

**Associate Directorate for Environmental Management**

P.O. Box 1663, MS M992  
Los Alamos, New Mexico 87545  
(505) 606-2337

**Environmental Management**

1900 Diamond Drive, MS M984  
Los Alamos, New Mexico 87544  
(505) 665-5658/FAX (505) 606-2132

Date: **JUN 27 2017**

Refer To: ADEM-17-0151

LAUR: 17-25020

Locates Action No.: n/a

John Kieling, Bureau Chief  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505-6303

**Subject: Fiscal Year 2016 Fieldwork Completion Status Report for Townsite Solid Waste Management Units 01-001(g), 01-006(b), 01-007(a), 01-007(b), and Area of Concern 01-003(b), in the Upper Los Alamos Canyon Aggregate Area**

Dear Mr. Kieling:

Enclosed please find two hard copies with electronic files of the Fiscal Year 2016 Fieldwork Completion Status Report for Townsite Solid Waste Management Units 01-001(g), 01-006(b), 01-007(a), 01-007(b), and Area of Concern 01-003(b), in the Upper Los Alamos Canyon Aggregate Area. This status report fulfills a 2016 Compliance Order on Consent deliverable requirement under the Historical Properties Completion Campaign as identified in Appendix B Milestones and Targets, Milestone #12, "Historical Properties—Upper Los Alamos Canyon."

If you have any questions, please contact Todd Haagenstad at (505) 665-2936 (hth@lanl.gov) or Cheryl Rodriguez at (505) 665-5330 (cheryl.rodriguez@em.doe.gov).

Sincerely,

Bruce Robinson, Program Director  
Environmental Remediation Program  
Los Alamos National Laboratory

Sincerely,

David S. Rhodes, Director  
Office of Quality and Regulatory Compliance  
Los Alamos Environmental Management  
Field Office

BR/DR/TH:sm

Enclosures: Two hard copies with electronic files – Fiscal Year 2016 Fieldwork Completion Status Report for Townsite Solid Waste Management Units 01-001(g), 01-006(b), 01-007(a), 01-007(b), and Area of Concern 01-003(b), in the Upper Los Alamos Canyon Aggregate Area (EP2017-0096)

Cy: (w/enc.)  
Cheryl Rodriguez, DOE-EM-LA  
Todd Haagenstad, ADEM ER Program

Cy: (w/electronic enc.)  
Laurie King, EPA Region 6, Dallas, TX  
Steve Yanicak, NMED-DOE-OB, MS M894  
emla.docs@em.doe.gov  
Public Reading Room (EPRR)  
ADESH Records  
PRS Database

Cy: (w/o enc./date-stamped letter emailed)  
lasomailbox@nnsa.doe.gov  
Peter Maggiore, DOE-NA-LA  
Kimberly Davis Lebak, DOE-NA-LA  
David Rhodes, DOE-EM-LA  
Randy Erickson, ADEM  
Bruce Robinson, ADEM ER Program  
Jocelyn Buckley, ADESH-EPC-CP  
Mike Saladen, ADESH-EPC-CP  
John Bretzke, ADESH-EPC-DO  
Michael Brandt, ADESH  
William Mairson, PADOPS  
Craig Leasure, PADOPS

**Fiscal Year 2016 Fieldwork  
Completion Status Report for  
Townsite Solid Waste  
Management Units 01-001(g),  
01-006(b), 01-007(a), 01-007(b),  
and Area of Concern 01-003(b),  
in the Upper Los Alamos Canyon  
Aggregate Area**




Prepared by the Associate Directorate for Environmental Management

Los Alamos National Laboratory, operated by Los Alamos National Security, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC52-06NA253 and under DOE Office of Environmental Management Contract No. DE-EM0003528, has prepared this document pursuant to the Compliance Order on Consent, signed June 24, 2016. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.


# Fiscal Year 2016 Fieldwork Completion Status Report for Townsite Solid Waste Management Units 01-001(g), 01-006(b), 01-007(a), 01-007(b), and Area of Concern 01-003(b), in the Upper Los Alamos Canyon Aggregate Area

June 2017

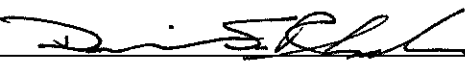
Responsible project manager:

Todd Haagenstad		Project Manager	Environmental Remediation Program	6/22/17
Printed Name	Signature	Title	Organization	Date

Responsible LANS representative:

Randall Erickson		Associate Director	Associate Directorate for Environmental Management	6/22/17
Printed Name	Signature	Title	Organization	Date

Responsible DOE-EM-LA representative:

David S. Rhodes		Office Director	Quality and Regulatory Compliance	6-27-2017
Printed Name	Signature	Title	Organization	Date



## **EXECUTIVE SUMMARY**

This status report fulfills a 2016 Compliance Order on Consent (Consent Order) requirement under the Historical Properties Completion Campaign as identified in Appendix B Milestones and Targets, Milestone #12, “Historical Properties—Upper Los Alamos Canyon.” The specific milestone addressed by this deliverable is described as a field completion status report of corrective action complete at the townsite Solid Waste Management Units (SWMUs) 01-001(g), 01-006(b), 01-007(a), and 01-007(b) and Area of Concern (AOC) 01-003(b). The report summarizes the fieldwork completed through fiscal year (FY) 2016 and the current site status for SWMU 01-001(g) and AOC 01-003(b2). All FY2016 excavation/restoration and/or sampling performed at SWMUs 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b1) are addressed in the approved “Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1.”





