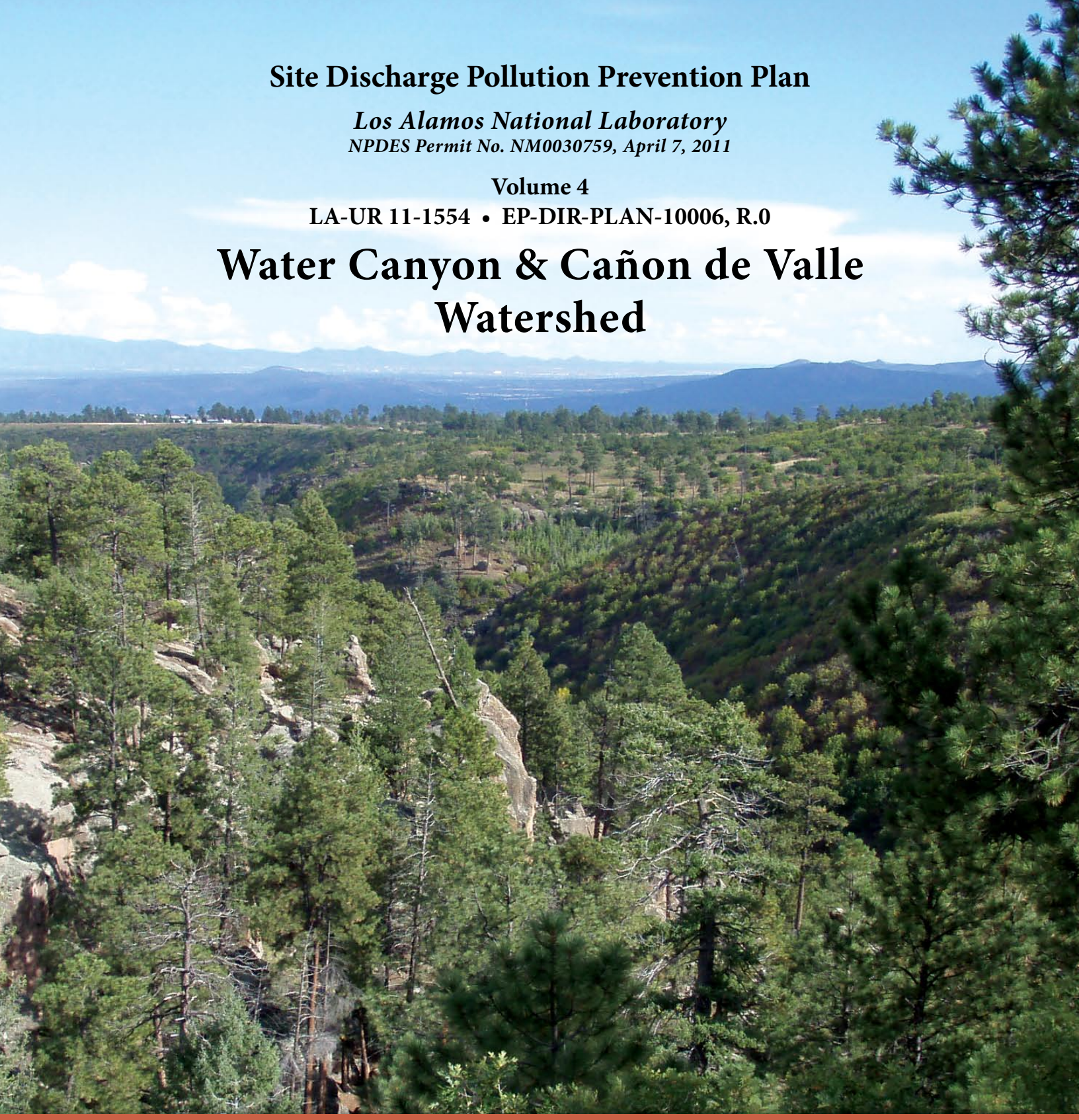
Site Discharge Pollution Prevention Plan

Los Alamos National Laboratory
NPDES Permit No. NM0030759, April 7, 2011

Volume 4
LA-UR 11-1554 • EP-DIR-PLAN-10006, R.0

Water Canyon & Cañon de Valle Watershed



Receiving Waters:
Cañon de Valle • Potrillo Canyon
Water Canyon • Fence Canyon

CONTENTS

SECTION 100 SITE DISCHARGE POLLUTION PREVENTION PLAN CERTIFICATION AND APPROVAL 7

SECTION 200 SITE DISCHARGE POLLUTION PREVENTION PLAN AMENDMENTS 8

SECTION 300 INTRODUCTION AND PROGRAM DESCRIPTION 8
300.1 Objectives
300.2 SDPPP Organization
300.3 Water/Cañon de Valle Watershed Overview
300.3.1 Receiving Waters and Wetlands in Water/Cañon de Valle Watershed
300.3.2 Vicinity Map
300.4 Precipitation Network and Monitoring
300.4.1 Regional Hydrologic Characteristics
300.4.2 Precipitation Measurement
300.4.3 Procedures

SECTION 400 SITE DISCHARGE POLLUTION PREVENTION TEAM 14
400.1 Roles and Responsibilities
400.2 Training

SECTION 500 POTENTIAL POLLUTANT SOURCES 16
500.1 Historical Industrial Activity Areas
500.2 Urban Influences
500.3 Public Influences

SECTION 600 BASELINE CONTROL MEASURES 17
600.1 Erosion and Sediment Controls
600.2 Management of Run-on and Run-off
600.3 Non-Storm Water Discharges
600.4 Other Control Measures
600.4.1 Litter and Debris
600.4.2 Dust Minimization
600.4.3 Waste Minimization
600.4.4 Flow Dissipation
600.5 Selection of Control Measures
600.6 Schedules for Baseline Control Measure Installation

SECTION 700 STORM WATER MONITORING OVERVIEW 20
700.1 Monitoring and Analysis Requirements
700.1.1 Initial Confirmation Sampling
700.1.2 Confirmation Results
700.1.2.1 Confirmation Results Below Target Action Levels
700.1.2.2 Confirmation Results Above Target Action Levels
700.2 Sampling Location Selection and Determining Substantially Identical Effluent
700.3 Procedures

SECTION 800 INSPECTION REQUIREMENTS OVERVIEW 22
800.1 Post-Storm Inspections
800.2 Monitoring Response Inspections
800.3 Annual Inspection and Erosion Re-evaluation
800.4 Construction Activity Associated with Site Remediation
800.5 Procedures

SECTION 900 CORRECTIVE ACTION AND OTHER CONDITIONS 23
900.1 Completion of Corrective Action
900.1.1 Alternative Compliance
900.2 Deadlines
900.2.1 High Priority Sites
900.2.2 Moderate Priority Sites

SECTION 1000 SITE MONITORING AREAS 27
1000.1 CDV-SMA-1.2 28
1000.2 CDV-SMA-1.3 36
1000.3 CDV-SMA-1.4 44
1000.4 CDV-SMA-1.45 54
1000.5 CDV-SMA-1.7 62
1000.6 CDV-SMA-2 70
1000.7 CDV-SMA-2.3 80
1000.8 CDV-SMA-2.41 90
1000.9 CDV-SMA-2.42 98
1000.10 CDV-SMA-2.5 108
1000.11 CDV-SMA-2.51 118
1000.12 CDV-SMA-3 128
1000.13 CDV-SMA-4 136
1000.14 CDV-SMA-6.01 144
1000.15 CDV-SMA-6.02 152
1000.16 CDV-SMA-7 160
1000.17 CDV-SMA-8 168
1000.18 CDV-SMA-8.5 176
1000.19 CDV-SMA-9.05 184
1000.20 F-SMA-2 192
1000.21 PT-SMA-0.5 200
1000.22 PT-SMA-1 208
1000.23 PT-SMA-1.7 216
1000.24 PT-SMA-2 224
1000.25 PT-SMA-2.01 232
1000.26 PT-SMA-3 240
1000.27 PT-SMA-4.2 248
1000.28 W-SMA-1 256
1000.29 W-SMA-1.5 266
1000.30 W-SMA-2.05 274
1000.31 W-SMA-3.5 282
1000.32 W-SMA-4.1 290
1000.33 W-SMA-5 298
1000.34 W-SMA-6 308
1000.35 W-SMA-7 316
1000.36 W-SMA-7.8 324

1000.37 W-SMA-7.9 332
1000.38 W-SMA-8 340
1000.39 W-SMA-8.7 348
1000.40 W-SMA-8.71 358
1000.41 W-SMA-9.05 366
1000.42 W-SMA-9.5 374
1000.43 W-SMA-9.7 382
1000.44 W-SMA-9.8 390
1000.45 W-SMA-9.9 398
1000.46 W-SMA-10 406
1000.47 W-SMA-11.7 416
1000.48 W-SMA-12.05 426
1000.49 W-SMA-14.1 434
1000.50 W-SMA-15.1 444

ATTACHMENTS

Attachment A Amendments 451
Attachment B Vicinity Map 452
Attachment C Precipitation Network 454
Attachment D Physical Characteristics 458
Attachment E Procedural Documents 461
Attachment F Training Log 464
Attachment G Acronyms and References 465



SECTION 100 SDPPP

CERTIFICATIONS AND APPROVAL

Certification Statement Of Authorization

'I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.'

Apr. 19, 2011

David McInroy, Program Director
Corrective Actions Program
Environmental Programs
Los Alamos National Security, LLC

Date

Gene Turner

4/25/11

Gene Turner, Permitting Manager
Environmental Project Office
National Nuclear Security Administration

Date

SECTION 200
SDPPP AMENDMENTS

This Site Discharge Pollution Prevention Plan (SDPPP) is a dynamic document that requires continuous updating as elements of the Individual Permit (IP) storm water program are implemented, completed, or changed. This SDPPP will be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year. Amendments to this SDPPP are consolidated in Attachment A.

In support of the annual update, work conducted following the publication of this document will be documented in supporting records kept alongside the SDPPP to demonstrate compliance with the requirements of the IP. As required in Part I.F.4 of the IP, the SDPPP will be updated annually to fully capture this interim work and to reflect programmatic and regulatory changes that have occurred over the course of the year. Annual updates to this document will contain at a minimum the following information:

- Construction or a change in design, operation, or maintenance at the facility having a significant impact on the discharge, or potential for discharge, of pollutants from the facility;
- Findings of deficiencies in control measures during inspection or based on analytical monitoring results;
- Any change of monitoring requirement or compliance status;
- Any change of Site Monitoring Area (SMA) location; and
- Summary of changes from the last year's SDPPP

SECTION 300
INTRODUCTION AND PROJECT DESCRIPTION

Los Alamos National Security, LLC (LANS) under the direction of the National Nuclear Security Administration (NNSA) have prepared this SDPPP pursuant to the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit No. NM0030759 (Permit or IP) issued by the U.S. Environmental Protection Agency (EPA) Region 6 office, effective November 1, 2010. The IP authorizes and regulates storm water discharges from historical industrial activity areas associated with specified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), collectively called Sites. These Sites may have the potential to discharge storm water into seven major watersheds on the Pajarito Plateau, which are tributaries to the Rio Grande.

300.1 Objectives

The SDPPP has three primary objectives:

- Identify and summarize potential pollutant sources, including potential sediment-borne pollutants, that may affect the quality of storm water discharges associated with Sites listed in Appendix A of the IP;
- Identify and describe the control measures intended to reduce or eliminate pollutants in storm water discharges;
- Monitor the effectiveness of control measures implemented at the SMAs in accordance with the requirements and schedules provided in the IP.

This SDPPP conforms to the required elements of the IP including those stipulated in Part I, Section F. A paper copy of the SDPPP is readily available onsite for the duration of the IP. A copy of the SDPPP is also available on a public website at *http://www.lanl.gov/environment/h2o/sdppp.shtml*

300.2 SDPPP Organization

The SDPPP is comprised of five volumes, each comprising one or more of seven major Pajarito Plateau watersheds. The SDPPP volumes are organized geographically from north to south, as shown in Table 300-1. A general vicinity map of the specific watersheds is provided in Attachment B of these volumes.

Table 300-1 SDPPP Organization

SDPPP Volume	Primary Watershed	Receiving Water(s)	Number of SMAs (Percentage)
Volume 1	Los Alamos / Pueblo	• Rendija Canyon • Bayo Canyon • Pueblo Canyon • DP Canyon • Los Alamos Canyon	64 (25.6%)
Volume 2	Sandia / Mortandad	• Mortandad Canyon • Ten Site Canyon • Cañada del Buey • Sandia Canyon	64 (25.6%)
Volume 3	Pajarito	• Pajarito Canyon • Starmers Gulch • Twomile Canyon • Threemile Canyon	51 (20.4%)
Volume 4	Water/ Cañon de Valle	• Cañon de Valle • Potrillo Canyon • Water Canyon • Fence Canyon	50 (20%)
Volume 5	Ancho / Chaquehui	• Ancho Canyon • Chaquehui Canyon	21 (8.4%)

Each volume of the SDPPP contains the following information:

- **Section 300** presents watershed-specific information and an overview of precipitation characteristics and monitoring.
- **Section 400** provides a description of the pollution prevention team, the functional roles and responsibilities, and describes the associated training programs at LANL.
- **Section 500** describes the potential storm water pollutant sources at the permitted Sites.
- **Section 600** describes the various baseline control measures implemented at the permitted Sites.
- **Section 700** provides an overview of storm water monitoring for the permitted Sites, including sampling procedures and applicable Target Action Levels (TALs).
- **Section 800** discusses inspection requirements required under the IP.
- **Section 900** discusses corrective action and other permit conditions as provided in the IP.
- **Section 1000** provides SMA-specific details for each of the monitored areas within the watershed.
- **Attachment A** Amendments
- **Attachment B** Vicinity Map
- **Attachment C** Precipitation Network
- **Attachment D** Physical Characteristics
- **Attachment E** Procedural Documents
- **Attachment F** Training Log
- **Attachment G** Acronyms and References

300.3 Water/Cañon de Valle Watershed Overview

The Water/Cañon de Valle watershed, shown on the vicinity map in Attachment B, is an east-to-southeast trending drainage that originates on the eastern slopes of the Sierra de los Valles in the Valles Caldera National Preserve at an elevation of 10,380 ft. The watershed remains on the Valles Caldera National Preserve for 0.4 mi, then passes through 2.8 mi of the Santa Fe National Forest before it crosses into the Laboratory at the western boundary of TA-16. The drainage extends east/southeast 9.7 mi across the entire Laboratory before it crosses into the community of White Rock. The drainage passes through White Rock for 0.5 mi before joining the Rio Grande at an elevation of 5427 ft. The drainage extends 13.8 mi from its headwaters to its confluence with the Rio Grande, draining an area of 19 square miles. Primary canyons within this watershed are Cañon de Valle, the primary tributary to Water Canyon, Portrillo and Fence Canyons.

The Water Canyon/Cañon de Valle Watershed consists mainly of occasional perennial reaches arising from springs that occur in the upper reaches of the watershed; however, Potrillo and Fence Canyons are entirely ephemeral in character. Springs on the flanks of the Jemez Mountain, west of the Laboratory's western boundary, supply flow to the upper reaches of Water/Cañon de Valle watershed. Perennial water exists from State Highway 501 to the eastern edge of TA-28 in Upper Water and from Peter Seep in Cañon De Valle Canyon. Two NPDES outfalls discharge into drainage ditches that flow into upper Water Canyon but do not reach Water Canyon because of low discharge volume. Middle and Lower Water Canyon is ephemeral except for a perennial reach in the lower Canyon supported by Spring 5AA. Flow in Water Canyon from the southwest LANL boundary to the confluence with Cañon de Valle Canyon sometimes results from surface water flow from Water Canyon, which is located in Water Canyon west of LANL. Portions of the upper portion of the Water/Cañon de Valle watershed were burned during the Cerro Grande fire of May 2000.

Water Canyon originates west of the Laboratory on the eastern slopes of the Sierra de Los Valles in the Santa Fe National Forest at an elevation of 9943 ft. The canyon extends east-southeast 2.6 mi across the Santa Fe National Forest before crossing into the Laboratory at the western boundary of TA-16. The canyon extends east-southeast across the entire Laboratory and is joined by Cañon de Valle and Potrillo Canyon just before it crosses into the community of White Rock. The canyon extends through White Rock for 0.5 mi before reaching the Rio Grande at an elevation of 5427 ft. Water Canyon has a channel length of 13.8 mi and a drainage area of 8.8 square miles. The canyon passes through Laboratory TA-15, -16, -36, -37, -68, and -71. In addition, some TA-11 and -49 Sites are associated with the canyon. The canyon includes a small tributary, S-Site Canyon, which originates in TA-16 and joins Water Canyon just above its confluence with Cañon de Valle. On a regional scale, Water Canyon is an interrupted stream. Several perennial springs are located in the upper reaches of Water Canyon and Cañon de Valle (the major subdrainage to Water Canyon). Streamflow is ephemeral over most of the canyon passing through Laboratory property. Several perennial springs are located in upper Water Canyon in the Santa Fe National Forest, including Armistead Spring and American Spring. These springs result in perennial reaches. A small perennial spring in lower Water Canyon, below the confluence with Potrillo Canyon, supports a very short perennial reach. Snowmelt seldom extends downstream as far as the Laboratory boundary. Some anthropogenic flow occurs in Water Canyon from near the southwest

boundary of the Laboratory to the confluence with Cañon de Valle. Two active NPDES-permitted outfalls drain into the lower reaches of Water Canyon. NPDES-permitted outfall 03A028 is associated with a power-control building and cooling tower at TA-15. NPDES-permitted outfall 03A185 is associated with the Dual-axis Radiographic/Radiography Hydrotest (DARHT) facility, also located at TA-15.

Cañon de Valle originates west of the Laboratory, on the eastern slopes of the Sierra de Los Valles in the Valles Caldera National Preserve at an elevation of 10,389 ft. The canyon extends east-southeast for 0.4 mi, crosses into the Santa Fe National Forest and continues east-southeast for 2.8 mi before entering the Laboratory at the western boundary of TA-16. The canyon extends east-southeast across the entire length of TA-16 to its eastern boundary, where it turns south, straddling the boundary between TA-15 and -37 for 0.8 mi before eventually joining Water Canyon at the juncture of TA-15, -37, and -49 at an elevation of 6812 ft. Cañon de Valle has a channel length of 7.5 mi and a drainage area of 4.2 square miles. Flow in Cañon de Valle is interrupted upstream of the Laboratory's western boundary and is largely ephemeral on Laboratory property with short perennial reaches in the upper portion of the canyon. Several perennial springs located in the Santa Fe National Forest in upper Cañon de Valle result in perennial reaches. Cañon de Valle contains one active NPDES-permitted outfall (05A055), which is associated with the TA-16 high-explosives wastewater-treatment facility (Building 16-1507). In addition, one active (03A130) and one inactive (05A097) NPDES-permitted outfall drains/formerly drained into S-Site Canyon, a tributary of Cañon de Valle. The inactive outfall has been requested for deletion from the Laboratory's NPDES permit. The active outfall is associated with the TA-11 vibration test building (Building 11-30).

Potrillo Canyon originates on Laboratory property in the central portion of TA-15 at an elevation of 7280 ft. The canyon extends southeast across the Laboratory for 6.5 mi through TA-15, -36, and -71 before joining Water Canyon at an elevation of 5810 ft in the southeastern portion of TA-71 (near the northern boundary of TA-71). Potrillo Canyon has a channel length of 6.5 mi and a drainage area of 3.4 square miles. Streamflow in Potrillo Canyon is entirely ephemeral, occurring only during rainfall runoff. Potrillo Canyon has no perennial springs and no perennial reaches. No Laboratory NPDES-permitted outfalls drain into Potrillo Canyon.

