

NEW MEXICO ENVIRONMENT DEPARTMENT VOLUNTARY REMEDIATION AGREEMENT

I. Introduction

This Voluntary Remediation Agreement (“Agreement”) is entered into voluntarily by **Public Service Company of New Mexico (PNM)**, represented by **Nancy Nething, Project Manager of Permitting and Planning**, who is duly authorized and appointed (“Participant”) and the secretary of the New Mexico Environment Department (“Department”), or his or her designee, pursuant to the Voluntary Remediation Act, Sections 74-4G-1 et seq. NMSA 1978, and the New Mexico Voluntary Remediation Regulations (20.6.3 NMAC). The purpose of this Agreement is to detail the obligations and functions of each party relevant to the remediation to be conducted at the **Sagebrush Substation Site** (“Site”), located northeast of the Sunport Boulevard and University Boulevard intersection (35.050569, -106.628278) in Albuquerque, under the Voluntary Remediation Program (**VRP Site No. 53211001**). This Voluntary Remediation Agreement is issued pursuant to Section 20.6.3.300 NMAC and the Delegation Order dated May 24, 2021, through which the Cabinet Secretary has delegated signatory authority to the Chief of the Ground Water Quality Bureau.

The activities conducted by the Participant under this Agreement are subject to approval by the Department. The activities conducted by the Participant shall be consistent with this Agreement, all applicable laws and regulations, and any pertinent guidance documents. The Participant shall employ sound scientific, engineering, and construction practices in the voluntary remediation activities at this Site.

II. Statement of Eligibility

The secretary or his designee has determined that the application, consisting of materials submitted by the Participant to the Department on July 20, 2021, is complete, and that the Participant is eligible to enter into this Agreement in accordance with Section 74-4G-5 NMSA 1978 and 20.6.3.200.A NMAC.

III. Parties Bound

This Agreement shall apply to and be binding upon the Participant, its officers, managing agents, directors, principals, partners, employees, receivers, trustees, agents, parents, subsidiaries and affiliates, and upon the Department, its employees, and agents. The Participant has submitted with the application a signed Declaration of Ability and Intent as set forth in 20.6.3.200.B(2) NMAC. No change in ownership, corporate, or partnership status shall in any way alter the Participant’s status or responsibilities under this Agreement unless the Participant or Department terminates this Agreement in accordance with 20.6.3.300.H NMAC.

The Participant shall provide a copy of this Agreement to any subsequent owners or successors before ownership rights are transferred. The Participant shall provide a copy of this Agreement to all contractors, subcontractors, laboratories, and consultants or other parties, which are retained by the Participant, to conduct any work under this Agreement, within 14 days after the effective date of this Agreement or within 14 days of the date of retaining their services.

IV. Designated Project Manager

On or before the effective date of this Agreement, the Department shall designate a project manager. The Primary Applicant specified on the Voluntary Remediation Program Application will function as the project manager for the Participant. Each project manager shall be responsible for overseeing the implementation of this Agreement. The Department project manager will be the Department-designated representative at the site. To the maximum extent possible, communications between the Participant and Department and all documents (including reports, approvals, and other correspondence) concerning the activities performed pursuant to the terms and conditions of this Agreement shall be directed through the project managers. During implementation of this Agreement, the project managers shall, whenever possible, operate by consensus and shall attempt in good faith to resolve disputes informally through discussion of the issues. Each party has the right to change its respective project manager by notifying the other party in writing at least five days prior to the change.

V. Definitions

“Site” means the area described in the Voluntary Remediation Application. This description is attached and incorporated herein as Exhibit 1. All other terms used are defined in Section 74-4G-3 NMSA 1978 and 20.6.3.7 NMAC.

VI. Addresses for All Correspondence

Documents, including reports, approvals, notifications, disapprovals, and other correspondence to be submitted under this Agreement, may be sent by certified mail, first class mail, hand delivery, overnight mail, or by courier service to the following addresses or to such addresses as the Participant or Department designates in writing.

Documents to be submitted to the Department should be sent to:

Mailing Address:

Jennifer Muus
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502
E-mail: Jennifer.Muus@state.nm.us
Phone number: (505) 670-2496
Fax number: (505) 827-2965

Physical Address:

Jennifer Muus
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, NM 87505

Documents to be submitted to the Participant should be sent to:

Mailing Address:

Nancy Nething
Public Service Company of New Mexico
2401 Aztec Road NE
Albuquerque, NM 87107
Nancy.nething@pnmresources.com

Physical Address:

Same as Mailing Address

VII. Compliance with Applicable Laws

All work undertaken by the Participant pursuant to this Agreement shall be performed in compliance with all applicable federal, state and local laws, ordinances and regulations, including, but not limited to all Occupational Safety and Health Administration, Department of Transportation, Resource Conservation and Recovery Act, New Mexico Water Quality Control Commission, and New Mexico Environmental Improvement Board Petroleum Storage Tank regulations. In the event of a conflict between federal, state, or local laws, ordinances, or regulations, the Participant shall comply with the most stringent of such laws, ordinances, or regulations, unless provided otherwise in writing by the Department or other appropriate regulatory personnel with jurisdiction over such laws, ordinances, and regulations. Where it is determined that a permit is required under federal, state or local laws, ordinances, or regulations, the Participant shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. The Participant shall be responsible for obtaining all permits that are necessary for the performance of the work hereunder, and for all ongoing or proposed Site activities, and for all ongoing or proposed facility operations.

VIII. Performance Standards and Associated Requirements

The Participant has submitted with their application to the Department a preliminary work plan describing the proposed voluntary remediation activities as they are currently envisioned as being submitted in a final voluntary remediation work plan, which includes a description of the known and suspected contaminants to be addressed by the proposed voluntary remediation activities. This preliminary work plan was prepared pursuant to 20.6.3.200.B NMAC. A copy of the preliminary work plan is attached and incorporated herein as Exhibit 2.

The contaminants covered by this Agreement are described as follows:

- *Soil - total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) total metals (arsenic, barium, chromium, cadmium, selenium, lead, silver, and mercury).*
- *Landfill gases such as methane and hydrogen sulfide.*

Voluntary remediation activities undertaken pursuant to this Agreement shall achieve the following standards or risk-based levels:

- *New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation, November 2021; and*
- *Solid Waste Management General Requirements as set forth in Section 20.9.2.8 of the Solid Waste Management Rules (20.9.2 NMAC)*

It is understood that the parties may wish to modify the list of contaminants and the media in which the contaminants are located, as covered by this Agreement, as additional information about the Site is developed. The Department may approve such changes through approval of work plans and other submittals provided by the Participant during the course of undertaking voluntary

remediation activities.

IX. Access

To the extent that the Site or other areas where work is to be performed hereunder are presently owned or controlled by parties other than those bound by this Agreement, the Participant shall obtain or shall use its best efforts to obtain access agreements from the present owners. Best efforts shall include, at a minimum, certified letters from Participant to the present owners of such properties requesting access agreements to permit the Participant, Department, and their authorized representatives' access to such property. Such agreements shall provide access for the Department and authorized representatives of the Department, as specified below. In the event that such access agreements are not obtained, the Participant shall so notify the Department, which may then, at its discretion, assist the Participant in gaining access.