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## **1.0 PURPOSE OF REPORT**

The purpose of this status report is to fulfill a 2016 Compliance Order on Consent (Consent Order) deliverable requirement under the Historical Properties Completion Campaign as identified in Appendix B Milestones and Targets, Milestone #12, “Historical Properties—Upper Los Alamos Canyon.” The specific milestone addressed by this deliverable is described as a field completion status report of corrective action complete at the townsite Solid Waste Management Units (SWMUs) 01-001(g), 01-006(b), 01-007(a), and 01-007(b) and Area of Concern (AOC) 01-003(b) (Figure 1.1-1).

## **2.0 OVERVIEW**

The U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA) and Los Alamos National Security, LLC (LANS) Associate Directorate for Environmental Management (ADEM) are in the process of completing corrective actions, including investigation and remediation, of the Upper Los Alamos Canyon Aggregate Area as required by the 2016 Consent Order and the approved Phase II investigation work plan for the Upper Los Alamos Canyon Aggregate Area (LANL 2010, 110860; NMED 2011, 111674). The work is also being executed as part of a larger ongoing Historical Properties Completion Campaign identified in the 2016 Consent Order. The campaign is designed to address additional investigation and remediation, as necessary, for (1) sites located in the historical location of Los Alamos National Laboratory (LANL or the Laboratory), and (2) former Laboratory properties that were transferred and are private properties or that require access through private property. These sites are located in the Guaje/Rendija/Barrancas Canyons, Middle Los Alamos Canyon, Pueblo Canyon, and Upper Los Alamos Canyon. The field completion status of SWMUs 01-001(g), 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b) at the end of fiscal year (FY) 2016 is addressed specifically in this field completion status report or by reference to the revised investigation report for the former Los Alamos Inn Property Site, approved by the New Mexico Environment Department (NMED) on June 6, 2017 (LANL 2017, 602404; NMED 2017, 602438).

### **2.1 Background**

The Upper Los Alamos Canyon Aggregate Area was established under the 2005 Consent Order, and additional corrective action requirements resulted in further investigation and remediation of sites within the aggregate area, including the sites identified in this status report. In 2006, NMED approved the investigation work plan for the aggregate area (LANL 2006, 091916; NMED 2006, 095460). Implementation of the approved work plan resulted in the submittal and approval of an investigation report and completion of correction actions for many, but not all, sites within the aggregate area (LANL 2010, 108528; NMED 2010, 109195). The remaining sites requiring investigation were identified in the Phase II investigation work plan approved by NMED in 2011 (LANL 2010, 110860; NMED 2011, 111674). Ongoing investigations and remediation of the sites still requiring corrective actions, including those included in this status report, have been addressed either in a separate investigation report (see below) or continue to be implemented under the approved Phase II investigation work plan (LANL 2010, 110860; NMED 2011, 111674) and the 2016 Consent Order.

In 2015, the DOE EM-LA and LANS ADEM began a coordinated effort with a private property owner, Los Alamos Investors, LLC, to expedite the completion of corrective actions for legacy sites within and intersecting the property encompassing the footprint of the former Los Alamos Inn. This effort was designed to facilitate the property owner’s effort to sell and develop the property. The scope of the effort included (1) execution of a modification to the Laboratory’s Hazardous Waste Facility Permit, (2) additional soil investigation sampling, and (3) completion of a final investigation report.

The former Los Alamos Inn property contains all or parts of 16 SWMUs and AOCs located at former Technical Area 01 (TA-01) in the Upper Los Alamos Canyon Aggregate Area. The 16 SWMUs and AOCs include SWMUs 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b) as identified in Appendix B Milestones and Targets, Milestone #12, of the 2016 Consent Order. SWMU 01-001(g) does not reside within or intersect the property. A request for modification of the Laboratory's Hazardous Waste Facility Permit was submitted to NMED on October 27, 2016 (LANL 2016, 601921). The requested permit modification split the SWMUs and AOC intersecting the former Los Alamos Inn property into separate SWMUs and AOCs based on property ownership. The permit modification was approved by NMED on November 9, 2016, and allowed expedited requests for certificates of completion for the newly designated SWMUs and AOC within the property boundary upon completion of corrective actions (NMED 2016, 601988). As part of the permit modification, former AOC 01-003(b) was divided into AOC 01-003(b1) and AOC 01-003(b2). AOC 01-003(b1) is located within the former Los Alamos Inn property, and AOC 01-003(b2) is located on adjacent non-DOE and DOE properties.

