Crew Costs:

Position	Personnel	Prevailing Wage Rate	Units	Qty ¹	Subtotal
Sr. Project Manager	1	\$ 156.00	/hr	8	\$ 1,248
Crew Total:					\$ 1,248

Equipment Costs:

Item	Number	Rate	Units	Qty ¹	Subtotal
Pickup Truck	1	\$ 40.23	/hr	8	\$ 322
Equipment Total:					\$ 322

Reporting Costs:

Item	Personnel	Prevailing Wage Rate	Units	Qty	Subtotal
Engineer of Record	1	\$ 200	/hr	0.5	\$ 100
Sr. Project Manager	1	\$ 156	/hr	1	\$ 156
Staff Engineer	1	\$ 113	/hr	4	\$ 452
Drafter	1	\$ 93	/hr	0.5	\$ 47
Administrative	1	\$ 78	/hr	0.5	\$ 39
Office Service Fee	--	5%	rate		\$ 40
Reporting Cost per Round:					\$ 833

Quarterly Total: \$ 2,403

ANNUAL TOTAL: \$ 9,612

Notes:

1. Assumes 8 hours of inspection quarterly.



Civil & Environmental Consultants, Inc.

**10. MISCELLANEOUS
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Miscellaneous Costs:

Item	Rate	Units	Qty	Subtotal
Aerial Topographic Survey	\$ 10,000	ls	1	\$ 10,000
Survey Total: \$				10,000

Iso-Settlement Report:

Item	Wage Rate	Units	Qty	Subtotal
Engineer of Record	\$ 200	/hr	2	\$ 400
Sr. Project Manager	\$ 156	/hr	8	\$ 1,248
Staff Engineer	\$ 113	/hr	24	\$ 2,712
Drafter	\$ 93	/hr	8	\$ 744
Admin	\$ 78	/hr	2	\$ 156
Office Service Fee	5%	rate	--	\$ 263

Reporting Cost per Round: \$ 5,523

Miscellaneous Total: \$ 15,523

Annual Frequency: 0.2

YEARLY TOTAL: \$ 3,105



**LABOR & EQUIPMENT COSTS
POSTCLOSURE MAINTENANCE COST ESTIMATE
CHIQUITA CANYON LANDFILL**

Crew Costs:

Position	Source ¹	Operator Group	Base Wage Rate	+35% Labor Mark-Up ²	+10% Labor Surcharge ³	Wage Rate	Unit
2 Man Survey Crew ⁴	--	--	\$ 194.49	\$ 68.07	\$ 19.45	\$ 282.01	/hr
Licensed Surveyor	--	--	\$ 100.00	\$ 35.00	\$ 10.00	\$ 145.00	/hr
Laborer	Laborer	3	\$ 76.19	\$ 26.67	\$ 7.62	\$ 110.48	/hr
Backhoe Operator	Operator	4	\$ 101.31	\$ 35.46	\$ 10.13	\$ 146.90	/hr
Compactor Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Excavator Operator	Operator	4	\$ 101.31	\$ 35.46	\$ 10.13	\$ 146.90	/hr
Foreman ⁵	--	--	\$ 75.00	\$ 26.25	\$ 7.50	\$ 108.75	/hr
Forklift Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Grader Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Gradesetter	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Grading Dozer Operator	Operator	8	\$ 101.64	\$ 35.57	\$ 10.16	\$ 147.38	/hr
Haul Truck Operator	Teamster	VIII	\$ 79.57	\$ 27.85	\$ 7.96	\$ 115.38	/hr
Maintenance Truck Operator	Operator	4	\$ 101.31	\$ 35.46	\$ 10.13	\$ 146.90	/hr
Scraper Operator - Mixing	Operator	12	\$ 101.93	\$ 35.68	\$ 10.19	\$ 147.80	/hr
Scraper Operator - Placement	Operator	12	\$ 101.93	\$ 35.68	\$ 10.19	\$ 147.80	/hr
Seed Truck Operator	Operator	6	\$ 101.53	\$ 35.54	\$ 10.15	\$ 147.22	/hr
Skid Track Loader Operator	Operator	3	\$ 99.82	\$ 34.94	\$ 9.98	\$ 144.74	/hr
Spreading Dozer Operator	Operator	6	\$ 101.53	\$ 35.54	\$ 10.15	\$ 147.22	/hr
Supervisor ⁵	--	--	\$ 100.00	\$ 35.00	\$ 10.00	\$ 145.00	/hr
Water Truck Operator - Mixing	Teamster	V	\$ 79.04	\$ 27.66	\$ 7.90	\$ 114.61	/hr
Water Truck Operator - Placement	Teamster	V	\$ 79.04	\$ 27.66	\$ 7.90	\$ 114.61	/hr