The Participant shall provide authorized representatives of the Department access to the Site and other areas where work is to be performed at all reasonable times. Such access shall be related solely to the work being performed on the Site pursuant to this Agreement and may include, but is not limited to: inspecting and copying of Site and facility records; reviewing the progress of the Participant in carrying out the terms of this Agreement; conducting such tests, inspections, and sampling as the Department may deem necessary; using a camera, sound recording, or other documentary type equipment for field activities; and verifying the data submitted to the Department by the Participant hereunder. Prior to conducting remediation activities, the Participant shall provide a minimum of 72 hours' notice to the Department to allow observation of Site activities and to allow the Department's authorized representatives to collect split samples, at the Department's discretion. The Participant shall permit the Department's authorized representatives to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, which pertain to this Agreement and over which the Participant exercises authority.

X. Deliverables and Submittal Schedule

A. Final Voluntary Remediation Work Plan

In accordance with 20.6.3.400 NMAC, the Participant shall submit to the Department a proposed final voluntary remediation work plan, detailing investigation and remediation activities to be undertaken to achieve the performance standards described in Section VIII of this Agreement. At a minimum, the final work plan must include the elements listed in 20.6.3.400.B NMAC.

Submittal Schedule:

The proposed final work plan shall be submitted by the Participant no later than 45 days after this Agreement has been signed.

If the work plan is to be prepared in phases, the work plan for the first phase shall be submitted no later than 45 days after this Agreement has been signed. Following completion, to the Department's satisfaction, of the work which is the subject of the final work plan for the first phase, the Department may require submission of one or more

proposed final work plans for subsequent phases.

Department Review:

The secretary or his designee shall review and approve, approve with conditions, or disapprove a proposed final work plan within 45 days of receipt. Written notice shall be made of any conditions or deficiencies. If the secretary or his designee disapproves a final work plan, the Participant may be granted an opportunity to submit a revised version, as determined by the secretary or his designee.

Modification of Voluntary Remediation Work Plan:

The approved final voluntary remediation work plan may be modified at the request of the Participant and/or the Department, with both parties' approval, in accordance with 20.6.3.400.D NMAC.

B. Periodic Status Reports

The Participant shall submit periodic status reports, which detail activities completed for the reporting period and those planned for the upcoming reporting period, to the Department for the duration of this Agreement. The status report shall identify any proposed variances to the approved work plan and describe interim progress on implementation of the work plan, including analytical results of any sampling, water level measurements, Site maps or photos, as appropriate.

Submittal Schedule:

The first status report shall be submitted by the Participant no later than 90 days after this Agreement has been signed. Subsequent status reports shall be submitted on a quarterly basis until the completion report is submitted to the Department.

C. Voluntary Remediation Completion Report

In accordance with 20.6.3.500.B NMAC, following the completion of Site voluntary remediation activities, the Participant shall demonstrate to the Department that Site conditions meet the applicable standards specified in Section VIII of this Agreement by submitting to the Department a voluntary remediation completion report. The content of the completion report is detailed in 20.6.3.500.B NMAC. The report shall be submitted to the Department with the legal description of the affected property, and with an Affidavit of Completion of Voluntary Remediation signed by the Participant that indicates that remediation is complete, in accordance with this Agreement and applicable regulations and guidance.

Submittal Schedule:

The voluntary remediation completion report shall be submitted to the Department within 90 days following completion of voluntary remediation activities.

Department Review:

The Department shall review and determine the sufficiency of a completion report within 45 days of receipt. If the secretary or his designee does not approve the completion report,

the secretary or his designee shall either issue a finding that the Participant is not in compliance with the Agreement and terminate the Agreement, or advise the Participant in writing of data gaps in the report. The Participant shall correct any identified data gaps and resubmit the completion report within 30 days of receipt of notice of data gaps.

XI. Certificate of Completion

If the secretary or his designee approves the voluntary remediation completion report, the secretary or his designee will issue either a Certificate of Completion or a Conditional Certificate of Completion, as appropriate, pursuant to Section 74-4G-7 NMSA 1978 and 20.6.3.500.B NMAC. If a Conditional Certificate of Completion is issued, the Department shall conduct audits to ensure that all engineering controls, remediation systems, post-closure care, and affirmations of future non-residential land use are being maintained appropriately. These audits shall be performed at least every other year for the first 10 years following the issuance of the Conditional Certificate of Completion, and every five years thereafter. If, during the course of such an audit, the Department finds that any of the monitoring requirements, engineering controls, remediation systems, post-closure care, or affirmations of future non-residential land use are not being properly maintained such that the performance standards described in Section VIII of this Agreement are no longer being met, the Department may revoke the Conditional Certificate of Completion and initiate an enforcement action.

No Certificate of Completion or Conditional Certificate of Completion shall be issued to a Participant who has not paid invoiced oversight costs in full to the Department.

XII. Covenant Not to Sue

Pursuant to Section 74-4G-8 NMSA 1978 and 20.6.3.600 NMAC, after the secretary or his designee issues the Certificate of Completion or Conditional Certificate of Completion, the secretary or his designee shall provide a covenant not to sue to a purchaser or prospective purchaser of the Site that did not contribute to the Site contamination, for any direct liability, including future liability, for claims based upon the contamination covered by the Agreement and over which the Department has authority. Except as may be provided under federal law or as may be agreed to by a federal government entity, the covenant not to sue shall not release or otherwise apply to claims by the federal government for claims based on federal law. Except as may be agreed to by another department or agency of the state, the covenant not to sue shall not release or otherwise apply to claims of any other office, department, or agency of the state. Except as may be agreed to by a third party, the covenant not to sue shall not release or otherwise affect a person's liability to third parties.

XIII. Dispute Resolution

This section shall apply to any dispute arising under any section of this Agreement, unless specifically excepted. Dispute resolution shall be conducted in accordance with 20.6.3.300.I NMAC).

XIV. Reservation of Rights

The Department and Participant reserve all rights and defenses they may have pursuant to any available legal authority unless expressly waived herein. The Department expressly reserves the

right to take any action, including any enforcement action, to address any release not covered by this Agreement, including any release that occurs after issuance of the Certificate of Completion or any release of a contaminant not covered by the voluntary remediation agreement. The secretary's covenant not to sue shall not apply to any such release.

Nothing herein is intended to release, discharge, or in any way affect any claims, causes of action or demands in law or equity which the parties may have against any person, firm, partnership or corporation not a party to this Agreement for any liability it may have arising out of, or relating in any way to the generation, storage, treatment, handling, transportation, release or disposal of any materials, hazardous substances, hazardous waste, contaminants or pollutants at, to, or from the Site. The parties to this Agreement expressly reserve all rights, claims, demands, and causes of action they have against any and all other persons and entities who are not parties to this Agreement, and as to each other for matters not covered hereby.

The Participant reserves the right to seek contribution, indemnity, or any other available remedy against any person other than the Department found to be responsible or liable for contribution, indemnity or otherwise for any amounts which have been or will be expended by the Participant in connection with the Site.

XV. Enforcement Shield

Pursuant to the provisions of 20.6.3.300.A NMAC, the secretary will not initiate any enforcement action, including an administrative or judicial action, against a Participant for the contamination or release thereof, or for the activity that results in the contamination or release thereof, if the contamination is the subject of an Agreement pursuant to 20.6.3 NMAC. However, this Section shall not be a bar to any enforcement action if the Agreement is not finalized, if the Agreement is terminated or rescinded, or if the Participant does not successfully initiate or implement the Agreement within a reasonable time under the schedules set forth in this Agreement and approved work plans.