Following approval of the permit modification, DOE EM-LA and LANS ADEM conducted additional investigation sampling and prepared the approved "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1" (LANL 2017, 602404). The investigation report addresses the corrective actions for SWMUs 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b1). The investigation report was approved by NMED on June 6, 2017 (NMED 2017, 602438). No further actions are required under the Consent Order for SWMUs 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b1).

In this status report, SWMU 01-001(g) and AOC 01-003(b2) during FY2016 are addressed specifically in sections 3.1 and 3.2, respectively. SWMUs 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b1) are addressed by reference to the approved "Former Los Alamos Inn Property Site Investigation Report, Revision 1" (LANL 2017, 602404; NMED 2017, 602438).

### **3.0 SUMMARY OF FIELDWORK COMPLETED IN FY2016**

The following sections provide site descriptions, summarize fieldwork completed through FY2016, and describe the current site status for SWMU 01-001(g) and AOC 01-003(b2). All FY2016 excavation/restoration and/or sampling performed at SWMUs 01-006(b), 01-007(a), 01-007(b), and AOC 01-003(b1) are addressed in the approved "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1" (LANL 2017, 602404; NMED 2017, 602438). In summary, sampling was performed at both SWMU 01-001(g) and AOC 01-003(b2). Soil excavation/restoration was only performed at SWMU 01-001(g).

#### **3.1 SWMU 01-001(g), Former Sanitary Septic System**

##### **3.1.1 Site Description**

SWMU 01-001(g) consists of a former sanitary septic system that included former septic tank 141 (former structure 01-141), one sanitary inlet line, and one outlet drainline that discharged to an outfall over the north rim of Los Alamos Canyon. Former septic tank 141 was a cylindrical steel tank with dimensions measuring approximately 4 ft in diameter and 4 ft deep that was installed in 1943 (LANL 2001, 069946, p. 37). The septic tank was located south of X Building (former building 01-79) near the edge of Los Alamos Canyon and received sanitary waste from X Building through a single sanitary waste line. X Building housed a cyclotron (accelerator) in which radioactive targets were tested. X Building was decommissioned and removed in 1954 as part of the relocation of all TA-01 activities to new Laboratory TAs south of the Los Alamos townsite. Septic tank 141 was removed during the Ahlquist Radiological

Survey in September 1975 (Ahlquist et al. 1977, 005710, p. 119). The tank, its contents, and surrounding soil were found to have no evidence of radiological contamination and were removed and disposed of at a Laboratory material disposal area. Currently, the location of the former inlet drainline is under one of the Los Arboles condominium buildings on private property, and the former outfall location is on undeveloped land owned by DOE (Figure 3.1-1; Photo A-1 in Appendix A).

### **3.1.2 Fieldwork Completed in FY2016**

The approved Phase II Upper Los Alamos Canyon Aggregate Area investigation work plan indicated the extent of all chemicals of potential concern (COPCs) had been defined, with the exception of the vertical extent of chromium and nickel and the lateral extent of plutonium-239/240 (LANL 2010, 110860; NMED 2011, 111674).

Additional sampling has been performed and extent has been defined for chromium and nickel. COPC concentrations and activities were below residential soil screening levels (SSLs) and/or screening action levels (SALs) at SWMU 01-001(g), except for plutonium-239/240 activities at two hillslope sampling locations at the former outfall on DOE property. The approved Phase II Upper Los Alamos Canyon Aggregate Area investigation work plan proposed the removal of soil and tuff at and around the two hillslope locations where plutonium-239/240 activities exceeded the residential SAL (LANL 2010, 110860; NMED 2011, 111674). Soil/tuff removal was to continue until plutonium-239/240 activities were below the residential SAL. To fully define the areas and depths of soil/tuff removal required, additional step-out sampling was completed. Analytical results indicated additional soil/tuff removal was necessary on the hillslope below the former outfall and along the former outlet drainline on DOE property to ensure all soil with activities of plutonium-239/240 above the residential SAL was removed.

The goal of the fieldwork completed in FY2016 at SWMU 01-001(g) was to remove plutonium-239/240-contaminated soil and tuff with activities exceeding the residential SAL. In FY2016, 29 soil and tuff samples were collected from 9 locations along the former outlet drainline and below the former outfall and submitted for analysis of isotopic plutonium. The analytical data were used to define the specific excavation areas and depths using sampling locations where plutonium-239/240 was known to be below the residential SAL. In August 2016, approximately 43 yd<sup>3</sup> of plutonium-239/240-contaminated soil and tuff was removed from the hillslope below the former outfall, at the former outfall, and along the former outlet drainline on DOE property (Figure 3.1-1) (Photos A-2–A-4 in Appendix A). The excavated material was packaged in waste bags and shipped off-site to an approved, licensed waste disposal facility for final disposition. The excavated areas were backfilled with clean fill and restored with appropriate restoration materials (Photo A-5 in Appendix A).