Fence Canyon originates on Laboratory property near the western boundary of TA-36 at an elevation of 7094 ft. The canyon extends southeast and runs near the northern boundaries of TA -68 and -71 before joining Potrillo Canyon in the northeastern corner of TA-71 at an elevation of 6426 ft. Fence Canyon has a channel length of 3.1 mi and a drainage area of 1.1 square miles. Stream flow in Fence Canyon is ephemeral and results primarily from rainfall runoff. The canyon contains no perennial springs or perennial reaches. No Laboratory NPDES-permitted outfalls drain into Fence Canyon.

300.3.1 Receiving Waters and Wetlands in Water/Cañon de Valle Watershed

Thirty wetlands occupying portions of fourteen different technical areas throughout the Laboratory have been identified and delineated by the US Army Corp of Engineers (COE 2005). The Water/Cañon de Valle watershed contains, or may influence, three wetland areas totaling approximately 0.23 acres. The approximate dimensions and areas of wetlands in proximity to the Water/Cañon de Valle watershed are shown in Table 300-2.

Table 300-2 Wetlands in Proximity to the Water/Cañon de Valle Watershed

Wetland Identification	Approximate Area (acres)	Approximate Length	Approximate Width
11-1	0.19	305	27
16-1	0.03	70	20
16-2	0.01	30	25

Wetland 11-1 is located on the floor of S-Site Canyon on the north border of TA-11. It is bounded on the north by the south facing slope of the canyon and undeveloped land on the mesa top. On the south it is bounded by the north-facing slope and developed area of TA-11 on the mesa top. The wetland is approximately 0.19 acres, with dimensions of 305 feet in length by an average width of 27 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), and sedge grasses (*Carex sp.*).

Wetland 16-1 is located on the floor of Cañon de Valle, approximately 160 feet upstream (west) of wetland 16-2. It is bounded on the north by the south-facing slope of the canyon and TA-16 burning grounds on the mesa top. On the south the area is bounded by the north-facing slope of the canyon and undeveloped land in TA-16. The wetland is approximately 0.03 acres, with dimensions of 70 feet in length by an average width of 20 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), and undetermined grasses.

Wetland 16-2 is located on the floor of Cañon de Valle approximately 160 feet downstream (east) of wetland 16-1. It is bounded on the north by the south-facing slope of the canyon and TA-16 burning grounds on the mesa top. On the south the area is bounded by the north-facing slope of the canyon and undeveloped land in TA-16. The wetland is approximately 0.01 acres, with dimensions of 30 feet by 25 feet in width. Vegetation in this area includes baltic rush (*Juncus balticus*), and undetermined grasses.

300.3.2 Vicinity Map

A vicinity map for the Water/Cañon de Valle watershed is provided in Attachment B. The map shows locations of SMAs and the wetlands in proximity to the watershed.

300.4 Precipitation Network and Monitoring

LANS maintains a network of meteorological towers that have provided local-area and national reporting of climate data since World War II. This network of towers has been augmented by a finer set of rain gages specifically used by the storm water program at LANL. The network rain gages provide additional data for SMAs located at lower elevation or in areas remote from the traditional towers. In most watersheds, a combination of traditional meteorological towers and network gages, are used to measure, track, and report precipitation related to SMAs.

300.4.1 Regional Hydrologic Characteristics

Los Alamos, NM has a semiarid climate with an average rainfall of about 19 inches per year. Over 30% of the area is dominated by ponderosa pine-stands at higher elevations that transition to Piñion-Juniper woodlands as elevation decreases. The Pajarito plateau is separated into finger mesas by west to east oriented canyons. The canyon bottoms contain riparian vegetation and stream flows are typically ephemeral and fed

by snowmelt and/or rainfall. Perennial springs are present on the flanks of the Jemez Mountains and supply base flow to the upper reaches of some canyons, but the volume of flow is insufficient to maintain surface flows across the facility mostly due to channel transmission losses.

Canyons located within the LANL boundary are tributaries to the Rio Grande and some canyons will deliver surface flow, from heavy rains or sustained snowmelt. Run-off leaving the Laboratory's eastern boundary and adjacent canyons is measured by gage stations located on each major canyon. Downstream of LANL, the Rio Grande flows southward to Cochiti Reservoir.

300.4.2 Precipitation Measurement

Precipitation monitoring for the IP is conducted to identify a "storm rain event" that could affect control measures and storm water management devices employed at SWMUs or AOCs. A "storm rain event" is defined by the IP as a 0.25-inch or more intensive rain event occurring within 30 minutes. Precipitation monitoring identifies "storm rain events", the date and time of the event, and also assists with the identification of adverse weather events. Adverse weather conditions include dangerous weather-related events (e.g., flooding, wildfires, or hail) that make inspection dangerous for worker safety.

Within the Water/Cañon de Valle watershed, four extended network gages are used to measure and report precipitation. These precipitation gages are shown in Table 300-3. Attachment C illustrates the entire precipitation network currently employed at LANL.

Table 300-3 Rain Gages for the Water/Cañon de Valle Watershed

Meteorological Tower or Rain Gage	Primary Tower or Network Gage	Year Placed in Service	Location	Associated SMAs
RG253	Network	2009	The rain gage is located in Cañon de Valle above SR501.	8
RG257	Network	2008	The rain gage is located in the Burn Grounds Tributary of Cañon de Valle near Fish Ladder Springs.	27
RG262.4	Network	2009	The rain gage is located on the eastern side of the confluence of Cañon de Valle and Upper Water Canyon.	12
RG267.4	Network	2008	The rain gage is located in Fence Canyon.	3

300.4.3 Procedures

Standardized precipitation data management is used at LANL in order to efficiently manage field activities and ensure accurate reporting capabilities. Standard Operating Procedure (SOP), EP-DIV-SOP-10004, "Managing Electronic Precipitation Data for Storm Water Projects" describes the processes defining this work. Electronic precipitation data are stored in the Storm Water Tracking System (SWTS) module on the LANL Water Quality Database (WQDB).

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 400 SITE DISCHARGE POLLUTION PREVENTION TEAM

To facilitate the implementation, maintenance, and revision of the SDPPP, a Site Discharge Pollution Prevention Team (PPT) has been established. The PPT is responsible for assisting in developing and revising the SDPPP as well as maintaining control measures and taking corrective actions for deficiencies.

400.1 Roles and Responsibilities

The PPT consists of personnel from the LANL Corrective Actions Program, ENV-RCRA, and subcontract staff whose selection is based on their familiarity with the Site location and surrounding operations. The specific responsibilities of the PPT are provided in Table 400-1. Each member of the PPT has access to either an electronic or paper copy of applicable portions of this permit and this SDPPP.

Table 400-1 PPT Roles and Responsibilities

PPT Title	Functional Responsibility
Surface Water and Canyons Investigation Project Manager	Responsible for managing implementation of Individual Permit requirements.
Storm Water Permitting/ Compliance Team Leader and Delegees	Responsible for ensuring compliance is met for the Individual Permit Storm Water Program, communicating with the Surface Water and Canyons Investigation Project Manager on compliance issues, providing training and developing qualifications for personnel as specified in Section 400.2 of the SDPPP.
Corrective Actions Project Field Lead	Responsible for implementation of Individual Permit field requirements (Sections 600 and 900) by installing, inspecting and maintaining baseline control measures, and implementation of corrective actions when TALs are exceeded.
Corrective Actions Project Monitoring Field Lead	Responsible for implementation of storm water monitoring as required in Section 700 of the SDPPP.
Corrective Actions Project Characterization and Remediation Project Managers	Responsible for helping in the implementation of remediation and characterization activities at LANL for their specific locations on LANL property as they pertain to the Individual Permit.
Inspector	Responsible for conducting Site inspections as required by the IP. Coordinates with the Lead Inspector, to resolve issues related to successful conduct of operations.
Pollution Prevention Team Members	Responsible for implementing and updating the SDPPP, assisting in maintaining control measures and implementing corrective actions for deficiencies, and completing training as specified in section 400.2 of the SDPPP.

400.2 Training

Project personnel receive both formal and informal training in the execution of storm water management at SMAs. Formal training, which covers all aspects of the developed SDPPP, is conducted each spring prior to the field season and documented in the SDPPP. During the field season, daily tailgate meetings are conducted to inform personnel of work assignments, impending changes, and issues related to work.

Each PPT member receives SDPPP training and has ready access to the IP and SDPPP documentation. The list of PPT members is revised when there are changes in PPT members

or their duties. The most current list is kept with the master copy of the SDPPP. Training for the PPT is conducted at least annually as specified in Part I, Section A.3. Summaries of these trainings will be documented in Attachment F, Training Log. Employee training is essential for effective implementation of the SDPPP and success of the storm water program. The objective of the training program is to:

- instill in employees and managers an understanding of the purpose of the SDPPP Plan, Volume 1 through 5,
- give the PPT the tools and training they need to inspect, maintain, and modify control measures used at our Sites,
- satisfy reporting and documentation requirements.

SECTION 500 POTENTIAL POLLUTANT SOURCES

A baseline review has been completed for each permitted area as part of the planning process. The review evaluated the characteristics of the suspected release(s) from SWMUs and AOCs within the context of the monitored area, the placement of the sampler within the area, and recommended Site-specific controls specific for each area. This review also included an evaluation of any additional potential pollutant sources that might be present. This assessment work allows the PPT to better address the non-numeric technology-based effluent requirements specified in the IP.

The following sections discuss each of the primary categories of pollutant sources within the Water/Cañon de Valle watershed. The primary categories of pollutant sources discussed within the context of each SMA are historical industrial activities, urban influences, and public influences. This discussion is further detailed at the SMA-level in Section 1000.

500.1 Historical Industrial Activity

Within the Water/Cañon de Valle watershed, there are 50 Permitted Features comprised of 89 Sites associated with 50 SMAs. Sites associated with this watershed are primarily associated with historical Laboratory operations dating back to the establishment of the Laboratory in the 1940s. Potential pollutants of concern at related SMAs in the Water/Cañon de Valle watershed are generally classified as metals, organics, and radioactivity present in surface soils.

Laboratory activities in proximity to the Water Canyon/Cañon de Valle watershed have been varied and include high explosives fabrication facilities and test-device assembly buildings and supporting administrative, technical, and physical-support buildings and structures. These operations have been conducted in and have possibly discharged to the watershed and its tributaries since the Laboratory began operation in 1943. These early discharges were associated with outfalls, surface run-off, and dispersion from high explosives fabrication and related supporting structures.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Water Canyon include TA-11, -15, -16, and -49. Releases from Sites include releases from outfalls, septic systems, spills, open detonations from firing sites, a drop tower, and MDAs.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Cañon de Valle include TA-13, -14, -15, and -16. Potential releases from Sites in proximity to this canyon are principally associated with fabrication and testing of high explosives. These activities and related ancillary areas such as disposal areas, sumps, and outfalls are currently under investigation in this canyon.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Portrillo Canyon include TA-15 and -36. Potential releases from Sites associated with open

detonation and testing of high explosives and supporting facilities such as outfalls from septic systems are areas currently under investigation in this canyon.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Fence Canyon include TA-36, an area previously associated with the open detonation of high explosives.

Details of Site-specific historical activities, potential pollutants of concern, and the controls used in storm water management at these Sites are provided in greater detail in Section 1000.

500.2 Urban Influences

Increased volumes of storm water, if not adequately controlled, can result in a subsequent increase in sediment migration and may contribute to erosion of the managed area. Run-off from paved areas and roadways may contain increased concentrations of metals, petroleum products, and related vehicular fluids. Both the County of Los Alamos and the State of New Mexico maintain primary roadways that are adjacent to many of the SMAs monitored within this watershed. Where a Site has an unmitigated urban influence, the urban area is included in the Site inspection if the conclusion is that the interface could influence sampling results.

Run-on from urbanized areas is typically prevented from coming into contact with Site(s) by diversion. Where diversion is not possible the run-on is managed by the Site controls as it co-mingles with the SMA storm water run-off. Selection of control measures to manage co-mingled storm water are made on a Site-specific basis. Specific storm water controls selected for the Sites with urban influences are described in detail in Section 1000 of this SDPPP.

None of the SMAs within this watershed are subject to influence from urban sources. The urban designation at a specific SMA indicates a potential influence from paved parking, roads, storage areas, or other activities in proximity to the SMA. Where designated as a potential pollutant source for a SMA, these urban influences are not directly a LANL-based activity. The principal concerns posed by urban influences are an increase in storm water volume across or near the SMA, or the introduction of contaminants into the storm water that are not related to the historical activities conducted at the Site(s).

500.3 Public Influences

Where Sites are readily accessible to the public, there is a higher potential for litter and floatable debris. There is also an increased potential for vandalism or tampering with monitoring equipment. Where a Site has an unmitigated public influence, that area is included in the Site inspection if the conclusion is that the interface could influence management or sampling at the Site. Where monitoring equipment is disturbed, the equipment will be enclosed in tamper-proof boxes. SMAs with a potential public influence have been identified in Section 1000 of this SDPPP.

Within the watershed, none of the SMAs have the potential for public influence.

SECTION 600
BASELINE CONTROL MEASURES

In the Water/Cañon de Valle watershed baseline control measures have been implemented at 50 SMAs. Of the 50 SMAs in this watershed, four had completed baseline control installations and implementation before the effective date of the Permit, November 1, 2010, as identified in Appendix E, Table E-1 of the IP.

As described in the previous section, each SMA has been evaluated for pollutant sources that may be present in addition to potential historical industrial activity associated with the Site(s). Control measures have been similarly selected and the installation is related to the specific concerns within the SMA.

This section describes the general types of storm water controls

implemented at SMAs in the Water/Cañon de Valle watershed. Specific control types are further described for each control class. Control measures referenced in this document follow the specifications provided in the Storm Water BMP Manual.

Changes to baseline control measures such as repair, modification, or replacement, will be documented in interim documentation. These changes will be kept alongside the SDPPP until they are reflected in annual updates.

600.1 Erosion and Sediment Controls

These types of controls minimize the potential for erosion occurring from precipitation-based storm water flows across an area and to retain transported sediment onsite.

Baseline control measures used for erosion control at LANL include the following major classes: established vegetation, seed and mulch, channel/swales, gabions, and caps.

- Types of established vegetation include forested needle cast, vegetation buffer strip, and grasses and shrubs.
- Types of seed and mulch include hydromulch and seed, erosion control blankets and seed, wood straw and seed, and gravel mulch.
- Types of channel/swales include earthen, concrete/asphalt, rock, culverts, water bars, vegetated swales, and rip rap.
- Caps can be composed of earth, rock, or asphalt.

Baseline control measures used for sediment control include the following major categories: established vegetation, berms, sediment traps and basins, gabions, and check dams.

- Types of berms include: earthen, base course, log, asphalt, Triangular Silt Dikes®, straw wattles, Terra Tubes®, retaining walls, curbing, and gravel bags.
- Check dams can be composed of: rock, log or juniper bales.

600.2 Management of Run-on and Run-off

The purpose of run-on/run-off control measures is to divert, infiltrate, reuse, contain or otherwise reduce storm water run-on/run-off. Baseline control measures used for managing run-on and run-off at LANL include the following control classes: established vegetation, channel/swales, gabions, sediment traps and basins, check dams, and berms.

600.3 Non-Storm Water Discharges

Visual surveys are conducted as part of the Permit-required Site inspections to identify the potential for non-storm water discharges at each SMA. There are no identified sources of unauthorized discharges at this time, including process wastewater, spills or leaks of toxic or hazardous materials, contaminated groundwater, or any contaminated non-storm water associated with the SMAs.

Non-storm water discharges include, but are not limited to, process wastewater, spills or leaks of toxic or hazardous materials, contaminated groundwater, etc. The Multi-Sector General Permit sets a precedent of allowable non-storm water discharges under NPDES storm water permits. The following non-storm water discharges are allowable to the extent that soils within the SMA drainage area are not disturbed:

- Discharges from fire fighting activities
- Fire hydrant flushing
- Potable water sources including waterline flushing
- Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;
- Irrigation drainage;
- Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with the approved labeling;
- Pavement wash waters where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);

- Routine external building washdown that does not use detergents;
- Uncontaminated ground water or spring water;
- Foundation or footing drains where flows are not contaminated with process materials; and
- Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g., 'piped' cooling tower blowdown or drains).

600.4 Other Control Measures

600.4.1 Litter and Debris

Control measures have been implemented to ensure that no waste, garbage, or floatable debris are discharged to receiving waters. SMAs adjacent to or within urban areas have the greatest potential for impacts due to off-site litter sources. Sites will be inspected for litter, and visible, potentially floatable debris as part of the Permit-required Site inspections. Any litter, and visible, floatable debris will be removed and managed in appropriate containers and in accordance with LANL waste management policies. SMAs exhibiting problems with litter or other floatable debris, as identified in Site inspections, will have signage or other structural controls installed to address these areas.

600.4.2 Dust Minimization

The potential for generating dust, along with off-site vehicle tracking of raw, final or waste materials, or sediments is primarily at SMAs subject to construction activity involving ongoing soil disturbance. As identified in the Permit, required Site inspections, dust generation and the tracking of materials shall be minimized with the application of water and/or an approved soil stabilizer. Water and soil stabilizer used to suppress dust generation will be applied at a rate to avoid discharge from the Site.

600.4.3 Waste Minimization

The introduction of raw, final, or waste materials to exposed areas will be minimized. Good housekeeping practices will be maintained and materials introduced or removed from the areas will be managed or disposed of properly at the end of each workday in accordance with LANL waste management policies.

600.4.4 Flow Dissipation

Flow velocity dissipation is addressed through the implementation of baseline control measures. Virtually all control measures deployed dissipate the velocity of flow across an area. Discharges from culverts and other conveyances have controls currently installed to dissipate the resultant flow velocity.

600.5 Selection of Control Measures

The baseline review of SMAs identified any additional potential pollutant sources that may be present, evaluated the physical characteristics of the SMA, and recommended control measures appropriate to the SMA for installation. Section 1000 presents information specific to each SMA, discusses the physical area influencing the SMA, and presents controls by pollutant source, as applicable. These controls have been selected to address the specific physical characteristics of the Sites and the drainage area. Controls provided for each SMA comprise the baseline selection of controls intended to control and stabilize the drainage areas associated with Sites as provided in Appendix E, Table E-1 of the Permit.

600.6 Schedules for Baseline Control Measure Installation

Within six months of the effective date of the IP (November 1, 2010), baseline control measures must be installed at each Site. The PPT will be responsible for ensuring control measure construction, implementation, and maintenance for each Site. Following the

installation of all baseline controls, the effectiveness of control measures will be determined by the monitoring results of storm water samples at the SMA. The PPT is responsible for implementing control measures beyond the baseline within the required time frame. Section 700 describes in further detail, the relationship between monitoring results and non-numeric, technology-based, effluent limitations.

SECTION 700 STORM WATER MONITORING OVERVIEW

The purpose of the storm water monitoring specified in the IP is to determine the effectiveness of the control measures implemented to meet the non-numeric technology-based effluent limitations. This determination is made in part, by the collection of storm water samples, following the initial installation of baseline control measures. Concentrations of specific pollutants in the collected sample are compared with specific Target Action Levels (TALs) listed in Section I.C of the IP.

700.1 Monitoring and Analysis Requirements

Monitoring requirements are specified by the IP and generally correspond to the pollutant concerns associated with a specific SMA. Concentrations of pollutants in excess of TALs are not necessarily violations of water quality standards. The TALs are used as a screening tool to indicate whether the baseline control measures implemented at Sites require additional corrective action as provided in Section I.E of the IP.

700.1.1 Initial Confirmation Sampling

The IP establishes an initial phase of confirmation sampling to follow the completion of the baseline control measures installation. Any sampling performed for purposes of confirmation monitoring at a particular SMA must be performed following a storm event that results in an actual discharge from the SMA in sufficient volume to perform the required analyses (referred to herein as a 'measurable storm event'). The interval between collected samples must be at least fifteen (15) days.

Within the Water/Cañon de Valle watershed, four SMAs had completed baseline control installations before the effective date of the Permit. Storm water monitoring at these four SMAs requires the collection of one storm water sample from two separate measurable storm events within one year after the effective date of the Permit. SMA-specific monitoring plan and requirements are presented in Section 1000.