XVI. Oversight Costs

The Participant agrees to reimburse the Department for all of its costs associated with oversight and implementation of this Agreement in accordance with 20.6.3.300.J NMAC. These costs shall include those described in 20.6.3.300.J NMAC, as well as long-term oversight performed by the Department, as described in 20.6.3.500.B(5) NMAC, if a Conditional Certificate of Completion is issued.

Oversight will be invoiced based on actual hours of staff oversight, at a variable rate beginning at \$90.00 per hour. The hourly rate is calculated and updated on November 1 of each year, following a 30 calendar day public comment period. Travel and per diem costs will be invoiced at state-designated rates. Sampling and analysis costs will be invoiced at actual cost plus indirect overhead rate.

The Department will track all costs to the Department for review and oversight activities related to the Site and provide quarterly (or more often at the discretion of the Department) invoices per this Agreement for said costs. The Participant shall pay these invoiced costs to the Department

within 30 calendar days after the date that the Participant receives notice that these costs are due and owed. If payment is not made within 30 days, the Department may terminate this Agreement and bring an action to collect the amount owed and the costs of bringing the collection action. If the Department prevails in such collection action, the Participant shall pay the Department's reasonable attorneys' fees and costs incurred in the collection action.

In the event that this Agreement is terminated for any reason, the Participant agrees to reimburse the Department for all costs incurred or obligated by the Department before the date of notice of termination of the Agreement.

XVII. Notice of Bankruptcy

As soon as Participant has knowledge of its intention to file bankruptcy, or no later than seven days prior to the actual filing of a voluntary bankruptcy petition, Participant shall notify the Department of its intention to file a bankruptcy petition. In the case of an involuntary bankruptcy petition, Participant shall give notice to the Department as soon as it acquires knowledge of such petition.

XVIII. Indemnification

The Participant shall defend, indemnify, and hold harmless the Department and the State of New Mexico from all actions, proceedings, claims, demands, costs, damages, attorneys' fees, and all other liabilities and expenses of any kind from any source which may arise out of the performance of this Agreement, caused by the negligent act or failure to act of the Participant, its officers, employees, servants, subcontractors or agents, or if caused by the actions of any client of the Participant resulting in injury or damage to persons or property during the time when the Participant or any officer, agent, employee, servant or subcontractor thereof has or is performing services pursuant to this Agreement.

XIX. Effective Date and Subsequent Modification

The Agreement shall become final and effective upon being signed by both the secretary or his designee and the Participant. The effective date of the Agreement shall be the later date of signature by either the secretary or his designee or the Participant. This Agreement may be amended only by mutual agreement of the Department and the Participant. Amendments shall be in writing and shall be effective upon being signed by both the secretary or his designee and the Participant.

XX. Termination

As provided for in 20.6.3.300.H NMAC, if an Agreement is not reached between an applicant and the secretary or his designee on or before the 30th calendar day after the secretary or his designee determines an applicant to be eligible pursuant 20.6.3.200 and 20.6.3.300 NMAC, the applicant or the secretary or his designee may withdraw from the negotiations. The Participant may terminate the voluntary remediation Agreement upon 60 calendar days' written notice via certified mail, return receipt requested to the Department. The secretary or his designee may terminate this Agreement upon finding that the Participant is not in compliance with this Agreement. Notice of termination will be made to the Participant via certified mail, return receipt requested, and facts supporting the rationale for termination shall be set forth in the notification. The Department's

costs incurred or obligated before the date the notice of termination is received are recoverable by the Department under the Agreement if the Agreement is terminated.

XXI. Complete Agreement

This Agreement contains the entire Agreement of the parties.

XXII. Applicable Law

This Agreement shall be governed by and construed in accordance with the laws of the State of New Mexico.

The provisions of this Agreement shall be satisfied when the Department gives the Participant written notice in the form of a Certificate of Completion that the Participant has demonstrated to the secretary's satisfaction that the terms of this Agreement have been completed, including the selection and implementation of a remedial action, when appropriate.

Nothing in this Agreement shall restrict the State of New Mexico from seeking other appropriate relief to protect human health or the environment from contamination at or from this Site if not remediated in accordance with this Agreement.

Signatures

Participant(s):

By: _____
(Signature of authorized representative)

Name: _____
(Print or type)

Date: _____

New Mexico Environment Department:

By: _____
(Secretary or designee)

Name: _____
(Print or type)

Date: _____

Enclosures: Exhibit 1: Legal Description of Property
 Exhibit 2: Preliminary Work Plan

NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION AGREEMENT

EXHIBIT 1

Legal Description of Property

Sagebrush Substation
VRP Site No. 53211001

The site is an approximately 20.8778 acre parcel located at 35.050569, -106.628278, more particularly described as located within a portion of Tract A-1, Sunport Municipal Addition situated in Township 10 North, Range 3 East, Section 3 located west of Sunport International Airport, east of University Boulevard Southeast (SE), south of Randolph Road SE, and north of Sunport Boulevard SE. A map and legal description is included on the following page.

NEW MEXICO ENVIRONMENT DEPARTMENT
VOLUNTARY REMEDIATION AGREEMENT

EXHIBIT 2

Preliminary Voluntary Remediation Work Plan

Sagebrush Substation
VRP Site No. 53211001

DRAFT

Attachment 4

Preliminary Voluntary Remediation Work Plan

Preliminary Voluntary Remediation Program Work Plan

Sagebrush Substation
Former Yale Landfill - Northern Fill Area

Public Service Company of New Mexico

June 24, 2021

Prepared for:

Public Service Company of New Mexico
414 Silver Avenue SW
Albuquerque, New Mexico 87102

Prepared by:

AECOM
6499 America's Parkway NE
Albuquerque, NM 87110
aecom.com

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List of Acronyms

Acronym	Definition
%	percent
1,2-DCA	1,2-dichloroethane
AEHD	Albuquerque Environmental Health Department
CoA	City of Albuquerque
USEPA	U.S. Environmental Protection Agency
LandGEM	Landfill Gas Emissions Model
LFG	landfill gas
LMP	landfill management plan
MCL	maximum contaminant level
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
PCE	tetrachloroethene
PNM	Public Service Company of New Mexico
RCRA	Resource Conservation and Recovery Act
scfm	standard cubic feet per minute
SE	Southeast
Site	Sunport Blvd SE
SSLs	soil screening levels
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbon
VOCs	volatile organic compounds
VRP	Voluntary Remedial Program
YALF	Former Yale Landfill

1. Introduction

This Preliminary Work Plan has been prepared on behalf of Public Service Company of New Mexico (PNM) to present the results of environmental investigation activities completed to date and proposed additional voluntary remediation actions for the PNM Sagebrush Substation Site (Site) in support of construction of the Sagebrush Substation. The site location is shown on **Figure 1** and the preliminary substation layout is shown on **Figure 2**.

PNM intends to develop the Sagebrush Substation, a 115 kilovolt (kV) electrical substation, within a portion of the former Yale Landfill (YALF; Site) designated as the “Northern Fill Area” (**Figure 1**). The substation will be constructed within a portion of Tract A-1, Sunport Municipal Addition situated in Township 10 North, Range 3 East, Section 3 located west of Sunport International Airport, east of University Boulevard Southeast (SE), south of Randolph Road SE, and north of Sunport Boulevard SE (hereafter referred to as the “Site” and illustrated in **Figure 1**). This Site covers approximately 20.8778 acres and is owned by the City of Albuquerque, New Mexico (CoA). PNM will obtain a perpetual easement from CoA to access the Site, remove landfill material, and construct and operate the Sagebrush substation.