### **3.1.3 Current Site Status and Remaining Work**

The lateral and vertical extent of all COPCs at SWMU 01-001(g) have been defined. The concentrations and/or activities of all COPCs in soil and tuff associated with this site are below residential SSLs and/or SALs; no further corrective actions are anticipated. Analytical results for all investigation and field QC samples collected during FY2016 are provided in Appendix B (on DVD included with this document). All decision-level data for SWMU 01-001(g) will be assessed and included in the 2018 Phase II Upper Los Alamos Canyon Aggregate Area investigation report along with a summary of all corrective actions and risk assessments for this site.

### **3.2 AOC 01-003(b2), Portion of a Suspected Surface Disposal Area**

#### **3.2.1 Site Description**

AOC 01-003(b2) is the portion of a suspected surface disposal site [former AOC 01-003(b)], reported to be located below the north rim of Los Alamos Canyon directly south of the Los Arboles condominium complex. AOC 01-003(b2) includes all of former AOC 01-003(b), except the northeast area now designated as AOC 01-003(b1) located within the southwest corner of the former Los Alamos Inn property (Figure 3.2-1). Evidence of the reported disposal area was not observed during several site visits conducted between the late 1980s and late 1990s. Several pieces of metal piping were found, a few objects were also scattered over more than an acre on the hillside, and the portable beta/gamma instruments used to screen each object registered only background radiation. Along the DOE property boundary, a terrace constructed of aged pressure-treated lumber is currently located on private property on the northern half of the site and on DOE property on the southern half of the site. The portion of the site located on DOE property is on the steep slope of Los Alamos Canyon (Photo A-6 in Appendix A).

AOC 01-003(b2) was originally part of AOC 01-003(b), which was split into AOCs 01-003(b1) and 01-003(b2) in a request for modification of the Laboratory's Hazardous Waste Facility Permit approved by NMED on November 9, 2016 (LANL 2016, 601921; NMED 2016, 601988). The Laboratory proposed splitting AOC 01-003(b) into two newly designated SWMUs to allow expedited investigation of the portion of the site located on the former Los Alamos Inn property. Although the exact location of the surface disposal area is not obvious, sampling was conducted in the most likely location.

#### **3.2.2 Fieldwork Completed in FY2016**

The approved Phase II Upper Los Alamos Canyon Aggregate Area investigation work plan indicated the extent of all COPCs had been defined, with the exception of the vertical extent of aluminum, arsenic, barium, beryllium, chromium, copper, lead, nickel, perchlorate, selenium, and thallium at two sampling locations on the hillside (LANL 2010, 110860; NMED 2011, 111674). Additional sampling has been conducted and extent has been defined for all COPCs. COPC concentrations and activities, except for arsenic concentrations, are below residential SSLs and/or SALs. Sampling data from samples collected in early FY2016 indicated arsenic concentrations are above the residential SSL at several sampling locations within SWMU 01-003(b2) on both DOE and private property. As indicated in the approved "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1," arsenic was not detected above background values (BVs) within AOC 01-003(b1) (LANL 2017, 602404; NMED 2017, 602438).

At the beginning of FY2016, the goal for AOC 01-003(b) was to remove arsenic-contaminated soil and tuff exceeding the residential SSL. However, based on (1) recent analytical results, (2) further evaluation of site conditions, and (3) consultation with NMED, the objective of fieldwork at the site was revised. DOE EM-LA, LANS ADEM, and NMED revised the objective of corrective actions at SWMU 01-003(b2) from removing soil and tuff exceeding residential SSL to developing and evaluating lines of evidence to demonstrate the arsenic contamination within and around the site is associated with arsenic leaching out of the pressure-treated lumber rather than with legacy operations. Subsequently, pressure-treated lumber samples and additional soil samples were collected in June and August 2016; the samples were submitted for analysis of arsenic. Analytical results indicated high concentrations of arsenic at several locations where pressure-treated lumber was sampled. Based on these results, more comprehensive "paired" sampling of pressure-treated lumber and soil was conducted within AOC 01-003(b2) and directly north of AOC 01-003(b2) to further evaluate potential correlation between arsenic concentrations detected in the pressure-treated lumber and arsenic concentrations in adjacent soil (Figure 3.2-1; Photo A-7 in Appendix A).

### **3.2.3 Current Site Status and Remaining Work**

Soil excavation planned for AOC 01-003(b2) was delayed pending receipt and full assessment of analytical results from the paired sampling of pressure-treated lumber and soil. Existing lines of evidence and sampling data indicate the arsenic contamination in soil may not be legacy site-related and is most likely the result of arsenic leaching out of the aged pressure-treated lumber. The data will be further evaluated to assess the correlation between concentrations of arsenic in the lumber and concentrations of arsenic in adjacent soil. Discussion with NMED will continue to evaluate lines of evidence and determine an appropriate path forward for completing corrective actions at this site.

Analytical results for all investigation and field QC samples collected during FY2016 are provided in Appendix B (on DVD included with this document). All decision-level data for AOC 01-003(b2) will be assessed and included in the 2018 Phase II Upper Los Alamos Canyon Aggregate Area investigation report along with a complete description of final corrective actions undertaken and risk-assessment results for AOC 01-003(b2).