Engineering Costs:

Item	Rate per Unit	Unit
Engineer of Record	\$ 200.00	/hr
Sr. Project Manager	\$ 156.00	/hr
Staff Engineer	\$ 113.00	/hr
CQA Officer	\$ 100.00	/hr
Sr. Technician	\$ 81.00	/hr
Drafter	\$ 93.00	/hr
Administrative	\$ 78.00	/hr

Equipment, Maintenance and Fuel Costs:

Item	Source	CalTrans Base Rate ⁶	15% Overhead & Profit ²	Unit Rate per Hour	Unit
Job Trailer	100	\$ 20.48	\$ 3.07	\$ 23.55	/hr
Generator	GEN1	\$ 19.50	\$ 2.93	\$ 22.43	/hr
Pickup Truck	00-06	\$ 34.98	\$ 5.25	\$ 40.23	/hr
Spreading Dozer - CAT D6M-LGP	3745	\$ 106.67	\$ 16.00	\$ 122.67	/hr
Push Dozer - CAT D8N	4864	\$ 208.59	\$ 31.29	\$ 239.88	/hr
Excavator - CAT 325	0330	\$ 127.11	\$ 19.07	\$ 146.18	/hr
Haul Truck	32-40	\$ 220.26	\$ 33.04	\$ 253.30	/hr
Grading Dozer - CAT D6	3720	\$ 97.41	\$ 14.61	\$ 112.02	/hr
Scraper 1 - CAT 637 - Placement	2375	\$ 343.85	\$ 51.58	\$ 395.43	/hr
Scraper 1 - CAT 637 - Mixing	2375	\$ 343.85	\$ 51.58	\$ 395.43	/hr
Compactor - CAT 815	2300	\$ 114.54	\$ 17.18	\$ 131.72	/hr
Grader - CAT 140G	3260	\$ 105.40	\$ 15.81	\$ 121.21	/hr
Water Truck - 4000 Gal - Placement	48-60	\$ 90.25	\$ 13.54	\$ 103.79	/hr
Water Truck - 4000 Gal - Mixing	48-60	\$ 90.25	\$ 13.54	\$ 103.79	/hr
Maintenance Truck	00-06	\$ 34.98	\$ 5.25	\$ 40.23	/hr
Mixer	11-16	\$ 7.49	\$ 1.12	\$ 8.61	/hr
Skid Track Loader	1623	\$ 101.92	\$ 15.29	\$ 117.21	/hr
Seed Truck	5AXL	\$ 115.18	\$ 17.28	\$ 132.46	/hr
Drill Rig - Atlantic 4500LH	5054	\$ 237.39	\$ 35.61	\$ 273.00	/hr
Backhoe - CAT 426	1862	\$ 52.53	\$ 7.88	\$ 60.41	/hr
Forklift	080-120	\$ 79.02	\$ 11.85	\$ 90.87	/hr

Notes:

- From the General Prevailing Wage determination made by the Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1; Tables: Craft: TEAMSTER, Craft: OPERATING ENGINEER, Craft: #OPERATING ENGINEER (HEAVY AND HIGHWAY WORK), and Craft: #LABORER AND RELATED CLASSIFICATIONS effective August 22, 2025.
- Mark-up and overhead based on the 2025 Caltrans Standard Specifications, Section 9-1.04B and 9-1.04D.
- Labor surcharge based on the State of California State Transportation Agency Labor Surcharge and Equipment Rental Rates effective April 1, 2026 to March 31, 2027.
- 2 man survey crew includes one instrumentman and one chainman/rodman at a rate of \$97.56 and \$96.93, respectively. Los Angeles County determination LOS-2026-1.
- Wage is not determined by the General Prevailing Wages.
- CalTrans Labor Surcharge and Equipment Rental Rates effective April 1, 2026 to March 31, 2027.