PNM will follow the voluntary remedial program (VRP) process in accordance with 20.6.3 New Mexico Administrative Code (NMAC) during remediation to obtain a certificate of completion following removal of landfill debris from the Site. Presented below is the background information which includes site history and land use, proposed performance standards, summary of sampling and analysis and remediation methods, and how the VRP activities will meet performance standards.

2. Background

2.1 Site Description

The subject property is a portion of the parcel consisting of approximately 20.8778 acres of land. The following information was provided by the Bernalillo County Assessor's office (online) the property description is part of the northwestern portion of Tract A-1 Plat of Tracts A-1 and A-2, Sunport Municipal Addition; the parcel number is 101605420230220101; the property is owned by the CoA; and the class of land is non-residential.

2.2 Physical Setting

The site location is in the Central portion of the Albuquerque Basin. The Albuquerque basin consists of fan deposits from the Sandia and Manzano Mountains and alluvial deposits from the ancestral Rio Grande River. Site Specific geology in the area of the Yale Landfill includes sediments from the Ceja Member of the Arroyo Ojito Formation of the Upper Santa Fe Group and the upper pumice-bearing fluvial unit. The Ceja Member, which is approximately 350 feet thick, consists of light red to strong brown and yellowish gray sandstone. This member also contains pebbly sandstone with minor siltstone and claystone interbedding. The upper pumice unit consists of pumiceous sand and pebbles to cobbly sand deposited by the ancestral Rio Grande (Kelley, 1977). Depth to groundwater varies between approximately 180 to 420 feet bgs, and groundwater flow directions are variable across the site area (CoA, 2002) but predominately flows to the southwest.

2.3 Site History and Land Use

The closed YALF is located between University Boulevard. SE and Yale Boulevard. SE just west of the Albuquerque International Sunport. The original area of the landfill was 114.4 acres and received waste from 1948 to 1965. Approximately 966,000 tons (1.9 million cubic yards) of waste was landfilled. The landfill is composed of four distinct fill areas: the northern, central, southern and hotel fill areas. In the 1970's, waste was removed from beneath the Airport Hotel; however, waste remains beneath the parking areas. All waste was excavated from beneath the airport terminal exit road, which is between the airport and the hotel parking lot. In 1988, approximately 200,000 tons of waste was excavated from the footprint of the Post Office building and relocated directly west on the slope of the existing landfill and covered with two feet of fill material. Between 1995 through 1997, approximately 285,000 tons of waste was excavated during the construction of Sunport Boulevard that included removal of waste below the relocated George Road and University Boulevards. This excavation created the northern, central and southern fill areas.

Currently, there is development around portions of the landfill perimeter. Development includes the airport, a post office, the newly completed rental care facility, and the Wyndham Hotel parking lot. A City water supply well and water storage tank are located near the northwest corner of the landfill. Some waste has been excavated during construction of roads and buildings in the landfill area.

2.4 Summary of Previous Investigations and Assessments

Several investigations have been conducted at the Site beginning in 1986. In addition, the CoA has several ongoing groundwater and landfill gas (LFG) monitoring programs at the site. Groundwater monitoring wells and LFG monitoring probes located within the vicinity of the site are shown on **Figures 3** and **4**, respectively. The site topography is shown on **Figure 5**. A brief summary of the significant investigations are presented in chronological order in the following subsections.

2.4.1 Landfill Gas Investigation (April 2002)

Daniel B. Stephens & Associates, Inc. (DBS&A) was contracted by CoA to conduct a study of seven closed landfills, including YALF (DBS&A, 2002). The study included a LFG survey, waste characterization, LFG pump testing, and LFG generation modeling, the results of which are summarized below. The study area is shown in **Figure 4**.

The report also included a brief summary of previous methane monitoring reports conducted on the site. In 1986, Fox and Associates conducted an environmental and geotechnical assessment of the YALF for the City of Albuquerque Solid Waste Management Department. The assessment included a methane survey across the landfill, test pit excavation, and evaluation of refuse and subsurface conditions. Fox installed and sampled 15 monitor wells in 2000 and reported the methane concentration in most wells ranged from 7 percent (%) by volume to 40% by volume, elevated levels of barium, nitrate/nitrite, and methylene chloride were present in soil samples collected on-site.

The DBS&A report references LFG monitoring activities conducted by Geo-Test at the site from 1993 through at least 2002. In 1993, Geo-Test conducted a soil gas assessment in the vicinity of George Road and Sunport Boulevard (DBS&A, 2002). Analysis of soil samples did not detect the presence of volatile and/or chlorinated compounds, and methane concentrations in this area were measured to be 2% or less of the LEL. Monitoring conducted by Geo-Test in 2001 of three points located on the north side of Access Road B and east of University detected no measurable concentrations of methane.

2.4.2 LFG Survey

The LFG survey of the Northern Fill Area of the Yale Landfill consisted of:

- Installing 23 temporary soil gas sampling probes on an approximately 200-foot by 200-foot grid and extending 10 feet bgs across this portion of the landfill.
- Measuring soil gas samples for methane, carbon dioxide, oxygen, and hydrogen sulfide using field instruments.
- Conducting laboratory analysis of 28 samples for 35 volatile organic compounds (VOCs) specified by Albuquerque Environmental Health Department (AEHD). Eighteen VOCs were found in at least one sample.

Methane concentrations in the Northern Fill Area ranged from 0% by volume to 35.5% by volume and low to moderate levels of eighteen VOCs were detected in LFG samples. Soil cover consists of sparsely-vegetated to moderately-vegetated silty sands with steep westerly slopes.

Low methane concentration, moderate carbon dioxide concentration, and relatively high oxygen concentration indicate that atmospheric air may be infiltrating into the landfill through the surface soils or directly into the monitoring wells through defects such as cracked pipe, loose fittings, desiccated seals, and/or open sample ports. Movement of atmospheric air into and out of a landfill through the cover is caused by barometric pressure changes and is not unusual. High barometric pressure episodes can push atmospheric air into surface soils and landfills. Low barometric pressure episodes typically allow LFG to escape to atmosphere through the landfill cover. The high oxygen content can cause landfill conditions to turn from anaerobic to aerobic, which suppresses methane generation.

2.4.3 Waste Characterization Study 2002

Two borings (WC-5 and WC-6) were installed to characterize landfill waste within the Northern Fill Area. Borings were advanced with a large-diameter bucket auger to depths of 17 feet bgs to 21 feet bgs.

Waste samples were collected and analyzed to establish composition, degradable material percentage, and moisture content.

Waste was encountered from 3 feet bgs to 9 feet in WC-5 and from 3 feet bgs to 20 feet bgs in WC-6. The primary waste material types and percent by weight encountered in the two waste characterization borings were:

- WC-5 - soil (95%), glass (2.8%), paper (1.2%), and plastic (0.5%)
- WC-6 - soil (22.7%), wood (19.5%), glass (15.8%), metal (13%), cloth (7.9%), plastic (7.9%), paper (6.9%), green waste (4.3%), and cardboard (2%)

The majority of these waste types in WC-6 (59.4%) are not decomposable under the conditions normally encountered in landfills, 13.2% are moderately decomposable, and 27.4% will decompose slowly. Waste moisture content ranged from 37.2% by weight to 42.5% by weight, which indicates the potential for relatively rapid waste decomposition and high gas generation rates.