SMAs with Baseline Control Measures Complete at the Effective Date of Permit in Water/Cañon de Valle Watershed

- PT-SMA-3
- PT-SMA-4.2
- W-SMA-1
- W-SMA-9.5

The remaining SMA planned baseline controls will similarly collect two storm water monitoring samples following the installation, from at least 2 separate measurable storm events occurring at least 15 days apart, within 18 months of the effective date of the IP.

For each sampling event, the date and duration (in hours) of the storm event(s) sampled, the rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff, and the duration between the storm event samples and the end of the previous measurable storm event will be recorded. Snow melt samples will not be used for purposes of confirmation monitoring.

700.1.2 Confirmation Results

Following the collection of confirmation samples, sampling results are compared against applicable TALs. Sampling results either confirm the effectiveness of the installed baseline control measures

or the results dictate further actions as described in the following sections.

700.1.2.1 Confirmation Results Below Target Action Levels

If all analytical results for a particular pollutant of concern at a particular SMA are at or below the maximum target action level (MTAL) and the average of all applicable sampling results is at or below the average target action level (ATAL), or the applicable minimum quantification level (MQL), whichever is greater, analytical monitoring of that pollutant at the same SMA is no longer required for the remaining period of the permit. The Site(s) are certified to have completed corrective action as specified in Part I.E.2 of the IP and as discussed further in Section 900, Corrective Action.

An exception is made for instances where future installation of control measures at the Site(s) being monitored involves soil disturbance. If soil disturbance is involved, the initial confirmation monitoring phase is repeated and samples are collected again for all listed pollutants of concern at that SMA.

If analytical results for all pollutants of concern at a particular SMA are at or below the MTALs and the average of all applicable sampling results is at or below the ATALs, or the applicable MQLs, whichever is greater, no further sampling is required for the Site or group of Sites within the associated SMA for the remaining period of the permit (except as provided in Section E.5. of the IP). Inspections at all Sites in accordance with Section G. of the Permit will continue and control measures will be maintained in effective operating condition as required by Section B.2 of the IP. A minimum of two confirmation samples must be collected and analyzed before removing a Site or group of Sites from monitoring requirements, except as provided in Sections E.5.(d) and (e) of the IP.

700.1.2.2 Confirmation Results Above Target Action Levels

If, following installation of baseline control measures, any validated sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), a visual inspection of all Sites within the SMA drainage area, a re-evaluation of the existing control measures, and an initiation of corrective action will be conducted as soon as practicable.

Such corrective action may entail the design and installation of enhanced (additional, expanded or better tailored) control measures reasonably expected to achieve compliance with target action levels indentified in the Permit for all Sites within the SMA drainage area. If this type of corrective action is selected, at least two confirmation samples shall be collected (one confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart) following installation of any enhanced control. If either validated confirmation sample result for any specific pollutant of concern exceeds applicable target action levels, a visual inspection for all Sites within the SMA drainage area will be conducted, including a re-evaluation of the existing control measures, and an initiation of further measures to achieve completion of corrective action as soon as practicable.

700.2 Sampling Location Selection and Determining Substantially Identical Effluent

Sampling locations have been selected to provide a representative storm water sample of discharges from areas that are potentially impacted by Sites regulated under LANL's RCRA Permit. Coordinates of samplers used to conduct storm water monitoring required under this Permit, estimates of the size of the SMA drainage area, and estimates of the Site(s) drainage area

are provided in Attachment D, Physical Characteristics.

In some cases, due to the physical characteristics of the potentially impacted drainage area or the nature of the suspected release, it is not possible to monitor or manage Sites independently of one another. In many cases, NPDES permitted Sites ceased operation several decades ago. During their operational history, surrounding units were also operational. Resultant surface concerns may be co-mingled by natural sediment migration or by remedial actions at the unit or in proximity to the unit.

Where more than one Site exists within an SMA, a discussion of substantially identical effluent is provided following the descriptions of the Sites in Section 1000. Sites can be said to have substantially identical effluents if they share one or more of the following characteristics:

- Shared Drainage – The Sites have the same drainage and are discharged to the same receiving water.
- Contaminant Similarities – The Sites have similar potential pollutants due to historic activities at the Sites.
- Extensive Disturbance – The Sites have been subject to extensive disturbance of surface soils to the extent that they can no longer be distinguished from one another.

700.3 Procedures

Procedures governing the collection and processing of storm water samples are detailed in the following documents:

- EP-SOP 5213, Inspecting Storm Water Run-off Samplers and Retrieving Samples
- EP-SOP 5215, Processing Storm Water Samples
- EP-DIV-SOP-10008, Installing, Setting Up, and Operating ISCO samplers
- EP-DIV-SOP-10005, Operation and Maintenance of GAGE Stations for Storm Water Projects

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 800 INSPECTION REQUIREMENTS OVERVIEW

Inspection of a Site, an SMA, or control measure is done when the following circumstances exist:

- A rain event at or near the Site registers 0.25 inch or more of rain within 30 minutes.
- Water sample confirmation results above TALs.
- At least annually for changes of conditions affecting erosion.
- After a significant event, such as fire, which could significantly impact the control measures and environmental conditions in the affected area(s).

If an inspection identifies erosion or a deficient control, the control will be repaired or new control measures may be recommended to reduce erosion potential. Inspection results, maintenance performed on existing control measures, and installation of new control measures will be documented in this SDPPP.

800.1 Post-Storm Inspections

If adverse weather prevents a post-storm Site inspection within the allotted 15 calendar days, then LANS will inspect the Site as soon as practicable following the adverse weather. All adverse weather events that impact the inspection of control measures are documented in this SDPPP. Adverse weather conditions may include dangerous weather-related events such as flooding, wildfires, or hail that make inspection dangerous for the worker. Interruptions in inspections due

to adverse weather will be documented with information similar to post-storm inspections. These records will be maintained alongside the SDPPP until the annual update occurs. Where several storm events exceeding 0.25 inch per 30 minutes occur over a period not to exceed 15 days from the first event, then LANL may conduct a single inspection within 15 days of the first event.

800.2 Monitoring Response Inspections

If, following installation of baseline control measures, any sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), a visual inspection for all Sites within the SMA drainage area will be conducted. Existing control measures will be re-evaluated and initiation of corrective action will be conducted as soon as practicable.

800.3 Annual Inspection and Erosion Re-evaluation

The PPT evaluates each Site annually for changes of conditions affecting erosion. Additionally, the PPT reevaluates the Site after notice of a significant event that could impact the control measures and environmental conditions of the Site. These types of inspections are done as soon as practicable. Following the erosion evaluations, the PPT documents the inspection in an inspection report.

800.4 Construction Activity Associated with Site Remediation

Where soil disturbance associated with the installation of control measures exceed one acre, these activities will be addressed under the requirements of the Construction General Permit (CGP) program or through a separate individual NPDES Permit. Where Sites in Appendix A of the IP are undergoing remediation, weekly inspections will be conducted to ensure sediments and control measures are maintained in working order. Corrective actions shall be taken immediately if deficiencies are noted in these inspections. The SDPPP will be updated annually to reflect steps taken to minimize discharges from Sites subject to remediation activity at the Laboratory. The table provided in Attachment A will be used to document each amendment. All Amendments to the SDPPP and a summary of remediation activities will be reported in the Annual Report as specified in Part I.H of the IP. Completed remediation amendments will be retained alongside the SDPPP until the annual update occurs.

800.5 Procedures

Procedural documents are developed to methodically describe the conduct of operations for the IP program. The following procedures provide detail for activities described in this Section:

- EP-SOP-5211, Surface Water Site Assessments, describes the process of the annual Site re-evaluation.
- EP-SOP-5217, Installing, Inspecting, and Maintaining Storm Water Control Measures, describes this process and presents examples of resultant documentation.
- SOP 5219, Photograph Management
- EP-SOP- 5220, EX-ID/PR-ID Project Reviews for the FFCA Project and Individual Permit, describes the process for proactively identifying and managing proposed construction projects that may influence SMAs.

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 900 CORRECTIVE ACTION AND OTHER CONDITIONS

Corrective action must be completed for all Sites permitted under the IP. Deadlines for completion of this requirement are specific to the priority attributed to the Sites by the Permit. The following sections describe the steps for meeting the corrective action requirements.

900.1 Completion of Corrective Action

Corrective action is to be completed for all Sites described in this SDPPP. Completion of corrective action is demonstrated by one of the following methods:

1. Analytical results from confirmation sampling show pollutant concentrations for all pollutants of concern at the Site to be at or below applicable target action levels; or
2. Control measures that totally retain and prevent the discharge of storm water have been installed at the Site; or
3. Control measures that totally eliminate exposure of pollutants to storm water have been installed at the Site; or
4. The Site has achieved RCRA "no further action" status or a Certificate of Completion under NMED's Consent Order.

900.1.1 Alternative Compliance

Where certification of corrective action cannot be completed, LANS may petition to place Site(s) into Alternative Compliance. In Alternative Compliance, the completion of corrective action will be accomplished on a case-by-case basis, and as necessary, pursuant to an individually tailored compliance schedule determined by EPA.

900.2 Deadlines

900.2.1 High Priority Sites

There are no Sites within the Water/Cañon de Valle watershed that have been deemed high priority Sites.

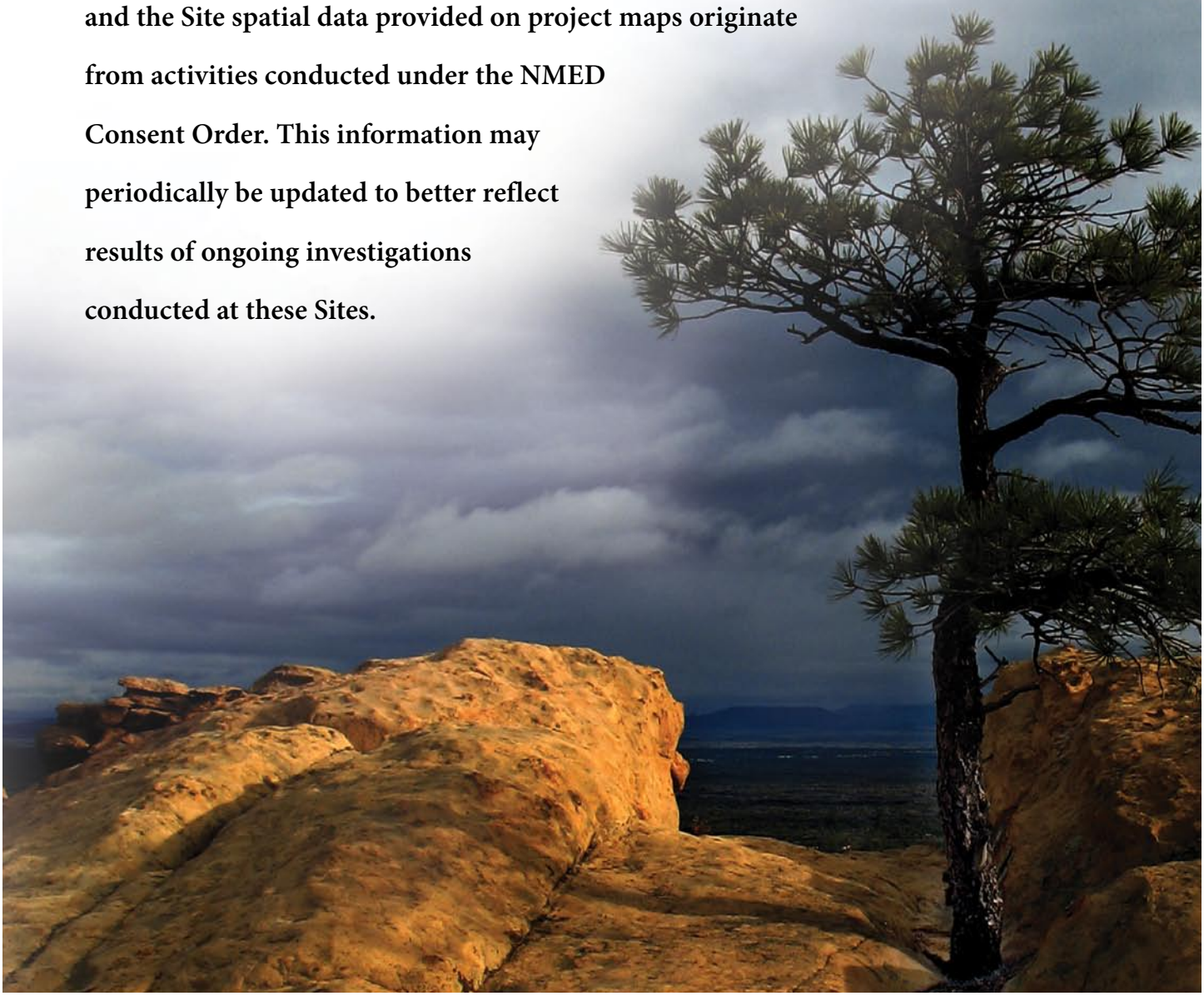
900.2.2 Moderate Priority Sites

Within the Water/Cañon de Valle watershed, there are 89 Sites that are deemed moderate priority Sites. Corrective action is to be completed and certified within five years of the effective date of the IP.

SECTION 1000
SITE MONITORING AREAS

The following sections provide SMA-specific details of each permitted feature monitored under the IP. Each SMA described includes an area description, details of each identified potential pollutant source including a demonstration of substantially identical effluent where appropriate, a description of control measures specific to the identified pollutant source, a project map, the storm water monitoring requirements and schedule, and a summary of the current corrective action status for the SMA.

Site information provided in this SDPPP such as Site descriptions and the Site spatial data provided on project maps originate from activities conducted under the NMED Consent Order. This information may periodically be updated to better reflect results of ongoing investigations conducted at these Sites.



1000.1 CDV-SMA-1.2

1000.1.1 Area Description

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

1000.1.3 Control Measures

1000.1.4 Project Map

1000.1.5 Storm Water Monitoring Plan and Schedule

1000.1.6 Corrective Action Status



1000.1 CDV-SMA-1.2

1000.1.1 Area Description

CDV-SMA-1.2 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes gently towards the receiving waters further north. The southern boundary of the SMA may be influenced by unpaved access roads. The eastern and western boundaries of the SMA are flat and undeveloped.

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with Permitted Feature (PF) V001, CDV-SMA-1.2, Sites 16-017(b)-99 and 16-029(k).

SWMU 16-017(b)-99 is a former electroplating building at TA-16. Former SWMU 16-017 consisted of a group of 23 intact, abandoned structures associated with S-Site. These structures were proposed for deferral in the work plan. Structure number 16-93, the former HE Electroplating Building, was built prior to 1950 and was abandoned in 1970.

During the Annual Unit Audit conducted in 1999, former SWMU 16-017 was split into 23 separate SWMUs to better facilitate tracking. Each of the former structures in the series was given an alpha identifier at that time.

SWMU 16-029(k) consists of two former sumps, a drain-line, and an outfall from Building 16-93. In the mid- to late-1960s, the HE sumps were filled with gravel. Surface soil data from samples taken in the vicinity of the plating outfall drainage in the late 1980s showed barium, cadmium, lead, zinc, and cyanide above BVs but below SALs. Soil samples were analyzed for HE, inorganic chemicals, and organic chemicals. No HEs were detected in the samples.

1000.1.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-017(b)-99	Soil contamination from former HE Machining Building 16-93	Co-located, Overlapping	Shared	•	•	•	HE
16-029(k)	Sumps	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA were associated with a former electroplating building at TA-16. They share a common drainage, similar contaminants, and have been subject to extensive remediation. Because of this, Sites grouped within this SMA will discharge substantially identical effluent.

1000.1.3 Control Measures

Potential run-on to this Permitted Feature originates from the south in natural areas and there is minor contributions from an unpaved access road. Existing storm water controls serve to mitigate these minor run-on sources.

Subsections to 1000.1.3 list all control measures used to control pollutant sources identified in Section 1000.1.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.1.4.

1000.1.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V001 01 01 0003	Seed and Mulch - Seed and Wood Mulch			•	
V001 01 01 0004	Seed and Mulch - Seed and Wood Mulch			•	
V001 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
V001 03 02 0008	Berms - Base Course		•		•
V001 03 06 0005	Berms - Straw Wattles	•			•
V001 03 06 0006	Berms - Straw Wattles	•			•
V001 04 06 0001	Channel/Swale - Rip Rap		•	•	
V001 06 01 0007	Check Dam - Rock		•		•

Seed and Mulch - East (V001-01-01-0003)

Seed and mulch has been applied to the area east of the SMA around the straw wattles in order to control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Seed and Mulch - West (V001-01-01-0004)

Seed and mulch has been applied to the area west of the SMA around the straw wattles in order to control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch

includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (V001-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Southern Berm (V001-03-02-0008)

This berm is installed south of other controls to interrupt north-flowing run-off and sediment. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles - Eastern (V001-03-06-0005)

These wattles are located east of the SMA near the sampler. These wattles are used to mitigate run-on to Site 16-029(k). Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Berms - Western (V001-03-06-0006)

These wattles are located west of the SMA near the sampler. They are used to mitigate run-on to the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

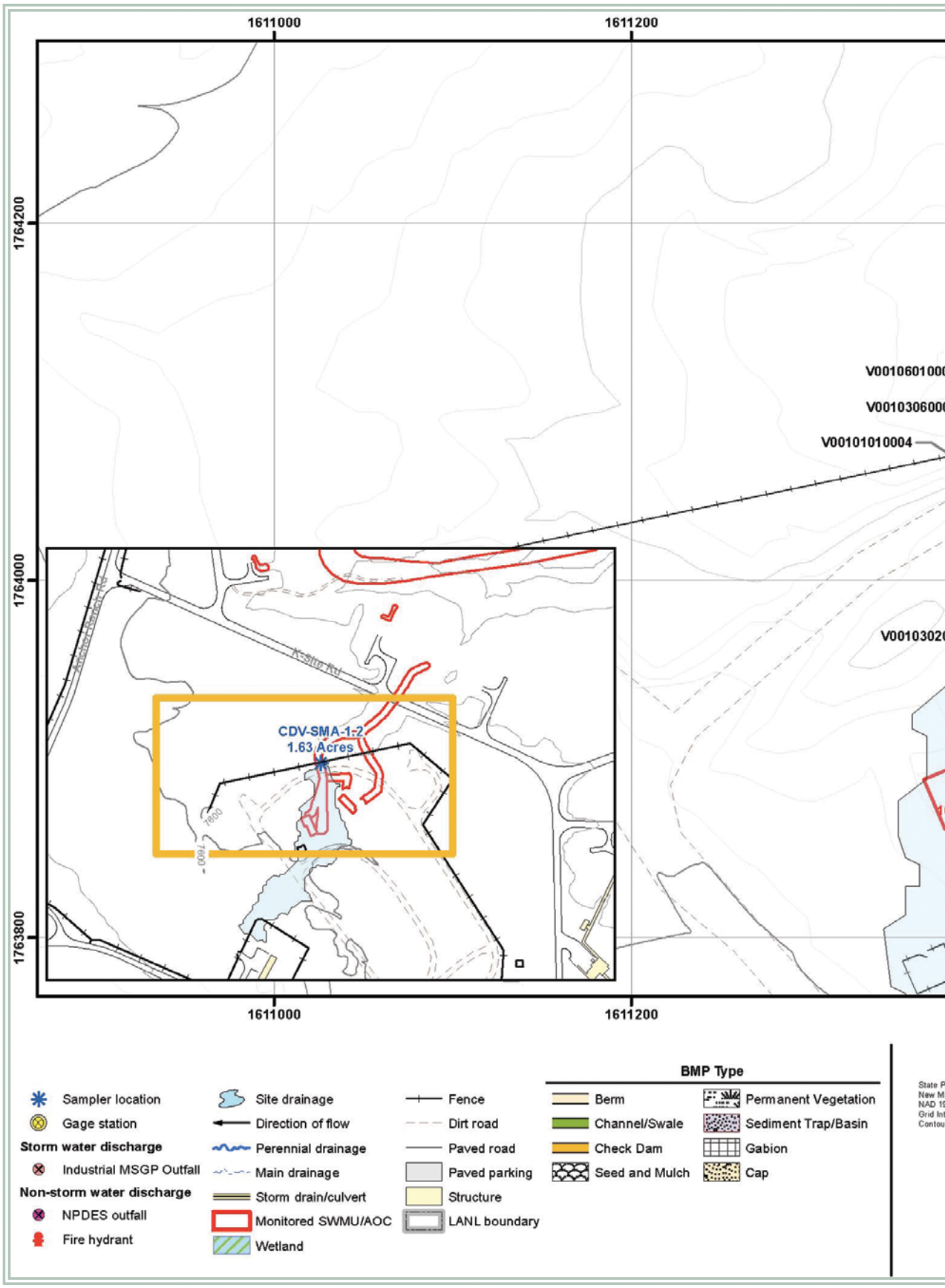
Rip Rap (V001-04-06-0001)

This rip rap is located in the drainage channel just south of the sampler. It is in place to restrict run-off from the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (V001-06-01-0007)

The rock check dam is located at the northern end of the SMA adjacent to the sampler. It is in place to restrict run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.1.4 Project Map



1611400
1611600
1611800
1764200
1764000
1763800
7580
K-SITE RD
16-029(k)
CDV-SMA-1.2
1.63-Acres
V00103060005
V00101010003
V00104060001
0008
6-017(b)-99
lane Coordinate System
exico, Central Zone, US Feet
83 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V001: CDV-SMA-1.2
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 25, 2011,
Map #V001-10-0017-142-CDV1.2-R4

1000.1.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.1.6 Corrective Action Status

The Sites associated with CDV-SMA-1.2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.2 CDV-SMA-1.3

1000.2.1 Area Description

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

1000.2.3 Control Measure

1000.2.4 Project Map

1000.2.5 Storm Water Monitoring Plan and Schedule

1000.2.6 Corrective Action Status



1000.2 CDV-SMA-1.3

1000.2.1 Area Description

CDV-SMA-1.3 is located in an undeveloped area within TA-16 and access to the area is controlled. All boundaries are undeveloped and the area slopes gently towards the receiving waters further north.