### **3.3 SWMU 01-006(b), Former Drainline and Outfall**

#### **3.3.1 Current Site Status**

SWMU 01-006(b) is located within the boundary of the private property located at 2201 Trinity Drive, Los Alamos, New Mexico, referred to as the former Los Alamos Inn property. Therefore, all corrective action activities and decision-level data are presented in the "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1" (LANL 2017, 602404). SWMU 01-006(b) was recommended for corrective action complete without controls in that report. NMED approved the report on June 6, 2017 (NMED 2017, 602438).

### **3.4 SWMU 01-007(a), Suspected Subsurface Soil Radiological Contamination**

#### **3.4.1 Current Site Status**

SWMU 01-007(a) is located within the boundary of the private property located at 2201 Trinity Drive, Los Alamos, New Mexico, referred to as the former Los Alamos Inn property. Therefore, all corrective action activities and decision-level data are presented in the "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1" (LANL 2017, 602404). SWMU 01-007(a) was recommended for corrective action complete without controls in that report. NMED approved the report on June 6, 2017 (NMED 2017, 602438).

### **3.5 SWMU 01-007(b), Suspected Subsurface Soil Radiological Contamination**

#### **3.5.1 Current Site Status**

SWMU 01-007(b) is located within the boundary of the private property located at 2201 Trinity Drive, Los Alamos, New Mexico, referred to as the former Los Alamos Inn property. Therefore, all corrective action activities and decision-level data are presented in the "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1" (LANL 2017, 602404). SWMU 01-007(b) was recommended for corrective action complete without controls in that report. NMED approved the report on June 6, 2017 (NMED 2017, 602438).

### **3.6 AOC 01-003(b1), Part of a Former Surface Disposal Site**

#### **3.6.1 Current Site Status**

AOC 01-003(b1) is located within the boundary of the private property located at 2201 Trinity Drive, Los Alamos, New Mexico, referred to as the former Los Alamos Inn property. Therefore, all corrective action activities and decision-level data are presented in the “Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1” (LANL 2017, 602404). AOC 01-003(b1) was recommended for corrective action complete without controls in that report. NMED approved the report on June 6, 2017 (NMED 2017, 602438).

### **4.0 REFERENCES AND MAP DATA SOURCES**

*The following reference list includes documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ERID or ESHID. This information is also included in text citations. ERIDs were assigned by ADEM’s Records Processing Facility (IDs through 599999), and ESHIDs are assigned by the Environment, Safety, and Health Directorate (IDs 600000 and above). IDs are used to locate documents in the Laboratory’s Electronic Document Management System and in the Master Reference Set. The NMED Hazardous Waste Bureau and ADEM maintain copies of the Master Reference Set. The set ensures that NMED has the references to review documents. The set is updated when new references are cited in documents.*

#### **4.1 References**

- Ahlquist, A.J., A.K. Stoker, and L.K. Trocki (Comp.), December 1977. “Radiological Survey and Decontamination of the Former Main Technical Area (TA-1) at Los Alamos, New Mexico,” Los Alamos Scientific Laboratory report LA-6887, Los Alamos, New Mexico. (Ahlquist et al. 1977, 005710)
- LANL (Los Alamos National Laboratory), May 21, 2001. “Los Alamos National Laboratory Structure History Book TA-01,” Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2001, 069946)
- LANL (Los Alamos National Laboratory), April 2006. “Investigation Work Plan for Upper Los Alamos Canyon Aggregate Area,” Los Alamos National Laboratory document LA-UR-06-2464, Los Alamos, New Mexico. (LANL 2006, 091916)
- LANL (Los Alamos National Laboratory), February 2010. “Investigation Report for Upper Los Alamos Canyon Aggregate Area, Revision 1,” Los Alamos National Laboratory document LA-UR-10-0422, Los Alamos, New Mexico. (LANL 2010, 108528)
- LANL (Los Alamos National Laboratory), October 2010. “Phase II Investigation Work Plan for Upper Los Alamos Canyon Aggregate Area,” Los Alamos National Laboratory document LA-UR-10-6327, Los Alamos, New Mexico. (LANL 2010, 110860)
- LANL (Los Alamos National Laboratory), October 27, 2016. “Request for a Class 1 Permit Modification to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit, EPA ID No. NM0890010515,” Los Alamos National Laboratory document LA-UR-16-27951, Los Alamos, New Mexico. (LANL 2016, 601921)



LANL (Los Alamos National Laboratory), May 25, 2017. "Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-17-24019, Los Alamos, New Mexico. (LANL 2017, 602404)

NMED (New Mexico Environment Department), November 6, 2006. "Approval of the Investigation Work Plan, Upper Los Alamos Canyon Aggregate Area," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2006, 095460)

NMED (New Mexico Environment Department), April 21, 2010. "Notice of Approval, Investigation Report for Upper Los Alamos Canyon Aggregate Area, Revision 1," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2010, 109195)

NMED (New Mexico Environment Department), January 19, 2011. "Approval with Modifications, Phase II Investigation Work Plan for Upper Los Alamos Canyon Aggregate Area," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2011, 111674)

NMED (New Mexico Environment Department), November 9, 2016. "Fee Assessment and Approval Request for a Class 1 Permit Modification to Revise Table K-1 of Attachment K of the Los Alamos National Laboratory (LANL)," New Mexico Environment Department letter from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2016, 601988)

NMED (New Mexico Environment Department), June 6, 2017. "Approval for the Investigation Report for the Former Los Alamos Inn Property Sites within the Upper Los Alamos Canyon Aggregate Area, Revision 1," New Mexico Environment Department letter to D. Hintze (DOE-EM) and B. Robinson (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2017, 602438)

## 4.2 Map Data Sources

Paved Road Arcs; Los Alamos National Laboratory, FWO Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010.

Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 13 August 2010.

Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010.

Former Structures of the Los Alamos Site, Line Feature Representation; Los Alamos National Laboratory, ESH&Q Waste & Environmental Services Division, EP2010-0A; 1:2,500 Scale Data; 09 August 2010.

SWMU or AOC boundary: Potential Release Sites; Los Alamos National Laboratory, ESH&Q Waste & Environmental Services Division, Environmental Data and Analysis Group.

Contours, All intervals; As generated from 2014 LiDAR elevation data; Los Alamos National Laboratory, ER-ES; As published, project 12-0086; 2017.

LANL Areas Used and Occupied ; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 21 June 2017.

Excavation Areas; Los Alamos National Laboratory, ER-ES, As published, GIS projects folder; \\slip\gis\GIS\Projects\12-Projects\12-0086\gdb\gdb\_12-0086.gdb; proposed\_excavation; 2017

Sampling Locations; Los Alamos National Laboratory, Waste and Environmental Services

Division; Locus EIM database pull

Pressure treated fences and posts; Los Alamos National Laboratory, ER-ES, As published, GIS projects folder; \\slip\gis\GIS\Projects\12-Projects\12-0086\gdb\gdb\_12-0086.gdb; fence 2017

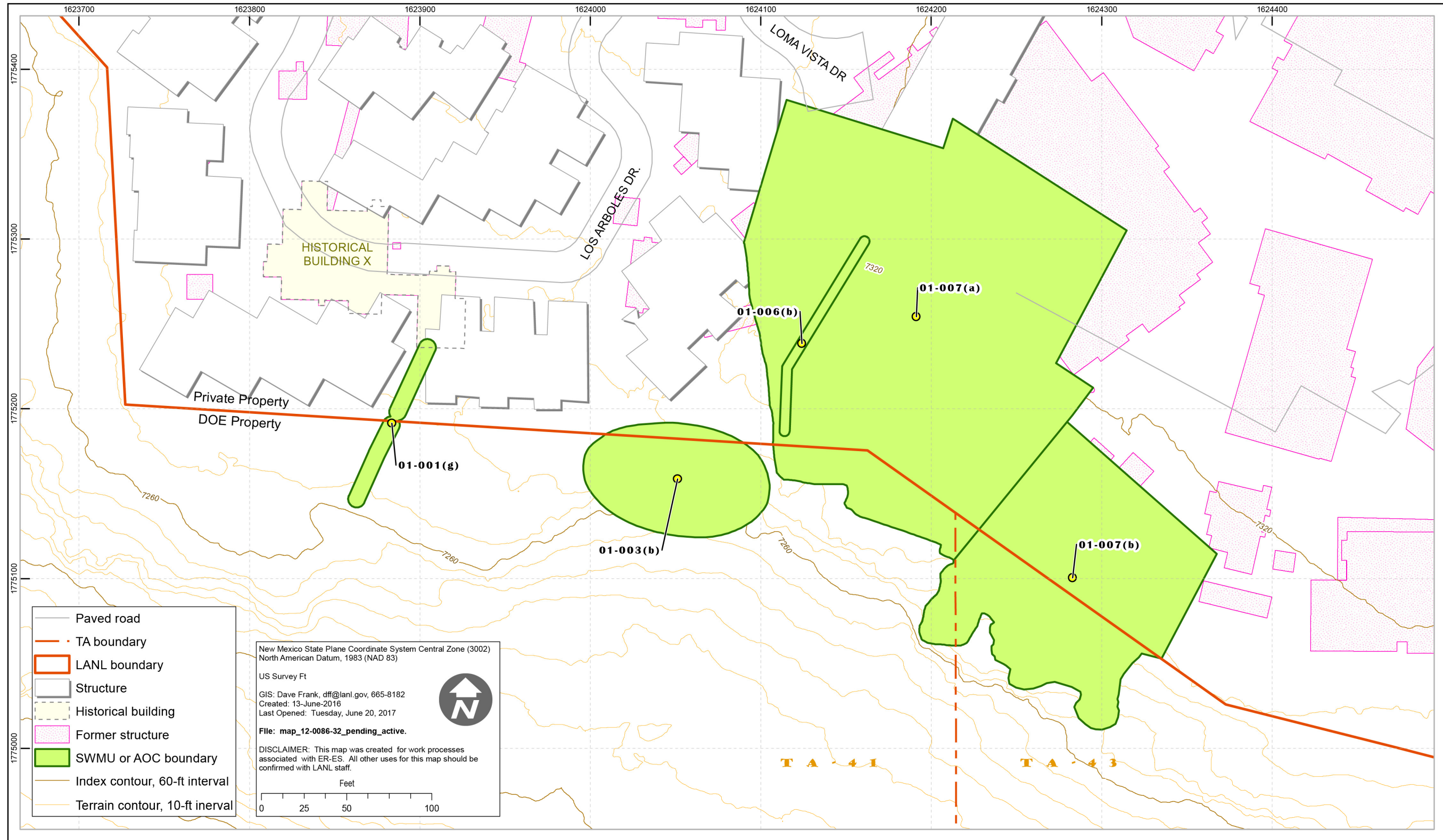


Figure 1.1-1 FY2016 fieldwork completed at townsite SWMUs 01-001(g), 01-006(b), 01-007(a), and 01-007(b) and AOC 01-003(b)

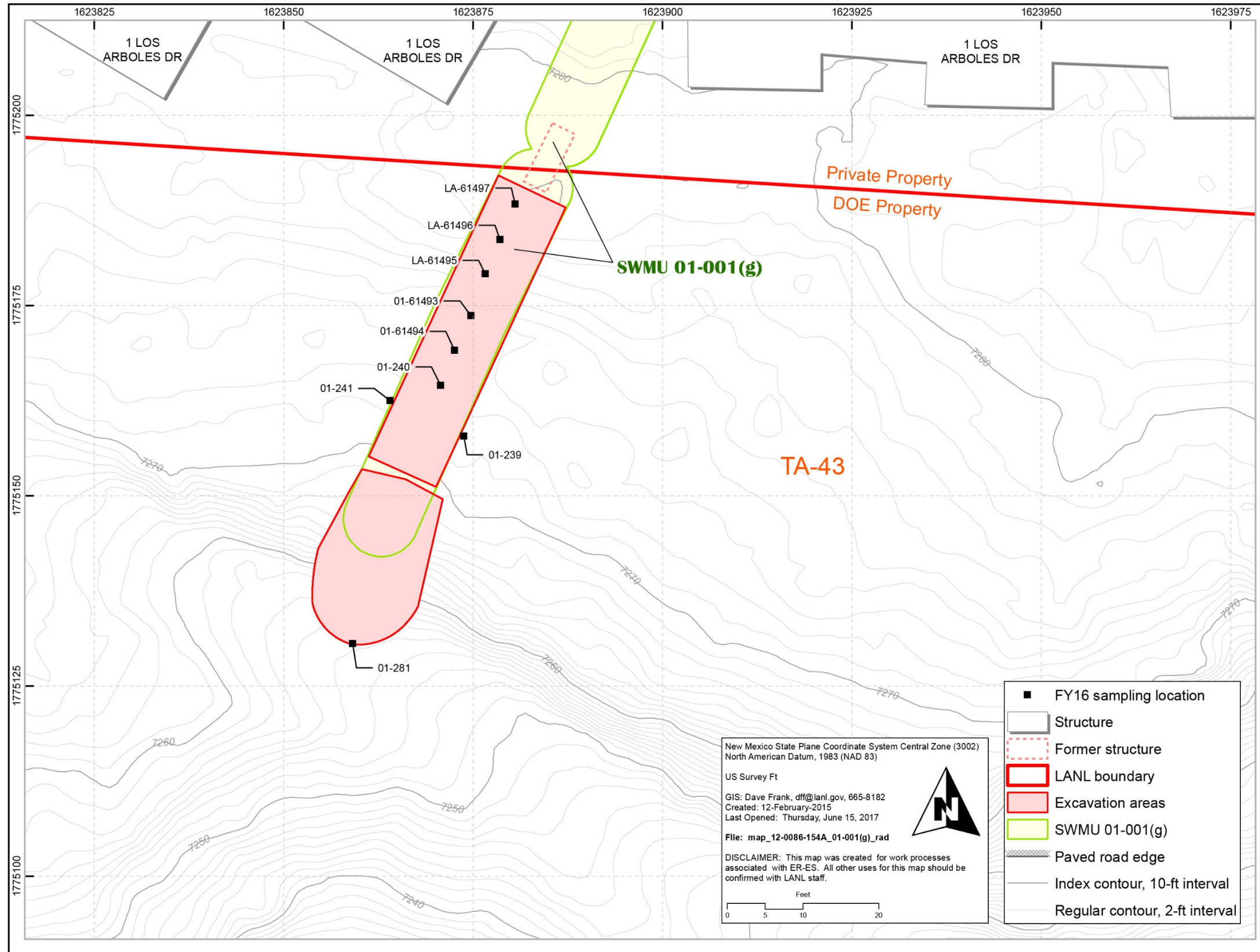


Figure 3.1-1 FY2016 fieldwork completed at SWMU 01-001(g)