2.4.4 LFG Pump Testing and LFG Generation Modeling

A 3-day LFG pump test was conducted by installing one LFG extraction well, converting a waste characterization boring into a second LFG extraction well (WC-6), and installing three monitoring probes to measure LFG flow and concentrations. The initial LFG flow rate was 140 standard cubic feet per minute (scfm) and after 2 hours the flow rate declined to 43 scfm for the remainder of the test. The initial methane content was 4.2% by volume and declined to 0.3% by volume during the test.

Site-calibrated methane generation values were calculated based on LFG generation rates measured during the pumping test. The LFG generation rate at the Yale Landfill was estimated using the United States Environmental Protection Agency (USEPA) LFG Emissions Model (LandGEM), with input values based on site-specific data from the study. Five different projections were modeled using a combination of site-calibrated and “typical” landfill values. The results of the modeling indicate that the peak year for LFG generation was 1966, which was 1 year after the landfill closed. The model indicates that LFG generation will continue to steadily decline as long as conditions do not change. The projected LFG generation rate in 2020 ranges from 30 scfm to 75 scfm. Within the proposed substation area, methane concentrations ranged from 0% volume (in all but two monitoring wells) to 0.6% by volume in monitoring well Y16 and 8.2% by volume in monitoring well Y14. Carbon dioxide content ranged from 0.3% by volume to 22.9% by volume. Oxygen ranged from 0% by volume to 19.7% by volume.

2.4.5 Landfill Management Plan (March 2014)

The Yale Landfill Management Plan (LMP) provides a summary of LFG monitor probes installed at the perimeter and outside of the YALF boundary from 1997 to 2005. As shown in **Figure 5**, Intera installed 36 additional LFG monitor probes were installed at the perimeter and outside the YALF, of which six were installed along the perimeter of the Northern Fill Area (YLMW12, YLMW13, YLMW14, YLMW15, YLMW19, YLMW20, and YLMW37). The LMP depicts two LFG monitor probes (MW01 and MW02) located in the southern portion of the Northern Fill Area and reportedly installed by the CoA. No additional information is provided in the LMP regarding these wells.

Landfill geology is summarized in the LMP based on data collected during installation of shallow LFG monitoring wells by Intera in 2003 and 2006. Fine-grained to medium-grained sand (with subangular grain structure) and loose sand was the predominant soil type encountered across the site. The site is underlain by members of the Santa Fe Group, a major groundwater-bearing unit in the Albuquerque area.

The AEHD has monitored groundwater quality in the vicinity of the YALF since 1982. The depth to groundwater varies from 179 feet bgs to 425 feet bgs and the groundwater flow direction measured in 1983 was to the north-northeast. The LMP documents current monitoring results and identifies the future direction of the monitoring program.

2.4.6 CERCLIS Site Inspection

The New Mexico Environmental Department (NMED) Ground Water Quality Bureau (GWQB) prepared a Site Inspection Report (NMED, 2014) for the Randolph Road and University Boulevard Site designated as Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) ID No. NMN000606846. Land use in the vicinity of the CERCLIS site is primarily commercial and light industrial and includes municipal landfills, Sunport, Kirtland Air Force Base (KAFB), Interstate 25, and large tracts of sparsely vegetated lands, some of which are vacant or overlay the South Yale Landfill.

The Site was added to the CERCLIS program when chlorinated VOCs were detected in a sample collected from the Miles #1 drinking water well located northwest of the Sagebrush substation site during routine monitoring conducted by AEHD (see **Figure 4**). The groundwater plume underlying the site contains chlorinated and aromatic hydrocarbons in concentrations consistently below applicable USEPA and New Mexico groundwater standards. Samples collected from monitoring well Yale MW-4 contain tetrachloroethene (PCE) and 1,2-dichloroethane (1,2-DCA) in concentrations exceeding the USEPA drinking water maximum contaminant level (MCL) but less than the New Mexico Water Quality Control Commission (NMWQCC) standard. The source of the groundwater contamination plume was not identified in the report.

Depth to groundwater beneath the CERCLIS site varies from 180 feet bgs to 429 feet bgs. Groundwater flow direction below the CERCLIS site area is complex and is greatly influenced by the sustained ground water pumping of municipal water supply wells, water supply wells at KAFB, irrigation wells at the University Golf course, and the pumping at nearby ground water remediation sites. As a result, groundwater movement at a particular location tends to be in the direction of the closest and largest pumping wells. Regional ground water flow in this general area of Albuquerque is generally east-northeast.

2.4.7 Landfill Gas Data (October 2016 through June 2017)

AEHD collected LFG data between October 2016 through June 2017 from 99 monitoring points at 23 locations in the monitor wells discussed in Section 3.2 (CoA, 2017). Four LFG monitoring points (1DA, 1S, 1SA, and 2DA) at two locations (YALEMP1 and YALEMP2) are located along the western edge of the proposed substation site, and two LFG monitoring points (14DA and 14SA) at one location (YALEMP14) are located along the western edge of the proposed substation site. LFG monitor probes MP01 and MP02 will likely be removed with waste materials and soils necessary to grade the site to accommodate development of the proposed substation.

Methane, carbon dioxide, oxygen, and balance gas (predominantly nitrogen) averaged 0.4% by volume, 3.4% by volume, 16.4% by volume and 79.8% by volume, respectively, in the 99 monitoring points. Oxygen and balance gas are present at concentrations similar to those in atmospheric air (approximately 21% oxygen and 79% balance gas, respectively). The high oxygen and low methane concentrations indicate that the landfill may be aerobic. Aerobic conditions generate predominantly carbon dioxide and minimize formation of methane.

Of the 99 monitoring points, methane was detected in 19 monitoring points at 11 locations and methane was detected at concentrations greater than the LEL (5% by volume in air) in six monitoring points (11DA, 11SA, 12DA, 12SA, 16DA, and 16SA) at three locations (YALEMP11, YALEMP12, and YALEMP16).

Monitor wells YALEMP11 and 12 are several hundred feet east of the proposed substation site and LFG monitoring location and monitor well YALEMP16 is located in the center of the south edge of the proposed substation site.

2.4.8 Geophysical Survey (February 2017)

hydroGEOPHYSICS (HGI) conducted a multi-method geophysical survey of the YALF (HGI, 2017). The survey was intended to identify the lateral extents and thickness of buried waste and the depth of cover material over the waste by using non-invasive methods to map the electrical properties of the subsurface. Survey coverage of the area within which the proposed substation is located was limited and discontinuous because of access restrictions due to topography, vegetation, erosional features causing significant instrument vibration, steep side slopes, and some areas that contained exposed waste with a large amount of broken glass and sharp metals. The results of the geophysical survey indicate:

- Waste is not uniformly distributed across the site.
- Where waste is present, its thickness ranged from 20 feet to 40 feet, and soil cover thickness varied from approximately 5 feet to 25 feet.
- The reported bottom of the waste appears to be between elevations 5200 feet on the west and 5230 feet on the east.