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF V002, CDV-SMA-1.3, Sites 16-017(a)-99 and 16-026(m).

SWMU 16-017(a)-99 is a former storage magazine at TA-16. Former SWMU 16-017 consisted of a group of 23 intact, abandoned structures associated with S-Site. These structures were proposed for deferral in the work plan. Structure number 16-92, the former HE Machining Building, was built prior to 1950 and was abandoned in 1951. The former magazine structure was physically removed by 1955.

During the Annual Unit Audit conducted in 1999, former SWMU 16-017 was split into 23 separate SWMUs to better facilitate tracking. Each of the former structures in the series was given an alpha identifier at that time.

SWMU 16-026(m) is potentially contaminated soil associated with the drain-line and outfall from the sumps in Building 16-92. Operations at Building 16-92 may have resulted in uranium contamination from the handling of disassembled items containing uranium.

1000.2.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-017(a)-99	Soil contamination from former HE Machining Building 16-92	Co-located, Overlapping	Shared	•	•	•	HE
16-026(m)	Outfall associated with former Building 16-92	Discrete Location, No overlap	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA were associated with historical operations at Building 16-92 at TA-16. They share a common drainage, similar contaminants, and have been subject to extensive remediation. Because of these characteristics, Sites grouped within this SMA will discharge substantially identical effluent.

1000.2.3 Control Measures

There are no run-on contributions to this Permitted Feature and minimal run-off.

Subsections to 1000.2.3 list all control measures used to control pollutant sources identified in Section 1000.2.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.2.4.

1000.2.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V002 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V002 03 02 0002	Berms - Base Course		•		•

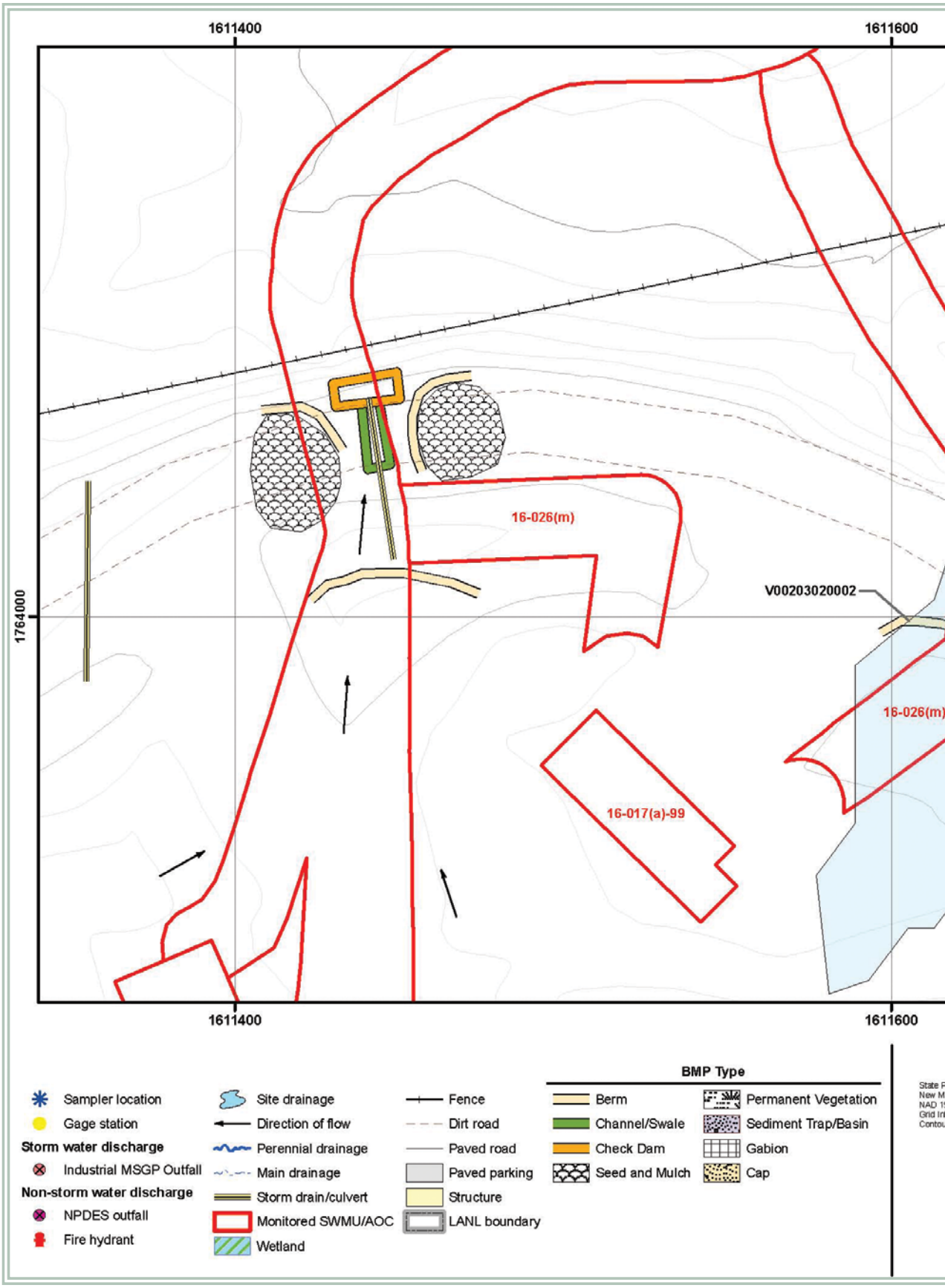
Established Vegetation (V002-02-01-0001)

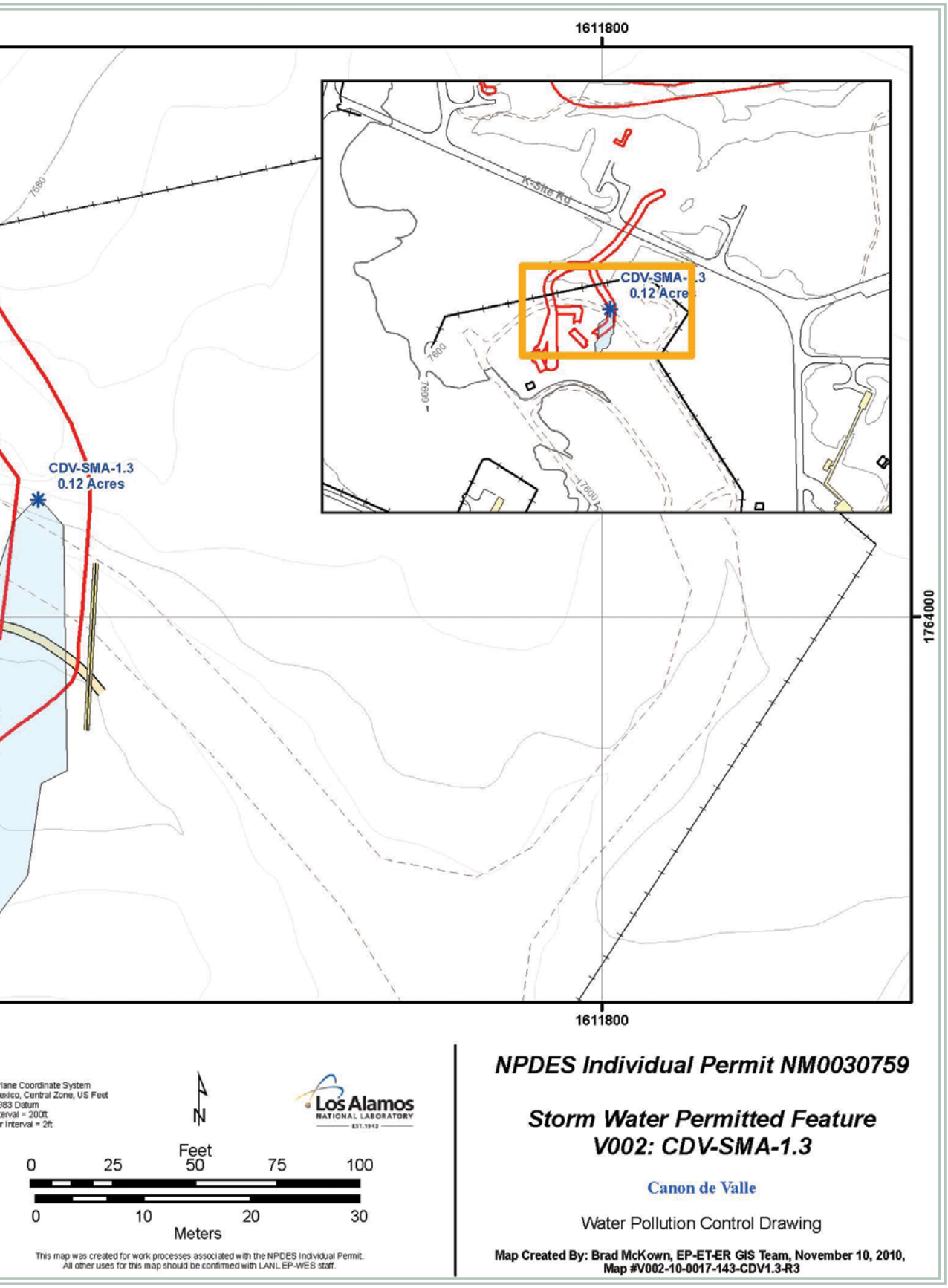
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (V002-03-02-0002)

This berm is installed south of the sampler to interrupt north-flowing run-off and sediment. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.2.4 Project Map




1611800
1764000
1611800
K-Site Rd
CDV-SMA-1.3
0.12 Acres
CDV-SMA-1.3
0.12 Acres
7680
7800
7600
Feet
0 25 50 75 100
0 10 20 30
Meters
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V002: CDV-SMA-1.3
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 10, 2010,
Map #V002-10-0017-143-CDV1.3-R3

1000.2.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.2.6 Corrective Action Status

The Sites associated with CDV-SMA-1.3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.3 CDV-SMA-1.4

1000.3.1 Area Description

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

1000.3.3 Control Measures

1000.3.4 Project Map

1000.3.5 Storm Water Monitoring Plan and Schedule

1000.3.6 Corrective Action Status



1000.3 CDV-SMA-1.4

1000.3.1 Area Description

CDV-SMA-1.4 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by an unpaved access road. The southern boundary of the SMA is influenced by paved and unpaved access roads. The eastern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further to the east. The western boundary of the SMA is influenced by paved and unpaved access roads.

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF V003, CDV-SMA-1.4, Sites 16-020, 16-026(l), 16-028(c) and 16-030(c).

SWMU 16-020, known as the silver outfall, is a former operational release area where untreated, spent photo-fixing bath solutions were released to the soils and stream sediments. Chemicals in the untreated spent photo-fixing bath solutions included silver thiosulfate, sodium thiosulfate, sulfuric acid, boric acid, and cyanide. These chemicals were process wastes from the x-ray film photo-processing laboratory in Building 16-222, built in 1952. This spent solution was discharged on the south side of the building where it flowed approximately 295 feet in a gently sloping, small stream channel down to the confluence with the main channel of Cañon de Valle. The facility discharged significant quantities of silver for a period of 20 years. In 1979, the facility began to recover the silver, and around this time, the outfall became an NPDES permitted outfall. In 1995, the building became inactive, and all photo-processing equipment was moved to Building 16-260. At that time, discharges from the facility ceased. On January 14, 1998, the outfall was removed from LANL's NPDES permit. The TA-16-222 Complex was removed by the decontamination and decommissioning (D&D) program in 2003.

The silver outfall was sampled in 1995 for HE, inorganic chemicals, and organic chemicals. Several analytes, including silver, chromium, and PAHs were present at levels above SALs.

After the Cerro Grande fire, in the summer of 2000, more than 200 cubic yards of contaminated soil were removed from the site to minimize the potential for flood-induced contaminant mobilization. Following this IA, the site was stabilized with BMPs such as check dams, straw wattles, and rock pavements. Verification samples were collected following the IA; moderate levels of contamination remained.

SWMU 16-026(l) is potentially contaminated soil associated with outfalls from Building 16-220. The area where the outfall daylights could not be located, even after several site visits.

The rewritten Chapter 6 for the OU 1082 work plan recommended NFA for SWMU 16-026(l) because it could not be located during site visits.

SWMU 16-028(c) is consolidated with SWMU 16-026(l) as consolidated unit 16-026(l)-00. The SWMUs are drain-lines and outfalls from drains throughout a former x-ray building (Building 16-220). The outfalls discharged from similar processes in former Building 16-220 to an area where the outfalls overlap. Potential contaminants are commingled here. Building 16-220 was the low-energy x-ray facility for HE components, located on the north side of S-Site. The radiography area of S-Site was built in 1952 and consisted of seven buildings: three rest houses, three x-ray buildings, and a centrally located photo processing building. The buildings were connected by enclosed walkways.

SWMU 16-028(c) is a former NPDES permitted outfall (removed from LANL's NPDES permit effective September 19, 1997) and drain-lines that received discharges from eight floor drains in former Building 16-220. The effluent contained non-contact cooling water, chiller condensate, and

periodic discharge from an HE vacuum pump and floor washings. The six inch VCP daylighted in a rocky ditch near the building. The ditch flows to a relatively flat, grassy field. The floor drains at Building 16-220 were plugged in 1991, and the building underwent D&D in 2003.

SWMU 16-030(c) is potentially contaminated soil associated with an outfall from an x-ray film-processing laboratory (Building 16-222) located in the center of the radiography area at TA-16. Building 16-222 was built in 1953. The only outfall that could be located in the vicinity of Building 16-222 originates from a roof drain downspout on the northwest side of the building, and four roof drains discharge to the downspout. The outfall associated with the x-ray film laboratory could not be located during a site visit.

The rewrite of Chapter 6 of the RFI work plan for OU 1082 recommended NFA at SWMU 16-030(c) because the outfall could not be located.

1000.3.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-020	Outfall from former 16-222	Co-located, Overlapping	Shared	•		•	
16-026(l)	Outfalls associated with former Building 16-220	Co-located, Overlapping	Shared	•		•	
16-028(c)	Outfall from former Building 16-222	Co-located, Overlapping	Shared	•		•	
16-030(c)	Outfall from former Building 16-222	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA were associated with activities at the former 220s Complex in TA-16. These Sites share a common drainage, have similar contaminants, and have been subject to extensive remediation. Because of these characteristics, Sites grouped within this SMA will discharge substantially identical effluent.

1000.3.3 Control Measures

There are rock check dams in the channel and existing vegetation throughout the area that control run-on at this SMA. Existing rock check dams, rip rap and vegetation in the main channel control run-off from the area.

Subsections to 1000.3.3 list all control measures used to control pollutant sources identified in Section 1000.3.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.3.4.

1000.3.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V003 01 01 0025	Seed and Mulch - Seed and Wood Mulch			•	
V003 02 01 0007	Established Vegetation - Grasses and Shrubs			•	
V003 02 02 0005	Established Vegetation - Forested/Needle Cast			•	
V003 03 02 0017	Berms - Base Course	•			•
V003 03 06 0018	Berms - Straw Wattles	•			•
V003 03 06 0019	Berms - Straw Wattles	•			•
V003 03 06 0020	Berms - Straw Wattles	•			•
V003 03 06 0021	Berms - Straw Wattles	•			•
V003 03 06 0022	Berms - Straw Wattles		•		•
V003 03 06 0023	Berms - Straw Wattles		•		•
V003 03 06 0024	Berms - Straw Wattles		•		•
V003 03 12 0013	Berms - Rock	•			•
V003 03 12 0014	Berms - Rock	•			•
V003 03 12 0015	Berms - Rock	•			•
V003 04 06 0001	Channel/Swale - Rip Rap		•	•	
V003 06 01 0004	Check Dam - Rock	•			•
V003 06 01 0006	Check Dam - Rock		•		•
V003 06 01 0008	Check Dam - Rock		•		•
V003 06 01 0009	Check Dam - Rock		•		•
V003 06 01 0010	Check Dam - Rock		•		•

1000.3.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V003 06 01 0012	Check Dam - Rock		•		•
V003 06 01 0016	Check Dam - Rock	•			•
V003 06 01 0026	Check Dam - Rock	•			•
V003 06 01 0027	Check Dam - Rock	•			•
V003 06 01 0028	Check Dam - Rock	•			•

Seed and Wood Mulch (V003-01-01-0025)

This application of seeding and mulch is located in and around the North and South wattles. It is in place to prevent erosion of the area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (V003-02-01-01-0007, -02-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (V003-03-02-0017)

This berm is located north of the main portion of the SMA along the unpaved access road circumventing the area. It is in place to restrict run-on to the area. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles - North (V003-03-06-0018, -0019, -0020, -0021)

This is a series of four wattles located north of the sampler east of the SMA. They are in place to prevent run-on to the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - South (V003-03-06-0022, -0023, -0024)

This is a series of three wattles located adjacent to the sampler straddling the eastern SMA boundary.