**POSTCLOSURE MAINTENANCE LAB TESTING RATES
CHIQUITA CANYON LANDFILL**

Lab Testing Rates:

Test	Method (EPA)	2026 Rates
Ammonia-Nitrogen	EPA 4500-NH3	\$ 30
Antimony		\$ 9
Arsenic	EPA 6010	\$ 9
Barium		\$ 9
Beryllium		\$ 9
Bicarbonate Alkalinity	EPA 310	\$ 27
Boron		\$ 9
Cadmium		\$ 9
Calcium, dissolved	EPA 6010	\$ 9
Carbon Dioxide		\$ 40
Carbonate Alkalinity	EPA 310	\$ 27
Biochemical Oxygen Demand		\$ 45
Chemical Oxygen Demand		\$ 45
Chloride	EPA 300.0	\$ 27
Chlorinated Pesticides		\$ 85
Chlorophenoxy (Chlorinated) Herbicides	EPA 8151	\$ 85
Chromium	EPA 6010	\$ 9
Cobalt		\$ 9
Copper	EPA 6010	\$ 9
Cyanide	EPA 9010	\$ 53
Dichlorodifluoromethane (Freon12) (8260B)		\$ 80
1,4-Dioxane (8270M)		\$ 125
Electrical Conductivity		\$ 9
Coliform Bacteria Total	EPA 9221B	\$ 30
Fluoride	EPA 300	\$ 9
Iron	EPA 6010	\$ 11
Lead	EPA 6010	\$ 9
Magnesium, dissolved	EPA 6010	\$ 9
Manganese, dissolved	EPA 6011	\$ 9
Mercury	EPA 7470	\$ 34
Metals 6000 series (Al, Sb, Ba, Be, Cd, Co, Cu, Fe, Mn, Ag, Sn, V, Zn)		\$ 143
Metals 7000 series (Ni, Se, Ti)		\$ 18
Nickel		\$ 9
Nitrate + Nitrite as Nitrogen	EPA 353.2	\$ 10
Nitrite-Nitrogen	EPA 300	\$ 10
Oil and Grease		\$ 10
Organochlorine Pesticides	EPA 8141	\$ 85
Organophosphorus Pesticides (8141A)		\$ 85
PCBs	EPA 8082	\$ 60
pH		\$ 5
Potassium, dissolved	EPA 6010	\$ 9
Selenium		\$ 9
Silver		\$ 9
Sodium, dissolved	EPA 6010	\$ 9
Sulfate	EPA 300	\$ 27
Sulfide	EPA 9030	\$ 44
SVOCs with TICs	EPA 8270 App. II	\$ 98
Thallium		\$ 9
Total Alkalinity	EPA 2310B	\$ 27
Total Dissolved Solids	EPA 160.1	\$ 27
Total Kjeldahl Nitrogen	EPA 4500-N-org	\$ 28
Total Organic Carbon	EPA 415.1	\$ 27
Total Suspended Solids	EPA 160.2	\$ 27
Vanadium		\$ 9
VOCs with TICs	EPA 8260 App. II	\$ 125
Volatile Organic Compounds (gas)	EPA TO-15	\$ 182
Volatile Organic Compounds	EPA 8260, App. I	\$ 98
Zinc		\$ 9
3 & 4 Mehtyphenol (8270C)	EPA 8270	\$ 130
α-Terpineol (8270)	EPA 8270	\$ 100
Benzoic Acid (625)	EPA 625	\$ 10
Dioxins and Furans		\$ 850
p-Cresol (625)	EPA 625	\$ 10
Phenol (625)	EPA 625	\$ 30
Lab EDF Fee		1%
Administrative Fee		10%

(1) Laboratory EDF and Administrative Fees apply to base test rates.



Civil & Environmental Consultants, Inc.

APPENDIX D

FINANCIAL ASSURANCE MECHANISM



CHIQUITA CANYON

A Waste Connections Company

May 22, 2017

Elizabeth Castañeda
Financial Assurances Unit
MS 10A-15
California Department of Resources Recycling and Recovery
P.O. Box 4025
Sacramento, CA 95812-4025

**Subject: Updated Bonds for Closure, Post-Closure and Corrective Action
at Chiquita Canyon Landfill, Inc. (SWIS# 19-AA-0052)**

Dear Ms. Castañeda:

We are pleased to provide you with the updated surety bond riders for Closure, Post-Closure and Corrective Action for the Chiquita Canyon Landfill (CCL). These rider adjustments have occurred in accordance with the annual inflation factor notice dated April 17, 2017 from CalRecycle. These revised amounts supplement the original bonds provided to CalRecycle for the same project; the revised amounts are in agreement with the current estimates for CCL.