2.4.9 Phase I Environmental Site Assessment (August 2019)

Terracon completed a Phase I Environmental Site Assessment (ESA) for the proposed substation site (Terracon, 2019a). The presence of the former YALF was identified as a Recognized Environmental Condition (REC) for the site, and Terracon recommended additional investigation be performed to evaluate subsurface conditions associated with the REC. Groundwater underlying the site was reported to be present at 290 feet bgs to 330 feet bgs with an eastward gradient. Groundwater is impacted by VOCs, which was first identified during routine groundwater monitoring in 1988. Methane was reported to be present in LFG at concentrations ranging from 13.1% by volume to 35.5% by volume. The thickness of the landfill cap and landfill material were reported to be 3.75 feet and 11.75 feet, respectively.

2.4.10 Limited Site Investigation (December 2019)

Terracon completed a Limited Site Investigation (LSI) within a portion of the proposed Sagebrush substation site by installing six soil borings (B-1 through B-6) and five soil gas probes (SGP-1 through SGP-5) and collecting eleven soil samples and five soil gas samples. The location of these features is shown on **Figure 4**. Soil gas probes were installed to 5 feet bgs. Soil gas samples collected from the probes did not contain VOCs in concentrations greater than the NMED Hazardous Waste Bureau (HWB) industrial vapor intrusion screening levels (VISLs) for soil gas. Arsenic, lead, and oil-range organics (ORO) Total Petroleum Hydrocarbons (TPH) exceeded the HWB NMED Risk Assessment Guidance for Investigations and Remediation Volume I, Industrial/Occupational Soil Screening Levels (SSLs) in soil samples B-3B and B-4A. Soil sample B-3B was also analyzed for the lead hazardous waste toxicity characteristic using the Toxicity Characteristic Leaching Procedure (TCLP) procedure and analyzing the extract for lead concentration. The TCLP extract contained 3.5 milligrams per liter (mg/L) lead which is less than the hazardous waste characteristic regulatory limit of 5.0 mg/L for lead. Brick debris was encountered in two borings (B-3 and B-5) between 2 feet bgs to 13 feet bgs (elevations 5174 feet to 5182 feet). Highly decomposed organic trash was encountered in boring B-4 at 4 feet bgs to 26.5 feet bgs (elevations 5161 feet to 5184 feet). VOCs were measured at 135 parts per million (ppm) using a hand-held portable photoionization detector (PID) at 10 feet bgs to 11.5 feet bgs in boring B-4.

2.4.11 Preliminary Geotechnical Engineering Report (January 2020)

Terracon conducted a geotechnical engineering exploration within a portion of the proposed Sagebrush substation site. Six borings designated as Boring Nos. B-1 to B-6) were advanced to a depth of approximately 51.5 feet bgs. Up to 26.5 feet of soil fill and landfill debris was encountered between elevations of 5161 feet-msl and 5184 feet-msl. Landfill material consisted primarily of construction debris and domestic trash.

2.5 Contaminants of Potential Concern (COPCs)

Based on an evaluation of data collected to date, the concentration of VOCs in on-site LFG is relatively low. That stated, there are several contaminants of potential concern (COPCs) have been identified in groundwater and soil. The following constituents are identified as potential Site COPCs in groundwater:

- PCE
- 1,2-DCA

The following constituents are identified as potential COPCs in soil:

- Resource Conservation and Recovery Act (RCRA) Metals including arsenic and lead
- TPH oil-range organics

The source of the PCE in groundwater is inconclusive and likely not from the landfill due to the depth of groundwater relative to the fill material at the site. Previous reports have identified potential sources for groundwater contamination including a dry cleaners facility, service stations, and auto repair shops (NMED 2008). These are described further in Attachment 5, the Phase I ESA. These COPCs have been derived by evaluated historical Site analytical data with applicable NMED SSLs (NMED, 2019) and NMWQCC Human Health Standards defined in New Mexico Administrative Code (NMAC) 20.6.2.3.3103.

Based upon previous characterization studies of on-site materials (summarized in the previous investigations section), encountering hazardous waste is not anticipated. There is no prior evidence that the on-site wastes are composed of or include listed or characteristic wastes. However, special wastes (i.e., asbestos, spill cleanup wastes, and petroleum contaminated soils) could be encountered during excavation. Based on an evaluation of data collected to date, the concentration of VOCs in on-site LFG is relatively low. However, several organic compounds have been detected in groundwater monitoring wells.

3. Proposed Performance Standards

Site compliance with the VRP Performance Standard, as defined by NMAC 20.6.3.10 (NMAC, 2001), will be established through the collection of confirmation soil samples from the excavation floor of the excavation following the removal of landfill material. As shown on **Figure 1**, the YALF boundary extends beyond the Site. As such, confirmation side wall samples will not be collected as the purpose of this project is to remediate the YALF within the vicinity of the Site.

Confirmation soil sample results will be compared to analyte specific risk-based screening levels from the NMED Risk Assessment Guidance for Investigations and Remediation Volume I, SSLs for industrial exposure (NMED, 2019). Sampling and analysis for confirmation soil samples is described below.

3.1 Confirmation Sample Collection Methods

Approximately 15 confirmation samples will be collected during excavation activities. The approximate locations of the confirmation samples are shown on **Figure 6**. Confirmation samples will be collected into laboratory provided sample collection jars directly from the excavator bucket. Each soil sample that will be analyzed for TPH or VOCs will be collected by extracting three 5-gram aliquots from the designated sampling jar using an Encore T-handle or similar device and loaded with the Teflon sampler. Field duplicate, equipment blank, and trip blank quality assurance and quality control (QA/QC) samples will be included for analysis of soil samples. Samples will be labeled with a unique identification number, type of sample, the sample location, and the sample depth.

The samples will be analyzed for the following constituents:

- VOCs by EPA method 8260
- RCRA metals by EPA method 6010/6020
- Gasoline and diesel range organics by EPA method 8015M

This analytical suite was selected based on an evaluation of historical data and identification of the COPCs described in **Section 2.0**. Remediation will be deemed complete once the confirmation sample results are reported below NMED Risk Assessment Guidance for Investigations and Remediation Volume I, SSLs for industrial exposure (NMED, 2019). Clean soil from other portions of the site will be used as backfill.

4. Summary of Proposed Remediation Activities

Remedial activities will consist of excavation of landfill materials and soils that previous studies have suggested may not be suitable to support the anticipated loads associated with construction of the proposed substation. PNM will excavate approximately 160,500 cubic yards of soil, soil overburden, and debris to prepare the building pad for the Sagebrush substation and tie into existing elevations at the adjacent University Boulevard right-of-way. The excavation boundary covers about 11.22 acres within which the enclosed Sagebrush substation footprint, covering about 7.08 acres and measuring 460 feet north to south and 670 feet east to west, will be placed. An access road from University Boulevard SE to the substation entrance covers an additional 0.58 acres. **Figure 6** shows the extent of the excavation area.

Approximately 24,100 cubic yards of soil, free of debris, will be returned to the excavated area and compacted in place to develop the substation pad. The remaining 136,400 cubic yards of excavated soil (of which approximately 27,280 cubic yards is estimated to be debris) will be properly characterized, transported by a New Mexico-registered commercial waste hauler, and disposed at the CoA-owned Cerro Colorado Landfill - which is permitted to accept non-hazardous waste.