They are in place to mitigate run-off from the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Berms (V003-03-12-0013, -0014, -0015)

This is a series of three berms located near the western check dams. They are in place to control run-on from the slope above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rip Rap (V003-04-06-0001)

The rip rap is located in the drainage channel just to the west of the sampler. It is in place to mitigate run-off from the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

North Rock Check Dams (V003-06-01-0004, -0016, -0026)

This is a series of three rock check dams located above the northern culvert inlet. They are in place to help alleviate run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

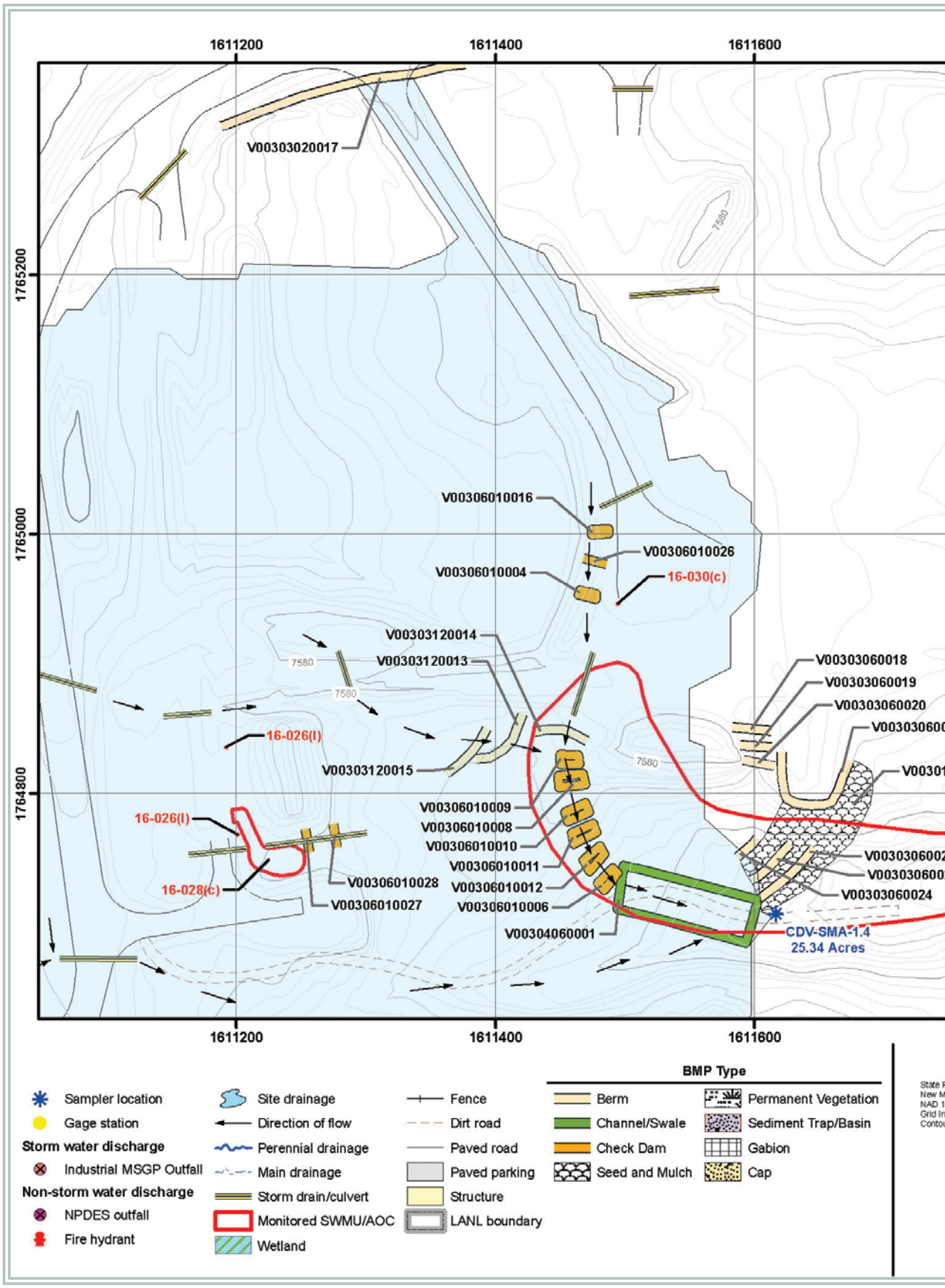
West Rock Check Dams (V003-06-01-0006, -0008, -0009, 0010, -0011, -0012)

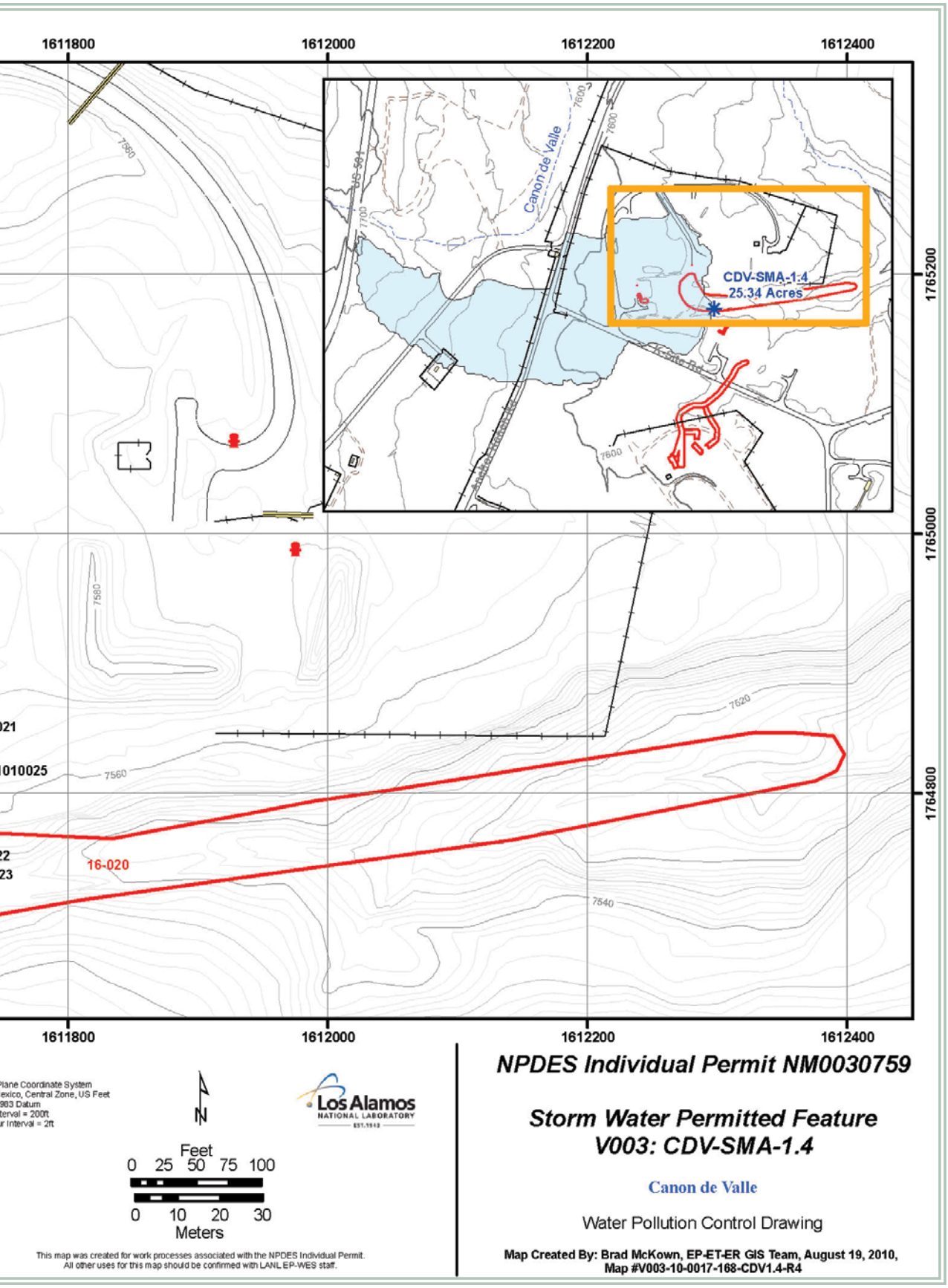
This is a series of six rock check dams located to the west in the channel above the sampler. They are in place to control run-off and sediment transport. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam (V003-06-01-0027, -0028)

This pair of check dams is on the western side of the site drainage, controlling run-on and sediment near a storm drain culvert. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.3.4 Project Map




1611800
1612000
1612200
1612400
1765200
1765000
1764800
Canon de Valle
US 501
CDV-SMA-1.4
25.34 Acres
16-020
7560
7580
7600
7620
7540
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V003: CDV-SMA-1.4
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 19, 2010,
Map #V003-10-0017-168-CDV1.4-R4

1000.3.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.3.6 Corrective Action Status

A Certificate of Completion was issued for Site 16-030(c) on January 23, 2008 [ERID-100116]. The New Mexico Environment Department has determined that a corrective action complete without controls designation is appropriate for Site 16-030(c).

The Sites associated with CDV-SMA-1.4 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.4 CDV-SMA-1.45

1000.4.1 Area Description

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

1000.4.3 Control Measures

1000.4.4 Project Map

1000.4.5 Storm Water Monitoring Plan and Schedule

1000.4.6 Corrective Action Status



1000.4 CDV-SMA-1.45

1000.4.1 Area Description

CDV-SMA-1.45 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes gently towards the receiving waters further north. The southern boundary of the SMA is flat and undeveloped. The eastern boundary of the SMA is flat and undeveloped. The western boundary of the SMA is flat and undeveloped.

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V004, CDV-SMA-1.45, Site 16-026(i).

SWMU 16-026(i) is soil contamination associated with an outfall from an x-ray building (Building 16-224) located on the north side of S-Site. The radiography area of S-Site was built in 1952 and consists of seven buildings: three rest houses, three x-ray buildings, and a centrally located photo processing building. The buildings are connected by enclosed walkways. Building 16-224 is 58 x 44 x 10 ft high. The rest houses store finished, packaged HE components before and after they are radiographed. The components are transported between the rest houses and the x-ray buildings on the enclosed walkways. When components arrive at the x-ray buildings, they are removed from their packaging, x-rayed, and repackaged. The floor drains that discharged to this SWMU are located in the northeast and northwest corners of Building 16-224. The drain-line daylights northeast of Building 16-224. Site workers stated that HE dust and small chips would break off during the x-ray process and could enter the floor drains. Because this SWMU is associated with floor drains in the x-ray building, HE contamination could be present at the outfall. Small HE chips have historically been observed in the drains. The drains were plugged in 1991. The outfall is characterized by low flow onto a shallow, grassy slope.

Addendum 2 of the OU 1082 work plan proposed sampling at SWMU 16-026(i) to detect barium and HE.

1000.4.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-026(i)	Outfall from former Building 16-224	Discrete Location, No overlap Individual	Individual	•		•	

1000.4.3 Control Measures

There are no run-on contributions to this Permitted Feature. The area is gently sloping and vegetated.

Subsections to 1000.4.3 list all control measures used to control pollutant sources identified in Section 1000.4.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.4.4.

1000.4.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V004 02 02 0001	Established Vegetation - Forested/Needle Cast			•	
V004 03 06 0002	Berms - Straw Wattles	•			•
V004 03 06 0003	Berms - Straw Wattles		•		•

Established Vegetation (V004-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

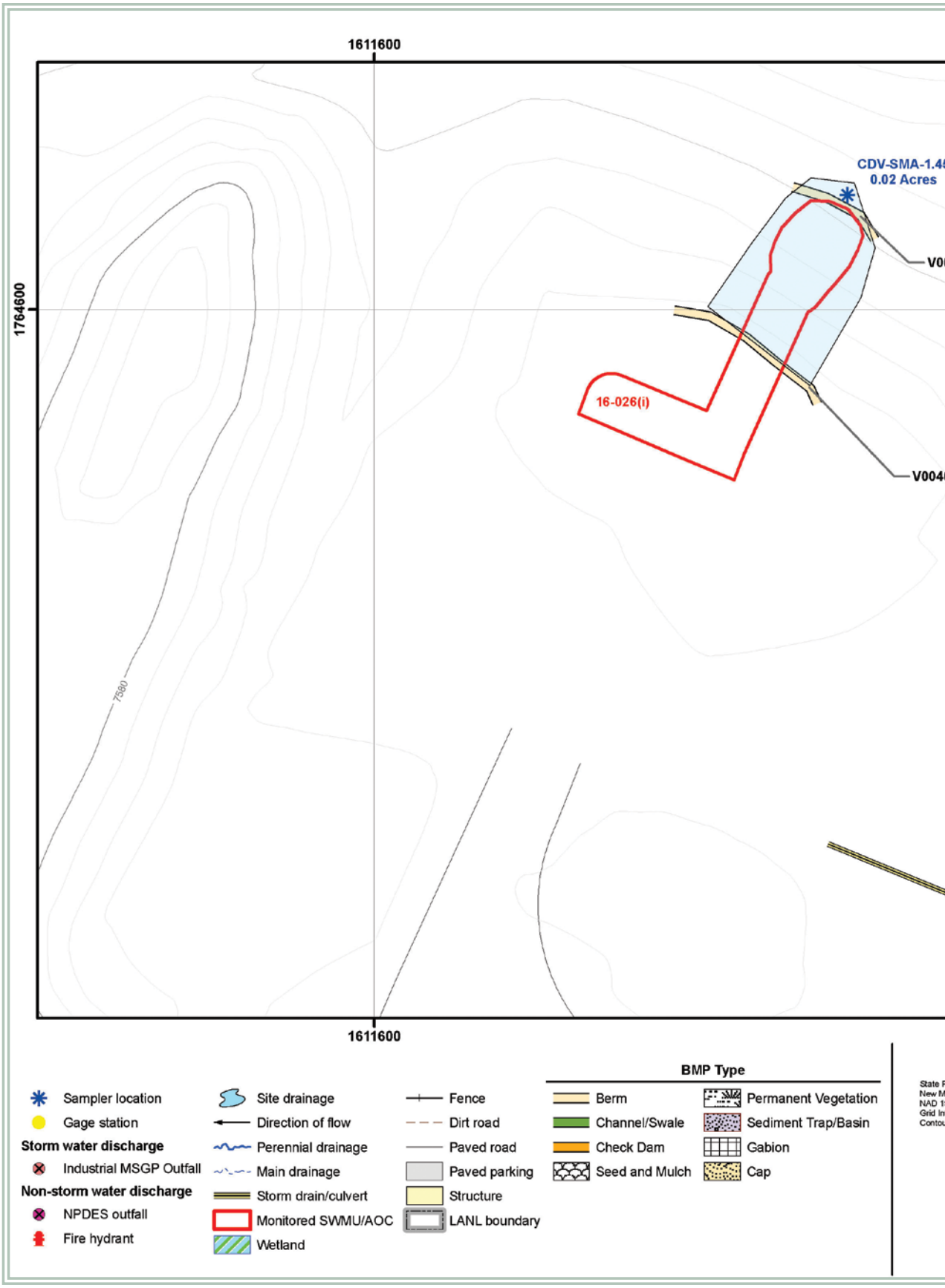
Straw Wattle - South (V004-03-06-0002)

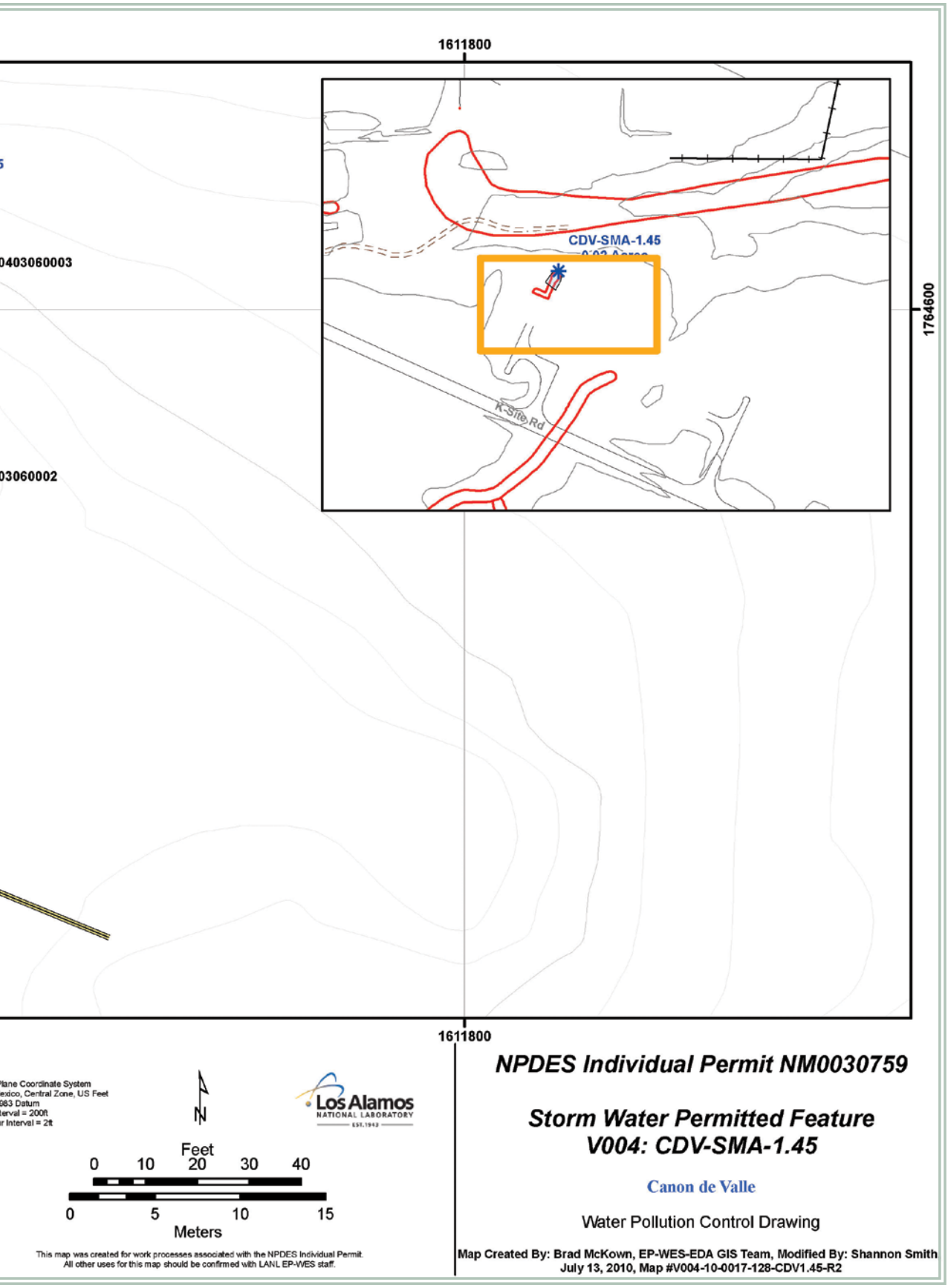
This wattle is located above the sampler. It is used to help reduce run-on to the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - North (V004-03-06-0003)

This wattle is located just above the sampler on the gradual slope. It is used to help mitigate run-off from the slope above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.4.4 Project Map




1611800
1764600
CDV-SMA-1.45
K-Site Rd
0403060003
03060002
1611800
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V004: CDV-SMA-1.45
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith
July 13, 2010, Map #V004-10-0017-128-CDV1.45-R2

1000.4.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.4.6 Corrective Action Status

The Site associated with CDV-SMA-1.45 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.5 CDV-SMA-1.7

1000.5.1 Area Description

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

1000.5.3 Control Measures

1000.5.4 Project Map

1000.5.5 Storm Water Monitoring Plan and Schedule

1000.5.6 Corrective Action Status



1000.5 CDV-SMA-1.7

1000.5.1 Area Description

CDV-SMA-1.7 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is flat and undeveloped on the mesa top and more steeply sloped further north. The receiving waters are along this boundary. The southern boundary of the SMA is flat and undeveloped. The eastern boundary of the SMA is flat and undeveloped on the mesa top. Further north, along this boundary, the terrain becomes more steeply sloping. The western boundary of the SMA is flat and undeveloped on the mesa top. Further north, along this boundary, the terrain becomes more steeply sloping.

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V005, CDV-SMA-1.7, Site 16-019.

SWMU 16-019 is known as MDA R. MDA R consists of the original World War II S-Site burning ground and associated waste-disposal site. Located north of Building 16-260 and south of Cañon de Valle, MDA R was built in the mid-1940s and was used as a burning ground for waste explosives until the early 1950s. Total area of the site is estimated to be 2.27 acres. MDA R consisted of three U-shaped, 75 square feet bermed pits. A road encircled the pits and the area was fenced. Before the pits were constructed, HE was burned in an open field. During construction of the 260 Line, the berms and surface soil at MDA R were graded northward into Cañon de Valle. The ER Project visited the site in 1992 and observed debris that had been pushed northward over the edge of the MDA R burning ground toward the canyon floor. Debris was held back by a natural barrier of wood and trees that was created by clearing the area for Building 16-260, which was built in 1951. No information is available about D&D activities at MDA R. The area was covered with grasses and pine trees before the spring 2000 Cerro Grande fire. Potential contaminants were barium, HE, lead, asbestos, and low levels of other inorganic chemicals.