The original riders are included for your files. Copies will also be retained on file at the landfill for inspection as needed.

If there are any questions on this matter, please feel free to call me at (661) 257-3655.

Sincerely,

Mike Hearn, Assistant District Manager
Chiquita Canyon Landfill



SURETY BOND RIDER

To be attached to and form a part of BOND NUMBER: 8215-85-02

Type of Bond: Closure Bond

Original Effective Date: 04/01/2009

Executed by Chiquita Canyon, Inc., as Principal,

and by Federal Insurance Company, as Surety,

in favor of California Integrated Waste Management Board, as Obligee

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to amend the surety bond as follows: Bond Penalty Increase

FROM: Sixteen Million Fifty Five Thousand Nine Hundred Sixty Two and 00/100 Dollars (\$16,055,962.00)

TO: Sixteen Million Two Hundred Sixty Four Thousand Six Hundred Ninety and 00/100 Dollars (\$16,264,690.00)

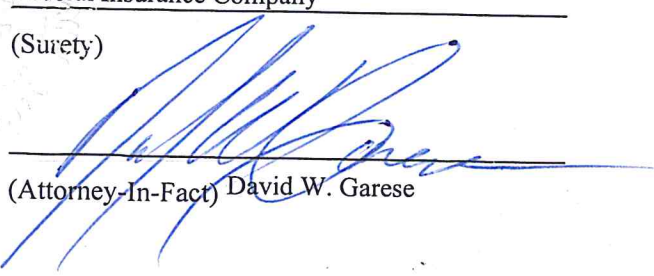
Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective May 4th, 2017

Signed and Sealed May 4th, 2017

Federal Insurance Company

(Surety)

By: 

(Attorney-In-Fact) David W. Garese

Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company

Know All by These Presents, That **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, and **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, do each hereby constitute and appoint Lisa Betancur, David W. Garese, Robert Garese, A. Catherine Skeen and Brooke A. Skeen of Sacramento, California-----

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** have each executed and attested these presents and affixed their corporate seals on this 17th day of March, 2017.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney

Stephen M. Haney, Vice President



STATE OF NEW JERSEY

County of Hunterdon

SS.

On this 17th day of March, 2017 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY**, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2318865
Commission Expires July 16, 2019

Katherine J. Adelaar

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** on August 30, 2016:

*RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** (the "Companies") do hereby certify that

- (i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department; further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this May 4th, 2017



Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:

Telephone (908) 903-3493

Fax (908) 903-3655

e-mail: surety@chubb.com

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Sacramento)

On May 4th, 2017 before me, Robert Garese, Notary Public
(insert name and title of the officer)

personally appeared David W. Garese,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are-
subscribed to the within instrument and acknowledged to me that he/~~she~~/they executed the same in
his/~~her~~/their authorized capacity(ies), and that by his/~~her~~/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

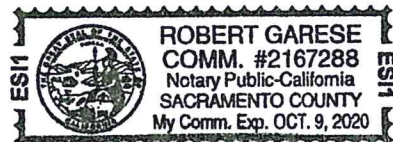
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature



(Seal)



SURETY BOND RIDER

To be attached to and form a part of BOND NUMBER: 8215-85-03

Type of Bond: Postclosure Bond Original Effective Date: 04/01/2009

Executed by Chiquita Canyon, Inc., as Principal,

and by Federal Insurance Company, as Surety,

in favor of California Integrated Waste Management Board, as Obligee

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to amend the surety bond as follows: Bond Penalty Increase

FROM: Twenty Two Million Six Hundred Forty One Thousand Six Hundred and 00/100 Dollars (\$22,641,600.00)

TO: Twenty Two Million Nine Hundred Thirty Five Thousand Nine Hundred Forty One and 00/100 Dollars (22,935,941.00)

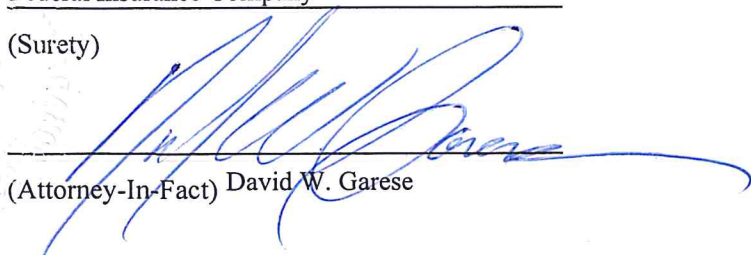
Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective May 4th, 2017

Signed and Sealed May 4th, 2017

Federal Insurance Company

(Surety)

By: 

(Attorney-In-Fact) David W. Garese

Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company

Know All by These Presents, That **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, and **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, do each hereby constitute and appoint Lisa Betancur, David W. Garese, Robert Garese, A. Catherine Skeen and Brooke A. Skeen of Sacramento, California-----

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** have each executed and attested these presents and affixed their corporate seals on this 17th day of March, 2017.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney

Stephen M. Haney, Vice President



STATE OF NEW JERSEY

County of Hunterdon

SS.