Excavated will be visually classified and undergo olfactory screening using a photoionization detector (PID) as they are excavated. Clean sandy/gravelly soils that contain no debris material may be stockpiled on site for use as structural fill or surface cover. Excavation of landfill materials will consist of the following process:

- Clean landfilled materials, including organics will be directed loaded into end or belly dump type trucks and transported to the Cerro Colorado Landfill by haulers registered with the NMED Solid Waste Bureau (SWB). Excavated landfill materials that are classified as dry and containing materials consistent in type to the waste profile samples will not be subject to the tests listed above.
- Excavation encountering wet (with free draining liquids) waste will be segregated on site and evaluated using the above listed test methods (**Section 3.0**) prior to being hauled off site for disposal at the Cerro Colorado Landfill. Analytical results that exceed the Regulatory Limit as defined by 40 CFR 261.24 for the target compound(s), will be characterized as hazardous waste and disposed at an approved facility.
- Wet wastes encountered during excavation will be windrowed on site and allowed to drain dry prior to being hauled to Cerro Colorado Landfill. If there is any question regarding the free liquid content of excavated waste prior to its being hauled off site, a paint filter test (EPA 9095B) will be performed. If the waste cannot pass the paint filter test, it cannot be removed from site.

5. How Proposed Activities Will Meet the VRP Performance Standard

Following completion of the excavation of the landfill materials, confirmation soil samples will be collected from the side walls and floor of the excavation before backfilling. The confirmation soil samples will be collected every 100 linear feet along the side walls and on 100 foot centers along on the floor of the excavation. Confirmation soil samples will be biased toward locations that residual staining, discoloration, or odor in the side walls and floor. The confirmation soils samples will be analyzed for the analytical suite listed in **Section 4.0**. Soils sample results will be compared to the soils screening levels for industrial exposure (NMED, 2019). Should SSLs be exceeded at a specific confirmation soil sample location, additional excavation will take place. Soil material will then be characterized, and resampling performed to verify that impacted soil had been removed.

5.1 VRP Performance Standard Objective 1

Performance Standard Objective 1 can be defined as identification of *“the source, nature and extent, migration pathways, and environmental fate and transport of contaminants in all environmental media present at the site (i.e., soil, groundwater, surface water, sediment, and/or air).”*

Previous characterization efforts have been completed at the site for soil and soil vapor. Results from these efforts identified the following:

- Arsenic, lead, TPH oil-range organics (soil)
- Potential contaminant source – former landfill operations
- Extent of contamination – Identified areas of soil and soil vapor contamination. Due to the depth of groundwater, groundwater contamination has not been identified in previous site characterizations.
- Fate and transport of contaminated soil – dermal contact, ingestion, and inhalation

5.2 VRP Performance Standard Objective 2

Performance Standard Objective 2 can be defined as quantification of *“the risk of harm posed by the site to human health, safety, and the environment.”*

Two environmental Site media have been identified as being potentially impacted by one or more COPCs: soil and soil vapor. The relative degree of risk posed by exposure to these COPCs at the Site has been established by comparing COPC concentrations to applicable standards available at the time of comparison. Applicable standards include:

- Soil: NMED Industrial SSLs (NMED, 2019)

During Site redevelopment activities, impacted soil, if encountered, will be determined by directly comparing the Site COPC concentrations to the applicable standards for soil.

5.3 VRP Performance Standard Objective 3

Performance Standard Objective 3 can be defined as verification for *“the need to conduct remedial actions at the site to safeguard against such risks.”*

Site soil and soil vapor issues will be mitigated through remedial excavation, removal of landfill material, and backfill with unimpacted soil.

5.4 VRP Performance Standard Objective 4

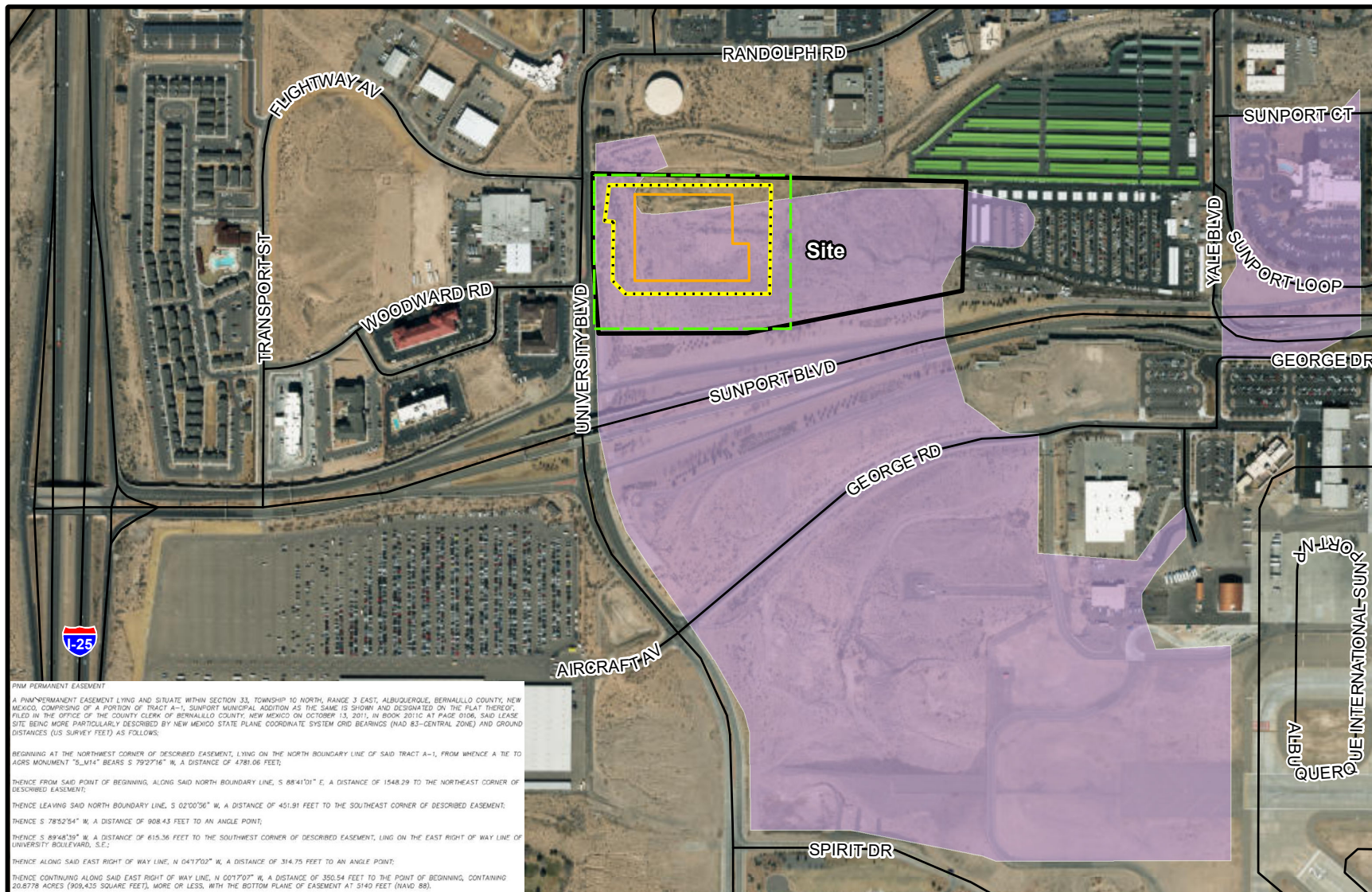
Performance Standard Objective 4 can be defined as identification of “*the remedial action selection and design, if appropriate.*”

Remediation of soil and soil vapor will be completed as described in the previous section.