The Cerro Grande fire burned over MDA R and continued to burn underground for several weeks. SWMU 16-019 underwent an accelerated action as part of the emergency response efforts associated with the fire, including fire-suppression activities and stabilization. Fire suppression involved excavating and staging about 800 cubic yards of clean soil and 1,500 cubic yards of contaminated soil and debris. Stabilization efforts consisted of implementing stormwater BMPs, including constructing a run-on diversion channel and installing erosion-control materials. In September 2000, the ER Project sampled SWMU 16-019 to determine the nature and extent of potential contamination at MDA R after the area had been excavated.

1000.5.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-019	Material disposal area (MDA) R (includes SWMU 16-009(b))	Discrete Location, No overlap	Individual	•	•	•	HE

1000.5.3 Control Measures

The SMA is sloping and well vegetated. Existing controls address minor run-on from the paved access road and manage run-off.

Subsections to 1000.5.3 list all control measures used to control pollutant sources identified in Section 1000.5.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.5.4.

1000.5.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V005 01 01 0004	Seed and Mulch - Seed and Wood Mulch		•	•	
V005 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
V005 04 06 0015	Channel/Swale - Rip Rap			•	
V005 06 01 0005	Check Dam - Rock		•		•
V005 06 01 0006	Check Dam - Rock		•		•
V005 06 01 0007	Check Dam - Rock		•		•
V005 06 01 0008	Check Dam - Rock	•			•
V005 06 01 0009	Check Dam - Rock	•			•
V005 06 01 0010	Check Dam - Rock	•			•
V005 06 01 0011	Check Dam - Rock		•		•
V005 06 01 0012	Check Dam - Rock		•		•
V005 06 01 0013	Check Dam - Rock	•			•
V005 06 01 0014	Check Dam - Rock	•			•

Seed and Wood Mulch (V005-01-01-0004)

Seed and mulch has been applied to central portion of the SMA extending to the east of the SMA boundary. It was applied in order to alleviate erosion from run-off in the area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (V005-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rip Rap (V005- 04-06-0015)

This rip rap is located near the outlet of the culvert padding under the paved access road southwest of the SMA footprint. It is in place to help control erosion of the drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Central Rock Check Dams (V005-06-01-0005, -0011, -0012)

This is a series of three check dams which interrupt north-flowing run-off and sediment south of the sampler. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or otherproprietary product placed across a natural or man-made channel or drainage ditch.

Western Rock Check Dams (V005-06-01-0006, -0007)

This is a pair of check dams located in the channel west of the SMA. They control run-off and sediment transport in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

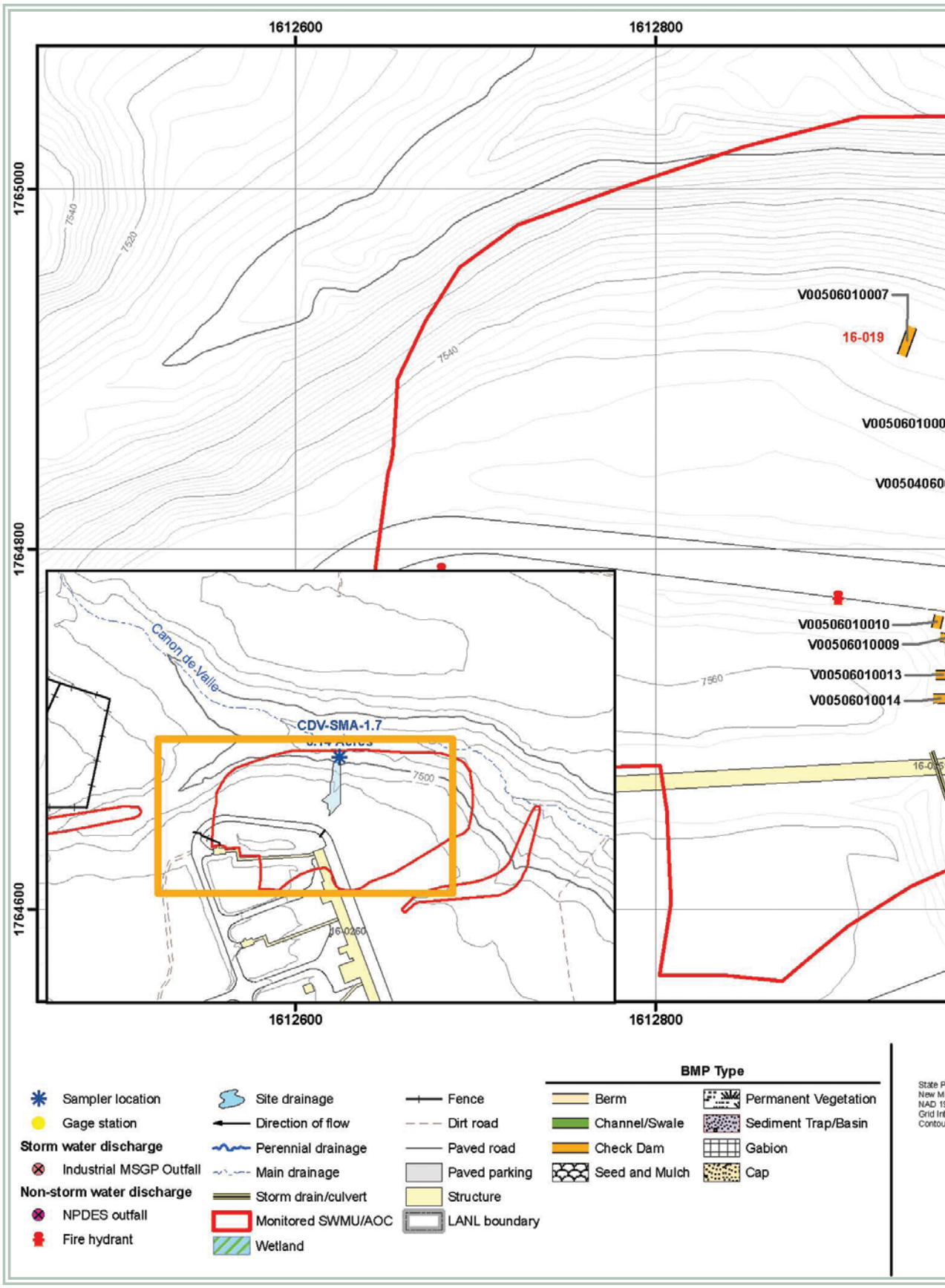
Southwest Check Dams (V005-06-01-0008, -0009, -0010)

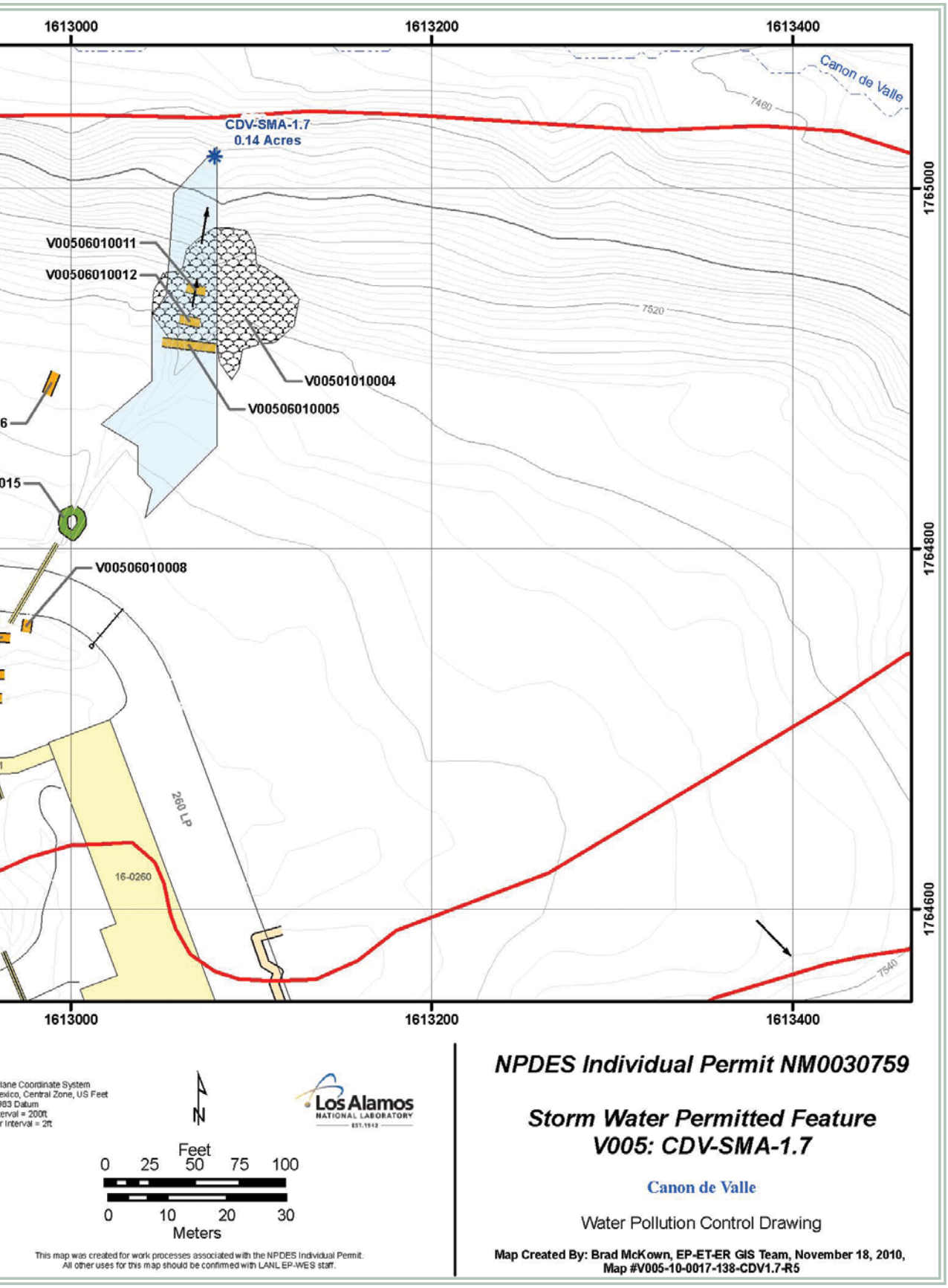
This is a group of three check dams controlling run-on and sediment migration in the southwest portion of the SMA near the culvert inlet. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams (V005-06-01-0013, -0014)

This is a pair of check dams located in the drainage channel south of the southwestern check dams. They are in place to help control storm water run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.5.4 Project Map




1613000
1613200
1613400
1765000
1764800
1764600
Canon de Valle
7460
7520
7540
CDV-SMA-1.7
0.14 Acres
V00506010011
V00506010012
V00501010004
V00506010005
V00506010008
260 LP
16-0260
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V005: CDV-SMA-1.7
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 18, 2010,
Map #V005-10-0017-138-CDV1.7-R5

1000.5.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.5.6 Corrective Action Status

The Site associated with CDV-SMA-1.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.6 CDV-SMA-2

1000.6.1 Area Description

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

1000.6.3 Control Measures

1000.6.4 Project Map

1000.6.5 Storm Water Monitoring Plan and Schedule

1000.6.6 Corrective Action Status



1000.6 CDV-SMA-2

1000.6.1 Area Description

CDV-SMA-2 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is primarily undeveloped and slopes gently towards the receiving waters further east. The southern boundary of the SMA is primarily undeveloped. The eastern boundary of the SMA is undeveloped and contains the receiving waters. The western boundary of the SMA is influenced by structures and paved areas associated with building 16-0260.

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V006, CDV-SMA-2, Site 16-021(c).

SWMU 16-021(c) is the outfall associated with the 13 HE sumps on the northeast side of TA-16-260, which was built in 1951. The drainage channel from the outfall flows approximately 600 feet to the bottom of Cañon de Valle over a drop in elevation of 80 feet. The drainage channel from the outfall is well defined, with apparent high-water marks. The water flows over a 15 foot high cliff approximately 500 feet from the outfall. A small pond approximately 55 feet long was formed by a rock dam located 93 feet from the outfall. HE-contaminated water from the outfall enters the former pond about 40 feet from the outfall. The longitudinal axis of the former pond is oriented east-west with the flow in the easterly direction. The dam is about nine feet thick, but only the first two feet of rock are closely packed. At present, there is no water in the former pond, although the soil and sediment are wet sporadically. The outfall will no longer receive HE-bearing wastewater following the plugging of the sumps. Nearby springs and surface waters are contaminated at levels greater than background and MCLs, potentially due to contaminants derived from SWMU 16-021(c). Several best-management practices (BMPs), including hay bale dams, sandbag barriers, and geotextile matting in the highly-contaminated zone, have been implemented at this SWMU to minimize run-on and run-off.

1000.6.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-021(c)	Outfall associated with Building 16-260	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.6.3 Control Measures

The run-on sources for this Permitted Feature are associated with structure 16-0260. The roof and paved area on the west side of the SMA contribute minimally to run-on at the SMA. This run-on is controlled by existing curbing. There is minimal run-on from the access road at the northeast corner of the SMA. New run-on and run-off controls have been installed to provide additional run-off controls and to fortify the natural drainage channel.

Subsections to 1000.6.3 list all control measures used to control pollutant sources identified in Section 1000.6.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.6.4.

1000.6.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V006 01 01 0011	Seed and Mulch - Seed and Wood Mulch			•	
V006 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
V006 02 02 0005	Established Vegetation - Forested/ Needle Cast			•	
V006 03 01 0006	Berms - Earthen		•		•
V006 03 01 0007	Berms - Earthen	•			•
V006 03 01 0008	Berms - Earthen	•			•
V006 03 01 0009	Berms - Earthen	•			•
V006 03 01 0010	Berms - Earthen	•			•
V006 03 09 0001	Berms - Curbing	•			•
V006 04 06 0003	Channel/Swale - Rip Rap		•	•	
V006 06 01 0002	Check Dam - Rock		•		•
V006 08 02 0012	Cap - Rock		•	•	

Seed and Wood Mulch (V006-01-01-0011)

Seed and Wood Mulch has been applied west of the sampler extending north to encompass the earthen berms. It was applied to help prevent erosion of the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation
(V006-02-01-0004, -02-0005)
Established vegetation describes areas of existing mature vegetation that provides erosion control andstorm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm
(V006-03-01-0006)
This berm is located across the drainage path above the sampler. It is used to help control run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - West
(V006-03-01-0007)
This berm is located near the western end of the Site footprint. It is used to help control run-on from the slope above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North
(V006-03-01-0008)
This berm is located near the northern edge of the SMA footprint and is used to help control run-on from the natural area to the north. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berms
(V006-03-01-0009, -0010)
This is a pair of earthen berms located on the slope north of the sampler. They are used to help manage run-on from the natural areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Curbing
(V006-03-09-0001)
This curbing is located along the eastern side of the paved areas near building 16-0260. It is used to divert run-on away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

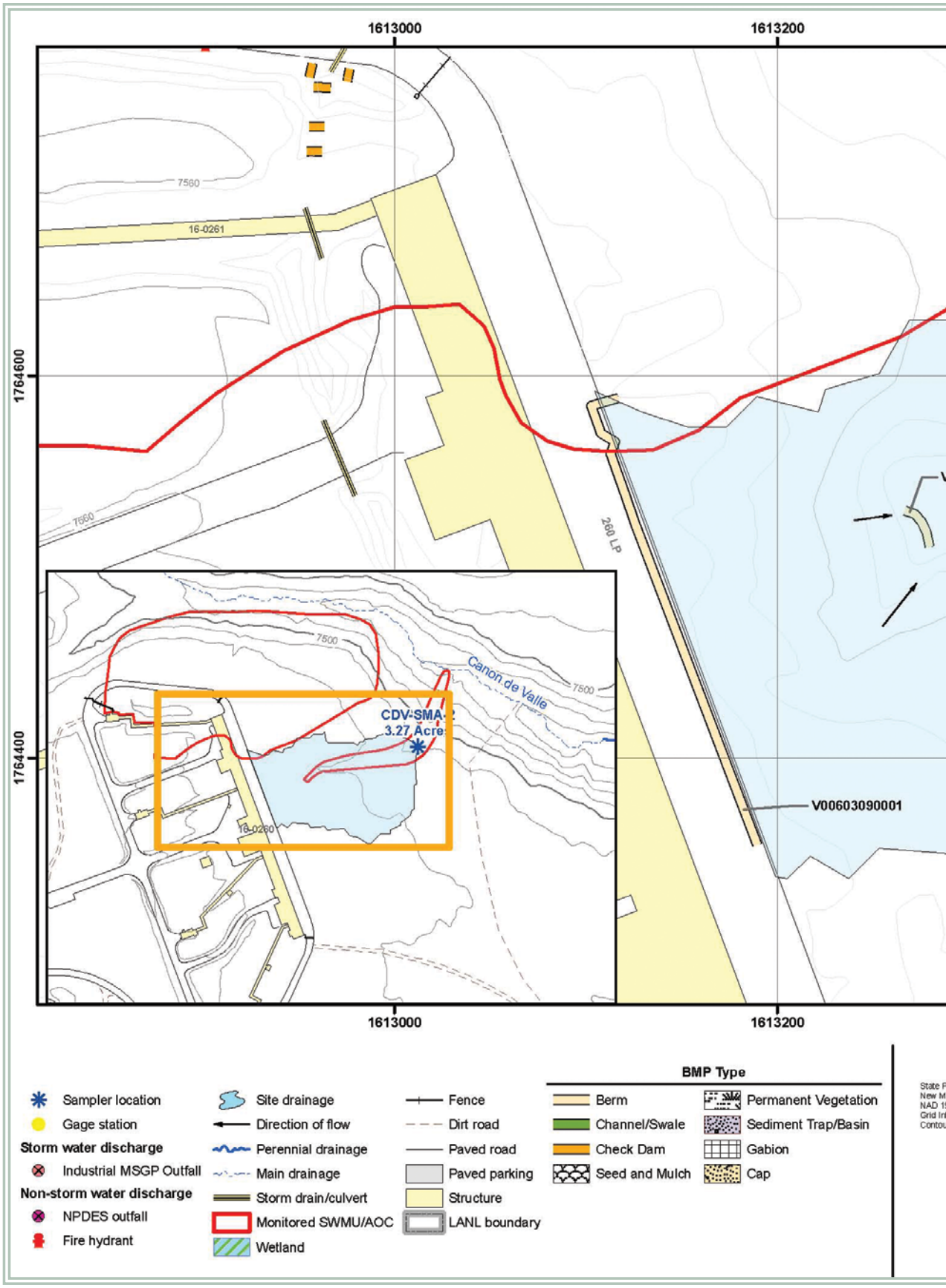
Rip Rap
(V006-04-06-0003)
This rip rap is located in the main drainage channel above the sampler. It is used to restrict run-off from the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