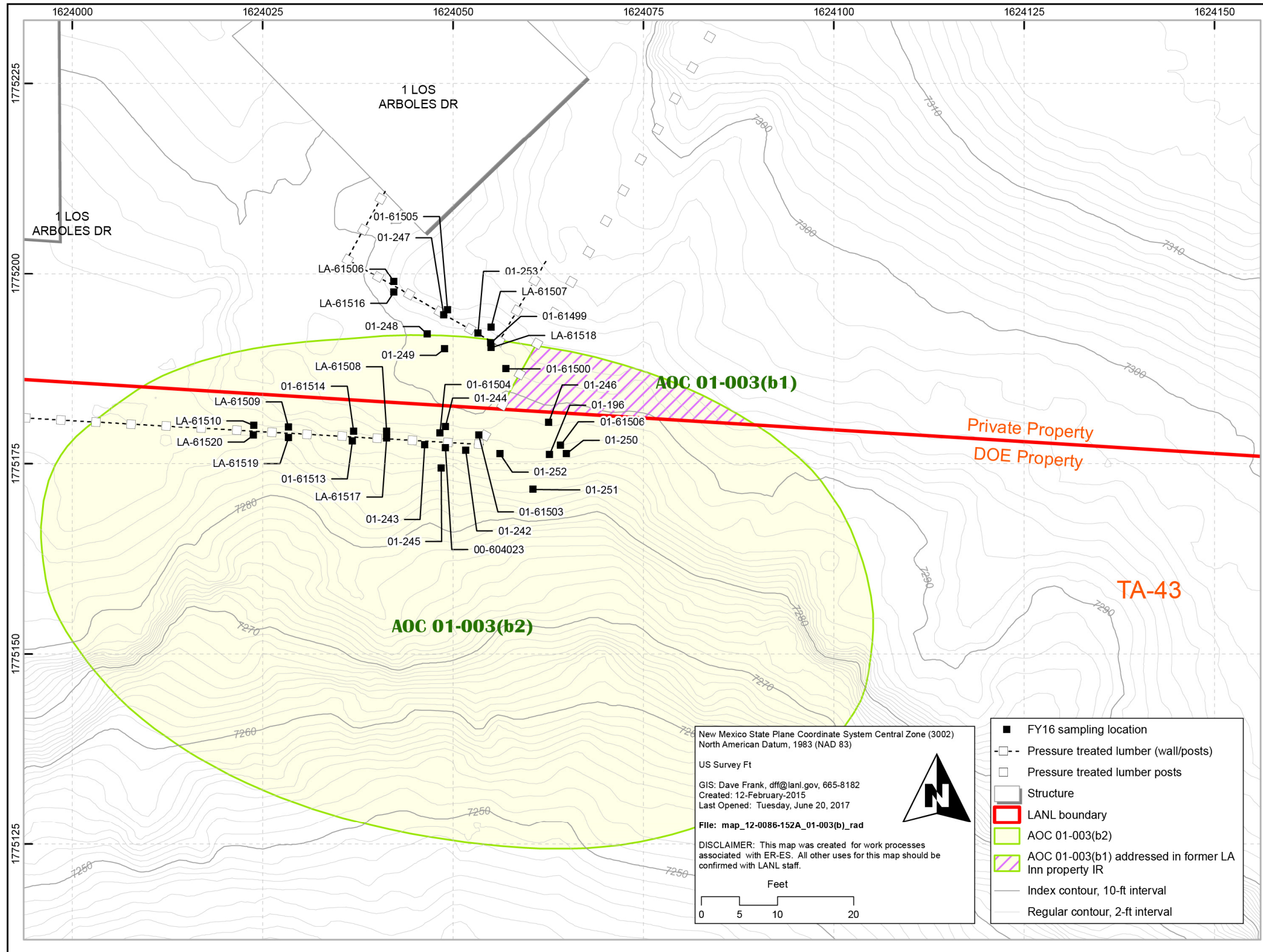


Figure 3.2-1 FY2016 fieldwork completed at AOC 01-003(b2)



## **Appendix A**

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*Site Photographs of Fiscal Year 2016 Fieldwork Completed  
at Solid Waste Management Unit 01-001(g) and  
Area of Concern 01-003(b2)*







**Photo A-1 Solid Waste Management Unit (SWMU) 01-001(g) site conditions (before soil excavation)**



Photo A-2 SWMU 01-001(g) soil excavation



**Photo A-3**      **Excavation of the “toe” or southern-most portion of the SWMU 01-001(g) outfall area**



**Photo A-4** Excavation activities within the cliff-top portion of SWMU 01-001(g) on U.S. Department of Energy property



**Photo A-5** Post-excavation site restoration within cliff-top area of SWMU 01-001(g)



**Photo A-6** Area of Concern (AOC) 01-003(b2) site conditions—sampling locations and retaining wall constructed with treated lumber



**Photo A-7** AOC 01-003(b2) paired sampling area (treated wood chips and soil/tuff)





## **Appendix B**

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*All Analyses Tables for SWMU 01-001(g) and AOC 01-003(b2)  
(on CD included with this document)*