On this 17th day of March, 2017 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY**, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316885
Commission Expires July 16, 2019

Katherine J. Adelaar

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** on August 30, 2016:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** (the "Companies") do hereby certify that

- (i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department; further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this May 4th, 2017



Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:

Telephone (908) 903-3493

Fax (908) 903-3656

e-mail: surety@chubb.com

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Sacramento)

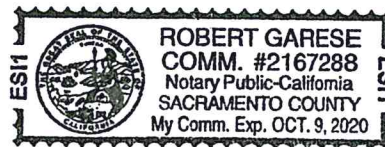
On May 4th, 2017 before me, Robert Garese, Notary Public
(insert name and title of the officer)

personally appeared David W. Garese,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are-
subscribed to the within instrument and acknowledged to me that he/~~she~~/they executed the same in
his/~~her~~/their authorized capacity(ies), and that by his/~~her~~/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature  (Seal)



SURETY BOND RIDER

To be attached to and form a part of BOND NUMBER: 8215-85-04

Type of Bond: Corrective Action Bond Original Effective Date: 04/01/2009

Executed by Chiquita Canyon, Inc., as Principal,

and by Federal Insurance Company, as Surety,

in favor of California Integrated Waste Management Board, as Obligee

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to amend the surety bond as follows: Bond Penalty Increase

FROM: Six Hundred Twenty Three Thousand Four Hundred Twenty Seven and 00/100 Dollars (\$623,427.00)

TO: Six Hundred Thirty One Thousand Five Hundred Thirty Two and 00/100 Dollars (\$631,532.00)

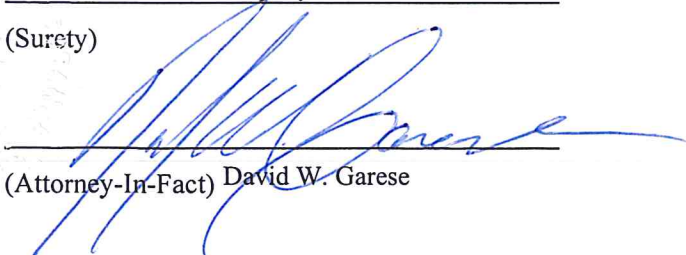
Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective May 4th, 2016

Signed and Sealed May 4th, 2017

Federal Insurance Company

(Surety)

By: 

(Attorney-In-Fact) David W. Garese

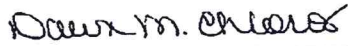
Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company

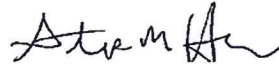
Know All by These Presents, That **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, and **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, do each hereby constitute and appoint Lisa Betancur, David W. Garese, Robert Garese, A. Catherine Skeen and Brooke A. Skeen of Sacramento, California-----

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** have each executed and attested these presents and affixed their corporate seals on this 17th day of March, 2017.



Dawn M. Chloros, Assistant Secretary



Stephen M. Haney, Vice President



STATE OF NEW JERSEY

County of Hunterdon

SS.

On this 17th day of March, 2017 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY**, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2318865
Commission Expires July 16, 2019



Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** on August 30, 2016:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

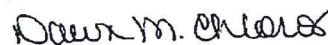
- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of **FEDERAL INSURANCE COMPANY**, **VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** (the "Companies") do hereby certify that

- (i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department; further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this **May 4th, 2017**

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:

Telephone (908) 903-3493

Fax (908) 903-3656

e-mail: surety@chubb.com

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Sacramento)

On May 4th, 2017 before me, Robert Garese, Notary Public
(insert name and title of the officer)

personally appeared David W. Garese,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are
subscribed to the within instrument and acknowledged to me that he/~~she~~/they executed the same in
his/~~her~~/their authorized capacity(ies), and that by his/~~her~~/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature  (Seal)