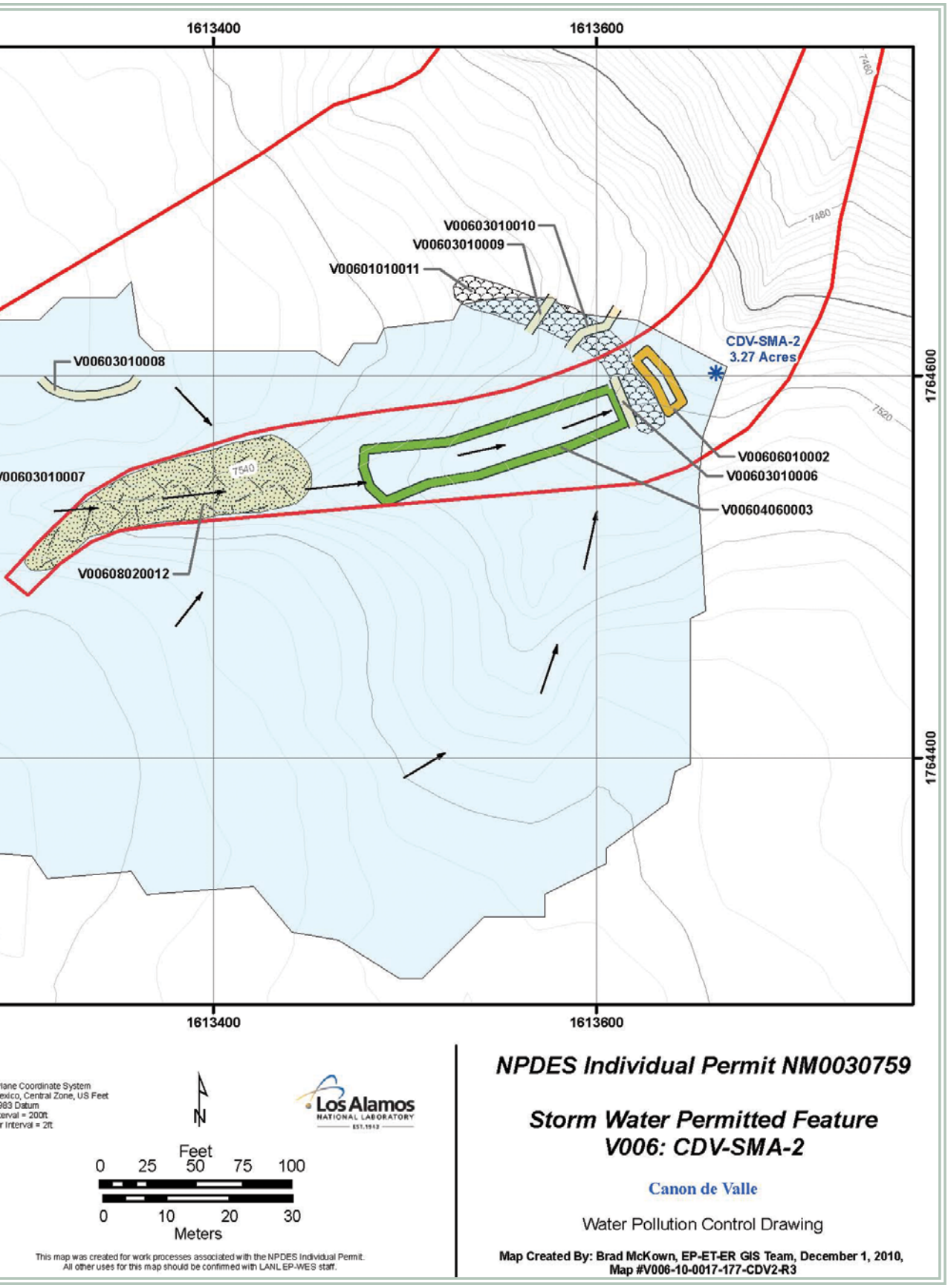
Rock Check Dam
(V006-06-01-0002)
The check dam is located southwest of the sampler across the drainage channel. It is in place to control run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Cap
(V006-08-02-0012)
The cap is located at the western end of the Site,16-021(c), footprint. It is used to help control run-off in the

drainage channel. A rock cap consists of clean non-native rock material (i.e. base course, cobble, etc.) generally 1 foot or greater in depth that is properly compacted. Generally used to cap potential soil contamination areas. This category of storm water control includes earth, rock and asphalt caps. Caps are used primarily for erosion control and to isolate areas of potential soil contamination from storm water.

1000.6.4 Project Map




1613400
1613600
1764600
1764400
V00603010010
V00603010009
V00601010011
V00603010008
V00603010007
V00608020012
V00606010002
V00603010006
V00604060003
CDV-SMA-2
3.27 Acres
7460
7480
7520
7540
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V006: CDV-SMA-2
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, December 1, 2010,
Map #V006-10-0017-177-CDV2-R3

1000.6.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.6.6 Corrective Action Status

The Site associated with CDV-SMA-2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.7 CDV-SMA-2.3

1000.7.1 Area Description

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

1000.7.3 Control Measures

1000.7.4 Project Map

1000.7.5 Storm Water Monitoring Plan and Schedule

1000.7.6 Corrective Action Status



1000.7 CDV-SMA-2.3

1000.7.1 Area Description

CDV-SMA-2.3 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by a paved access road. The southern boundary of the SMA is undeveloped. The eastern boundary of the SMA is largely undeveloped. The receiving waters are along this boundary. The western boundary of the SMA is influenced by a paved access road.

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

There are six historical industrial activity areas associated with PF V007, CDV-SMA-2.3, Sites 13-001, 13-002, 16-003(n), 16-003(o), 16-029(h) and 16-031(h).

SWMU 13-001 is an inactive firing site located east of former building 16-340. The firing site is associated with firing activities conducted at P-Site (former TA-13). The area contains shrapnel and debris, including firing cables, lead balls, and chunks of steel and copper.

SWMU 13-002 is a surface disposal area located east of former building 16-340. The disposal area contains debris and shrapnel associated with firing activities conducted at P-Site (former TA-13). A portion of the TA-16 WWTP [Consolidated Unit 16-004(a)-99] is located on top of the southern tip of the surface disposal area.

SWMU 16-003(n) is an inactive HE sump that was associated with Building 16-342. Building 16-342 was an HE process building on the 340 Line at TA-16 that was used to mix and blend constituents of plastic-bonded explosive formulations. The sump was a rectangular tank with a removable quarter inch aluminum lid. Outside dimensions are 12 ft long x 4 ft wide x 5 ft high. The walls and bottom are eight inch thick, steel-reinforced concrete. The sump operated to remove suspended solids from process water before it was discharged to a now inactive outfall. HE fines (scrap) were collected in a cloth filter bag secured inside a metal filter basket. The baskets and filter bags periodically were collected and cleaned at the basket-washing facility. HE fines that were too small to be collected in the filter bags settled to the bottom of the sump. To help separate the suspended solids, the water flowed under an aluminum baffle and over a concrete weir before it discharged to the outfall. HE in the bottom of the sump periodically was removed and burned. Water was filtered and tested before it discharged to the outfall, which discharged to former NPDES permitted outfall, which discharged to Cañon de Valle. The outfall was removed from LANL's NPDES permit effective July 31, 1996. Solvents were containerized for disposal, but historically the solvents were discharged to the sump. Natural uranium was used at Building 16-342. The sump received process and wash-down water following cleaning activities. Potential contaminants at SWMU 16-003(n) are HE, organic chemicals, inorganic chemicals, and radionuclides.

SWMU 16-003(o) consists of six inactive HE sumps and the outfall associated with the explosives synthesis building (Building 16-340). The sumps historically discharged to former NPDES permitted Outfall 05A054. The outfall was removed from the LANL NPDES permit effective July 20, 1998. Building 16-340 was used in producing plastic-bonded explosives. VOCs are used in plastic explosive preparation. Most VOCs are distilled during processing. The remaining solvents historically were discharged with the wastewater to the sumps. A solvent distillation unit, the "fish ladder," was installed in the late 1980s to trap and volatilize

residual solvents. The OU 1082 work plan reported that Building 16-340 was the largest solvent user at TA-16. The building is slated for decommissioning. The RFI work plan proposed including this SWMU in a generic TA-16 sump sampling plan. Sampling was completed in 1995 and confirmed the presence of contamination. Seed, mulch, and a straw-bale barrier were installed in 2000 as a BMP to minimize contaminant migration and erosion at this site.

SWMU 16-029(h) consists of the outfall and two inactive drainlines (one known and one alleged) from the HE sump [AOC 16-003(p)] located on the south side of former building 16-478. The known drainline exits the southeast corner of the sump and extends 80 ft east of the sump to the rim of Cañon de Valle. This drainline discharged directly into Cañon de Valle before the drainline was plugged in 1987. A second drainline is alleged to be present. The second drainline is reportedly a French drain that extends south of the sump. Former building 16-478 was used as a bunker, utility room, control room, and high-speed machining room for tests on experimental HE. When the building was removed in 2005, the sump was left in place. During the investigation activities conducted in 2009–2010, no evidence of the French drain was found.

It should be noted that SWMU 16-029(h) was identified as an HE sump in the 1990 SWMU Report. The SWMU Report identified this sump twice: once as an inactive HE sump designateas SWMU 16-029(h) and also as an active HE sump designated as AOC 16-003(p). Addendum 2 to the Operable Unit 1082 Work Plan redefined SWMU 16-029(h) to be the drainlines and outfall associated with the sump adjacent to former building 16-478.

SWMU 16-031(h) is an outfall located approximately 300 ft northeast of former building 16-340. The outfall was formerly NPDES permitted (EPA04A134) and received discharge from the sink, vacuum pump, and floor drain of a utility room within former building 16-478. The drain, which consists of a 4-in. VCP, daylights approximately 30 ft from the building. Initially, former building 16-478 was used for photographing explosives testing and was later used for testing the effects of machining on HE products. A water-sealed/water-cooled vacuum pump was located in the utility room and served a vacuum system in another area of the building. The vacuum system held HE pieces in place for machining. The vacuum line contained a water filter to prevent HE from reaching the vacuum pump lines.

1000.7.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
13-001	Firing site	Co-located, Overlapping	Shared	•		•	
13-002	Landfill	Co-located, Overlapping	Shared	•		•	
16-003(n)	Sump	Co-located, Overlapping	Shared	•		•	
16-003(o)	Sumps	Co-located, Overlapping	Shared	•		•	
16-029(h)	Outfall from former Building 16-478	Co-located, Overlapping	Shared	•		•	
16-031(h)	Outfall from former Building 16-478	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are located on the mesa southeast of the TA-16-340 Complex and are associated historical operations of the P-Site (TA-13) Firing Site. They have similar contaminants, share a common drainage, and have been the subject of extensive remediation. Because of these characteristics, these Sites will discharge substantially identical effluent.

1000.7.3 Control Measures

The paved areas to the east of the SMA contributes some run-on, however there is no run-on from the paved road. There is the potential of run-on to the SMA from a culvert discharging west of the area.

Subsections to 1000.7.3 list all control measures used to control pollutant sources identified in Section 1000.7.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.7.4.

1000.7.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V007 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
V007 02 02 0001	Established Vegetation - Forested/ Needle Cast			•	
V007 03 06 0007	Berms - Straw Wattles	•			•
V007 03 06 0008	Berms - Straw Wattles	•			•
V007 03 06 0009	Berms - Straw Wattles		•		•
V007 03 06 0010	Berms - Straw Wattles		•		•
V007 03 06 0011	Berms - Straw Wattles		•		•
V007 03 06 0012	Berms - Straw Wattles		•		•
V007 03 06 0013	Berms - Straw Wattles		•		•
V007 03 06 0014	Berms - Straw Wattles		•		•
V007 03 06 0015	Berms - Straw Wattles		•		•
V007 06 01 0005	Check Dam - Rock		•		•
V007 07 01 0002	Gabions - Gabions		•		•

Established Vegetation (V007-02-01-0004, -02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Western Wattle Berms (V007-03-06-0007)

These wattles manage sediment from the paved LP 340 road located in the western portion of the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

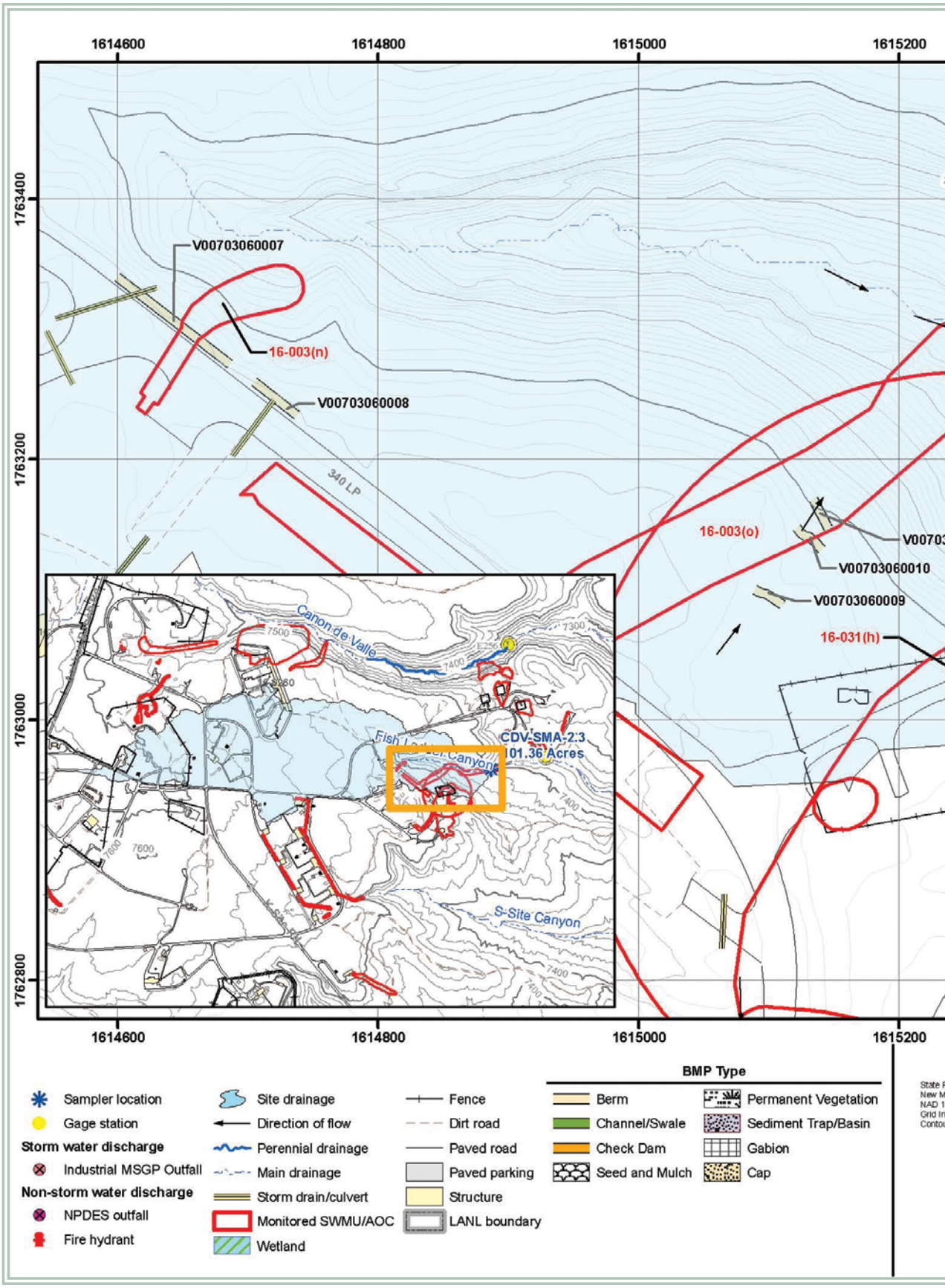
Straw Wattles - Southeast
(V007-03-06-0008)
This wattle is installed southeast of wattle pair -0007 to control run-on and sediment from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

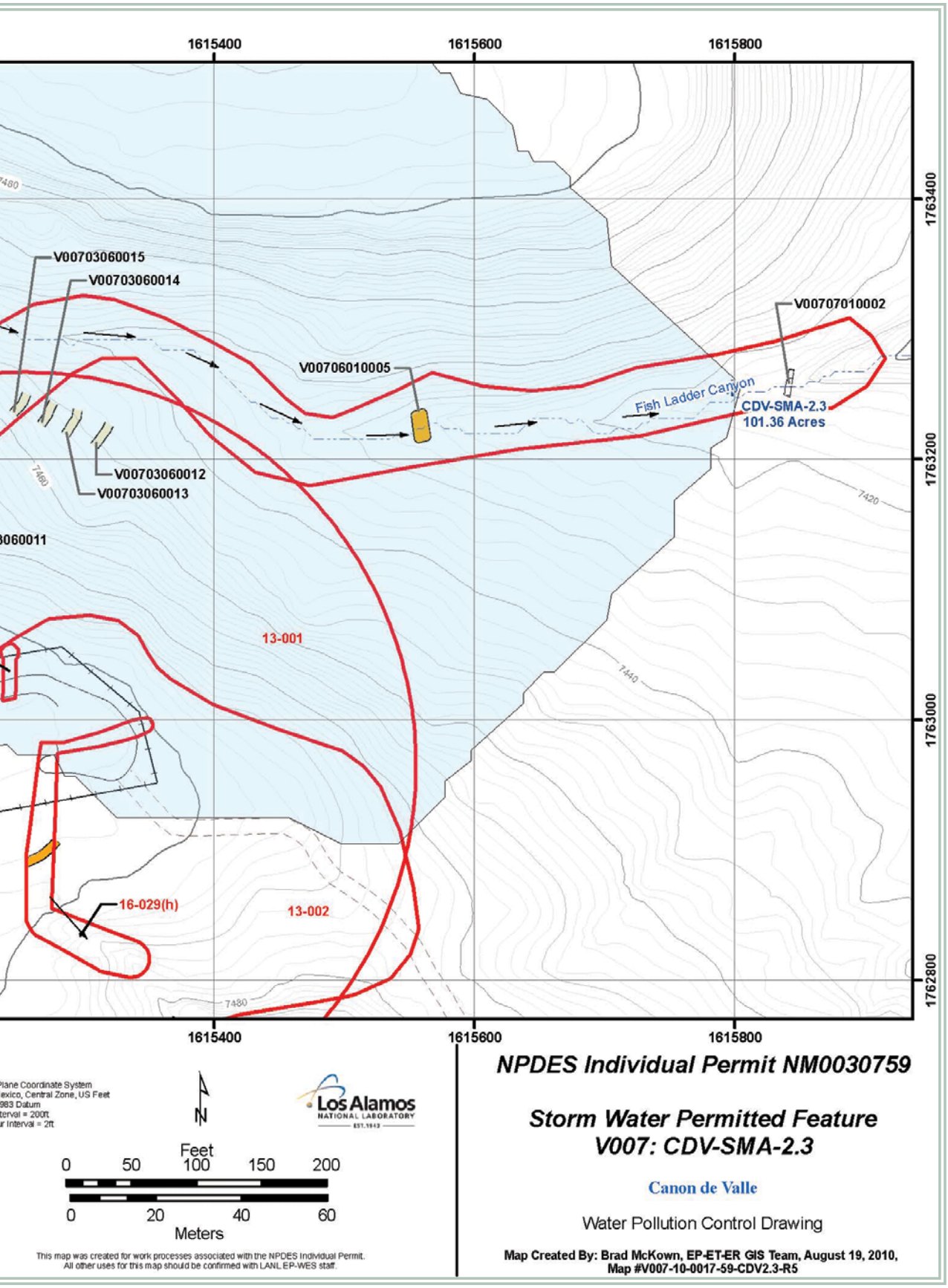
Berms- Wattles
(V007-03-06-0009, -0010, -0011, -0012, -0013, -0014, -0015)
These wattles retard run-off and sediment on the unpaved access roads south of the drainage channel. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dam
(V007-06-01-0005)
This check dam is located in the natural drainage channel west of the sampler. It is in place to control run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Gabions
(V007-07-01-0002)
The gabion is located east of the sampler location and is used to mitigate run-off from the SMA. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.7.4 Project Map




1615400
1615600
1615800
1763400
1763200
1763000
1762800
V00703060015
V00703060014
V00706010005
V00707010002
Fish Ladder Canyon
CDV-SMA-2.3
101.36 Acres
V00703060012
V00703060013
13-001
13-002
16-029(h)
7480
7460
7420
7440
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 50 100 150 200
0 20 40 60
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V007: CDV-SMA-2.3
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 19, 2010,
Map #V007-10-0017-59-CDV2.3-R5

1000.7.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.7.6 Corrective Action Status

The Sites associated with CDV-SMA-2.3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.8 CDV-SMA-2.41

1000.8.1 Area Description

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

1000.8.3 Control Measures

1000.8.4 Project Map

1000.8.5 Storm Water Monitoring Plan and Schedule

1000.8.6 Corrective Action Status



1000.8 CDV-SMA-2.41

1000.8.1 Area Description

CDV-SMA-2.41 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and moderately slopes towards the receiving waters further north. The southern boundary of the SMA is influenced by paved areas and structures. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is undeveloped.