6. References

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Figures



PNM
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414 Silver Avenue SW
Albuquerque, New Mexico 87102

AECOM

Legend

- Site Location
- Approximate Excavation Boundary
- Substation Equipment
- Future Substation Enclosure
- Inferred Landfill Boundary
- Local Roads

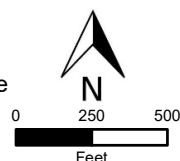


Figure 1
Site Location Map
Landfill Gas Assessment Report
Sagebrush Substation
Former Yale Landfill – Northern Fill Area

Base Map from Intera; Landfill Management Plan, Former Yale Landfill, Albuquerque, New Mexico; March 31, 2014.

Base Map from AECOM



Figure 3
Groundwater Monitor Wells
in Site Vicinity

Landfill Gas Assessment Report

Sagebrush Substation

Former Yale Landfill – Northern Fill Area

Base Map from New Mexico Environmental Department, Ground
 Water Quality Bureau, Superfund Oversight Section; Site
 Inspection Report, Randolph Road and University Boulevard,
 Bernalillo County, New Mexico, CERCLIS ID# NMN000606846;
 September 2014

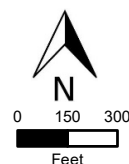


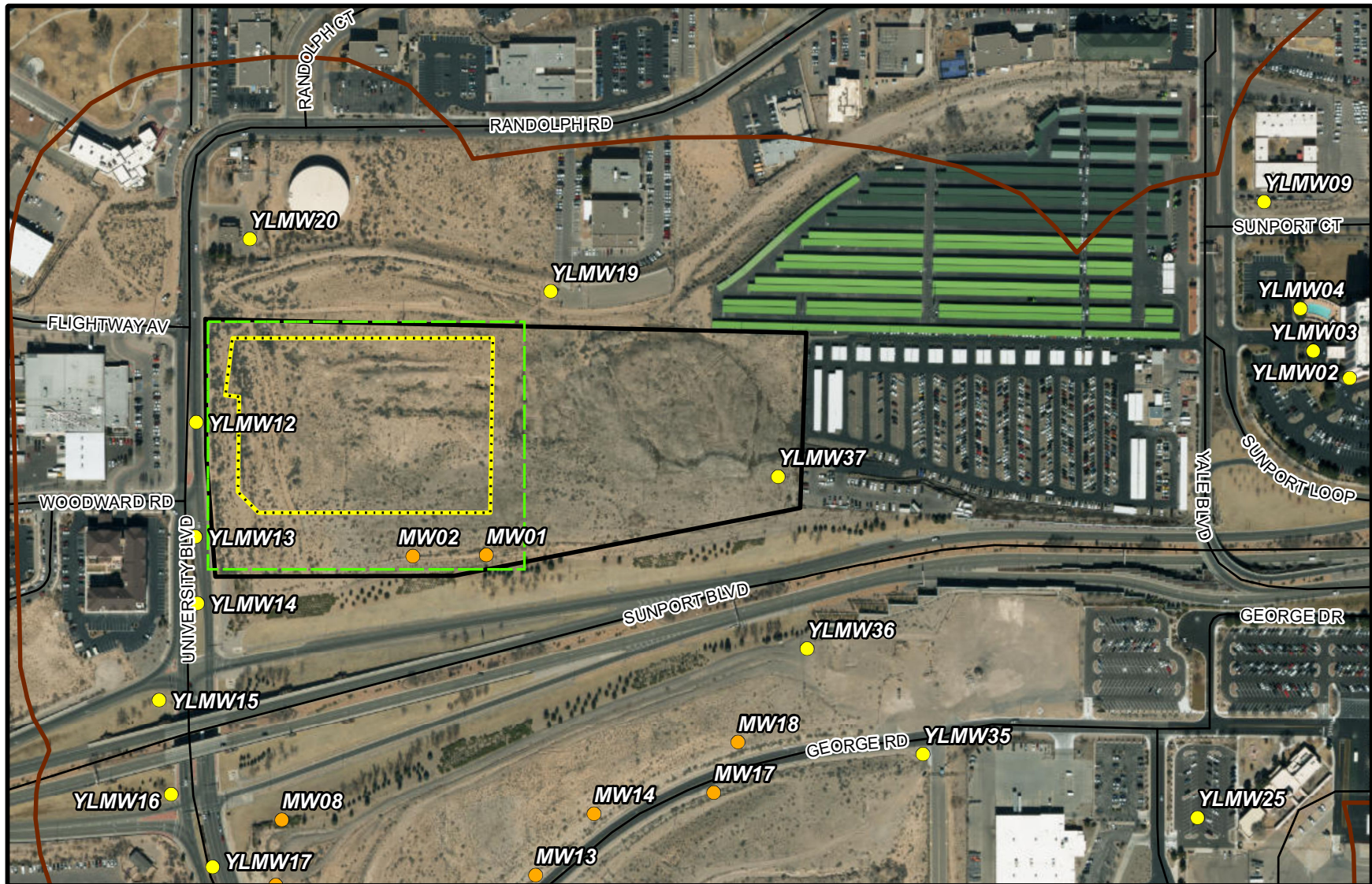
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Legend

- Groundwater Monitoring Well
- Site Location
- Approximate Excavation Boundary
- Future Substation Enclosure
- Local Roads






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AECOM

Legend

- Installed Monitoring Well - INTERA
- Installed Monitoring Well - COA
- Site Location
- Approximate Excavation Boundary
- Future Substation Enclosure
- 500-ft Landfill Buffer Zone
- Local Roads

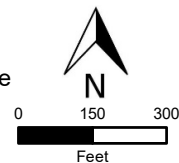
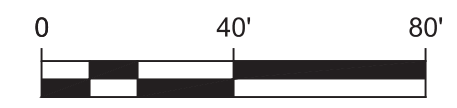
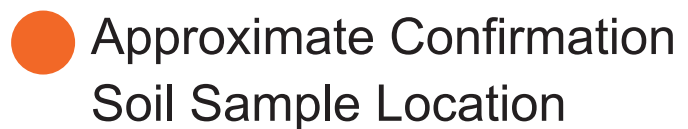


Figure 4
Landfill Gas Monitoring Probes in
Site Vicinity
 Landfill Gas Assessment Report
 Sagebrush Substation
 Former Yale Landfill – Northern Fill Area

Base Map from Intera; Landfill Management Plan, Former Yale Landfill, Albuquerque, New Mexico; March 31, 2014.

Base Map from Precision Surveys; Topographic Survey of a Portion of A-1, Sunport Municipal Expansion; October 2020.



AECOM TECHNICAL SERVICES, INC.
6501 Americas Pkwy NE, Suite 900
Albuquerque, NM 87110
505 855 7500 tel 505 855 7555 fax
www.aecom.com

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FIGURE 6
EXCAVATION PLAN AND CONFIRMATION SOIL SAMPLE LOCATIONS

Design Review Committee	City Engineer Approval	Last Design Update	MO./DAY/YR.	MO./DAY/YR.
City Project No. 673890	Zone Map No. M-15	Sheet No. C-01 5 OF 29		