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V008, CDV-SMA-2.41, Site 16-018.

SWMU 16-018 (known as MDA P) is located north of the TA-16 burning ground near the south rim of Cañon de Valle. The site operated from 1950 until 1984 as a disposal site for debris that resulted from burning HE and HE-contaminated material at TA-16. Concrete and construction debris was deposited directly on the slopes leading down the canyon. Other materials were burned at one of the nearby open-burn units and the resulting debris or residue was pushed over the mesa rim. The western area of MDA P primarily received construction debris from the demolition of World War II buildings; the eastern area received debris and residue from the open-burn units. The contaminants of primary concern at MDA P included detonable HE, HE residues in soil, barium, and asbestos. MDA P also contained low levels of uranium and inorganic chemicals such as lead and cadmium.

The ER Project submitted a closure plan to NMED in 1995. The plan was approved in 1997 and Phase I work began on removing the waste from MDA P. The discovery of detonable HE in the MDA P landfill required the use of a remote excavator. Remote landfill excavation began in February 1999 and was completed on May 3, 2000, just before the Cerro Grande fire. (Following the Cerro Grande Fire of 2000, the Laboratory's Water Quality and Hydrology group, in conjunction with NMED and DOE, determined that this SWMU needed erosion control measures to be installed because the existing measures, straw barriers and silt fence, were destroyed. The straw barriers and silt fence were replaced and fortified with an earthen berm below the site. A polymer-based emulsion was applied to exposed slopes to reduce the potential for sediment transport.) Nonremote excavation of contaminated soil beneath the landfill resumed after fire recovery and was completed in March 2001. Waste disposal was completed in June 2001. Phase II confirmation sampling and geophysical measurements began in June 2001. During the Phase II sampling, additional contamination was found and additional excavation of localized contamination was completed.

Nearly 55,000 cubic yards of soil, rock, and metal and concrete debris were excavated from MDA P. Of this quantity, 21,506 cubic yards of soil were disposed as hazardous waste. The remainder of this quantity consisted of industrial waste soils, concrete and metal debris that was recycled or managed as industrial waste, and rock that was decontaminated and then used as rip rap within TA-16. Other excavated waste included 3,947 pounds of asbestos-containing material; 888 containers of unknown content; 95 miscellaneous metal objects; 3,240 pounds of low-level radioactive waste; 5,389 pounds of mixed waste; and various smaller quantities of HE, HE-contaminated debris, and residuals from treating HE.

Scrap metal and concrete were shipped to recycling facilities. Contaminated soils and industrial wastes were shipped to off-site solid waste landfills. Solid, nonhazardous wastes were disposed of at MDA J. LANL submitted the final MDA P Area closure certification report to NMED in 2003. NMED disapproved the report.

1000.8.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-018	Material disposal area (MDA P); RCRA unit (currently undergoing RCRA closure)	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.8.3 Control Measures

The paved road south of the SMA does not contribute run-on. Run-on from the unpaved access road southwest of the area is controlled by the culvert and riprap located on the southwest SMA boundary.

Subsections to 1000.8.3 list all control measures used to control pollutant sources identified in Section 1000.8.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.8.4.

1000.8.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V008 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
V008 03 06 0002	Berms - Straw Wattles		•		•
V008 04 04 0011	Channel/Swale - Culvert	•		•	
V008 04 06 0009	Channel/Swale - Culvert	•		•	
V008 04 06 0010	Channel/Swale - Rip Rap	•		•	
V008 06 03 0007	Check Dam - Juniper Bales		•		•
V008 06 03 0008	Check Dam - Juniper Bales		•		•

Established Vegetation
(V008-02-01-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles
(V008-03-06-0002)

Straw wattles were installed at the north end of the SMA to control run-off and sediment and direct flow. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Culvert
(V008-04-04-0011)

The culvert passes under the access road near the southwest corner of the SMA. It is in place to divert run-on. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap
(V008-04-06-0009)

The rip rap is located just south of the sampler. It is in place to mitigate run-on. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

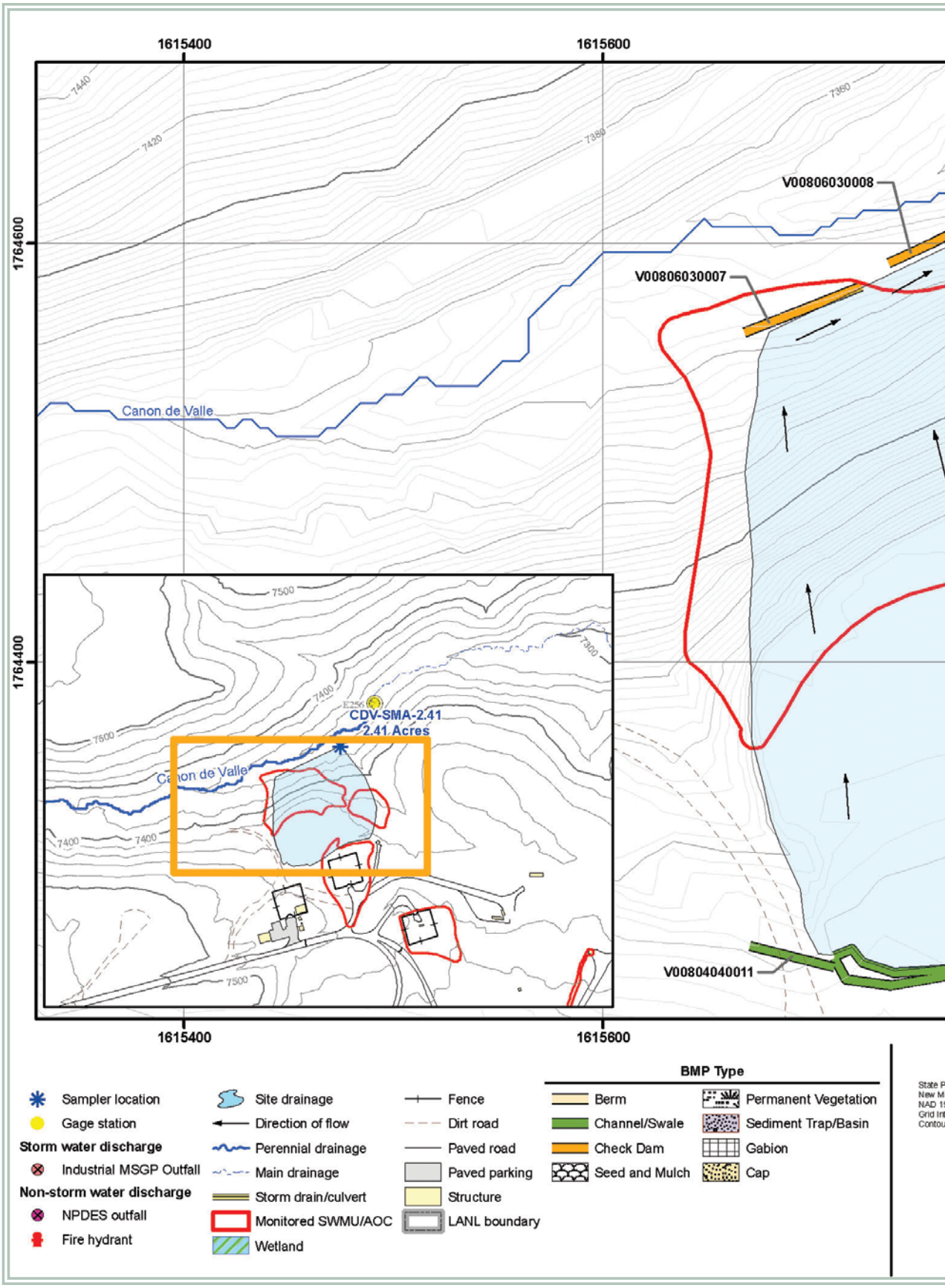
Rip Rap
(V008-04-06-0010)

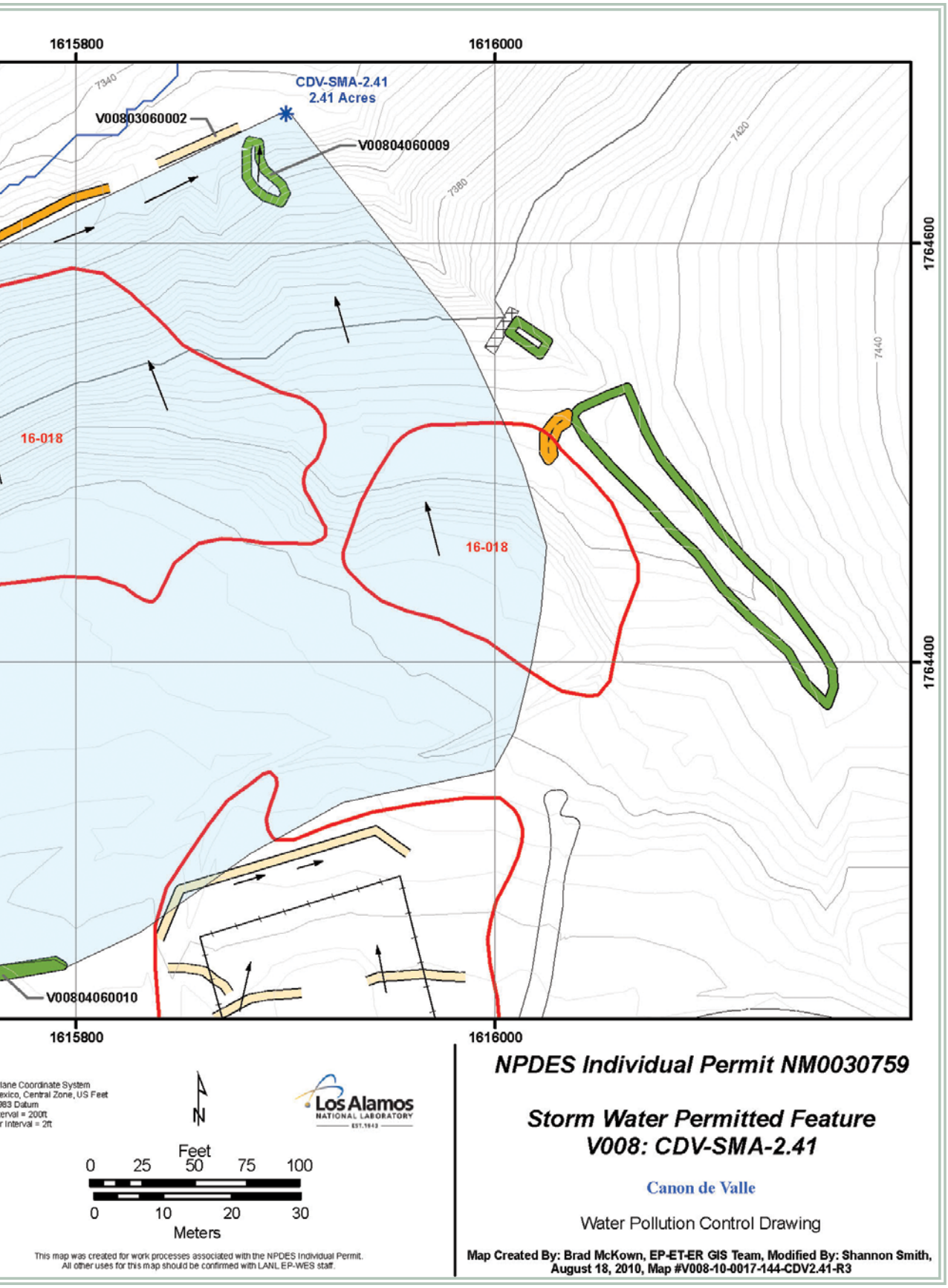
This rip rap is located near the culvert that passes under the access road near the southwest corner of the SMA. It is in place to control run-on and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Juniper Bales
(V008-06-03-0007, -0008)

This is a series of two juniper bales located along the northwest boundary of the SMA. They are in place to control run-off from the slope above. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.8.4 Project Map




1615800
1616000
1764600
1764400
CDV-SMA-2.41
2.41 Acres
V00803060002
V00804060009
V00804060010
16-018
16-018
7340
7380
7420
7440
lane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V008: CDV-SMA-2.41
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, Modified By: Shannon Smith,
August 18, 2010, Map #V008-10-0017-144-CDV2.41-R3

1000.8.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.8.6 Corrective Action Status

The Site associated with CDV-SMA-2.41 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.9 CDV-SMA-2.42

1000.9.1 Area Description

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

1000.9.3 Control Measures

1000.9.4 Project Map

1000.9.5 Storm Water Monitoring Plan and Schedule

1000.9.6 Corrective Action Status



1000.9 CDV-SMA-2.42

1000.9.1 Area Description

CDV-SMA-2.42 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and moderately slopes towards the receiving waters further north. The southern boundary of the SMA is influenced by paved areas and structures. The eastern boundary of the SMA is influenced by paved and unpaved access roads. The western boundary of the SMA is undeveloped.

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V008A, CDV-SMA-2.42, Site 16-010(b).

SWMU 16-010(b) is a former flash pad (structure 16-387) that was located at TA-16. The flash pad was built at TA-16 in 1951 and was used to flash-burn HE-contaminated material. The flash pad was enclosed within a 100 x 100 ft fenced area, and consisted of a layer of sand several inches thick over a soil base. The flash pad operated as a hazardous waste treatment unit under RCRA interim status and is currently undergoing RCRA closure.

1000.9.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-010(b)	Flash pad; RCRA unit (undergoing closure)	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.9.3 Control Measures

There is some potential for run-on to enter the area from the paved access road located along the southeastern perimeter of the Site. The western road does not contribute to run-on.

Subsections to 1000.9.3 list all control measures used to control pollutant sources identified in Section 1000.9.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.9.4.

1000.9.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V008A 01 03 0015	Seed and Mulch - Hydromulch			•	
V008A 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V008A 03 01 0006	Berms - Earthen		•		•
V008A 03 01 0016	Berms - Earthen		•		•
V008A 03 06 0007	Berms - Straw Wattles		•		•
V008A 03 06 0008	Berms - Straw Wattles		•		•
V008A 03 06 0009	Berms - Straw Wattles		•		•
V008A 03 06 0010	Berms - Straw Wattles		•		•
V008A 03 06 0011	Berms - Straw Wattles		•		•
V008A 03 06 0012	Berms - Straw Wattles	•			•
V008A 03 06 0014	Berms - Straw Wattles	•			•
V008A 04 06 0002	Channel/Swale - Rip Rap		•	•	
V008A 04 06 0005	Channel/Swale - Rip Rap		•	•	
V008A 06 01 0004	Check Dam - Rock		•		•
V008A 07 01 0003	Gabions - Gabions		•		•

Hydromulch
(V008A-01-03-0015)
The hydromulch was applied to the central portion of the SMA, north of the unpaved access road, to help prevent erosion of the area. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Established Vegetation
(V008A-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms
(V008A-03-01-0006)
This berm is installed north of and along side of the sampler to control run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - East
(V008A-03-01-0016)
This berm is located northeast of the sampler location. It is used to help control storm water run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles
(V008A-03-06-0007, -0008, -0009, -0010, -0011)
This group of wattles was installed as a cluster of seven to control run-off and sediment south of the sampler. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles South
(V008A-03-06-0012, -0014)
This pair of wattles was installed south of the cluster of seven to control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap - East
(V008A-04-06-0002)
This rip rap is located north of the SMA and sampler in a drainage channel. It is used to control run-off in the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap - West
(V008A-04-06-0005)
This rip rap is located adjacent to the gabion at the canyon edge and assists with controlling run-off from the slope above. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

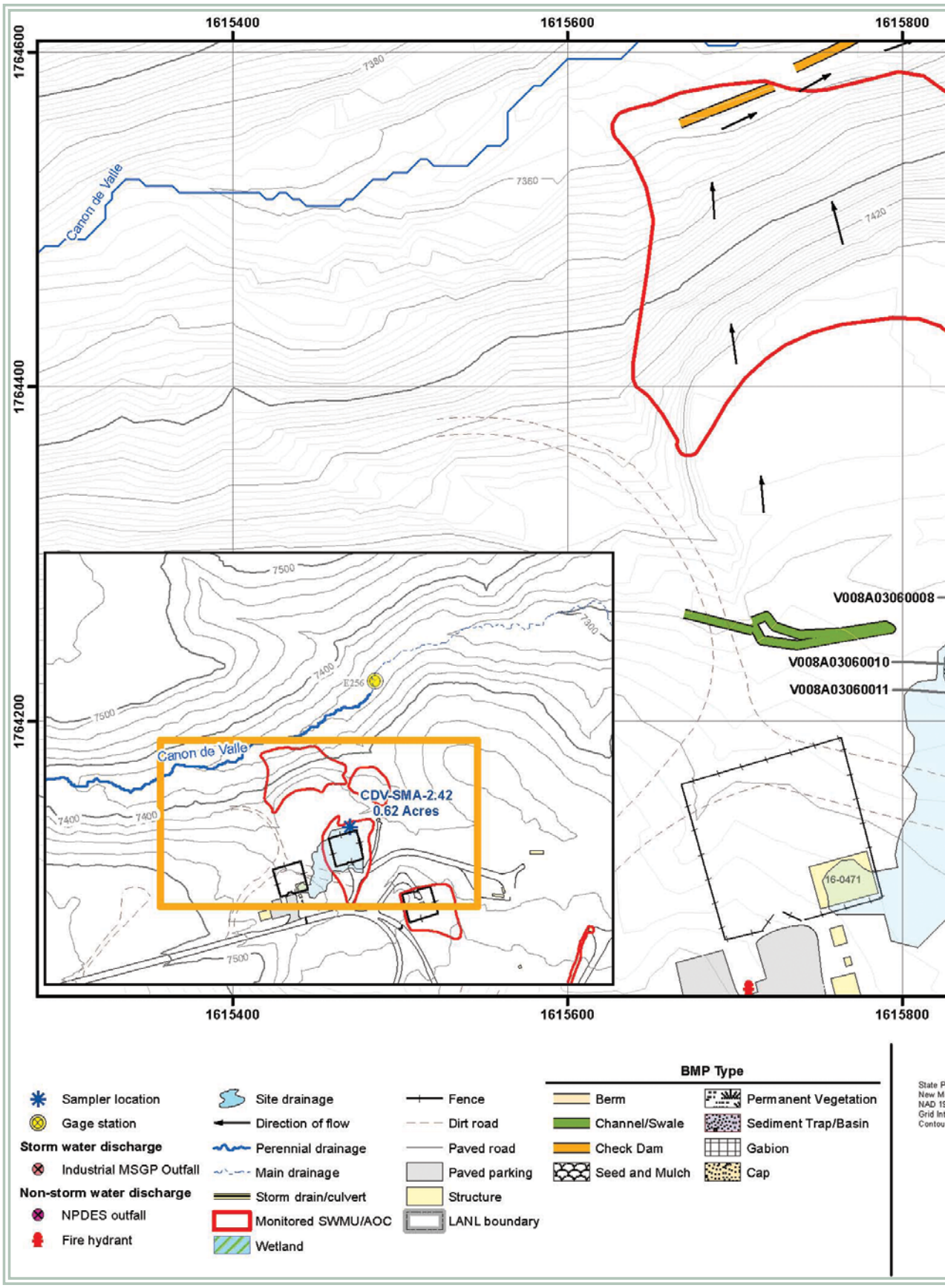
Rock Check Dam (V008A-06-01-0004)
The rock check dam is located adjacent to the eastern rip rap north of the sampler. It is also in place to limit run-off from the SMA. Check dams reduce

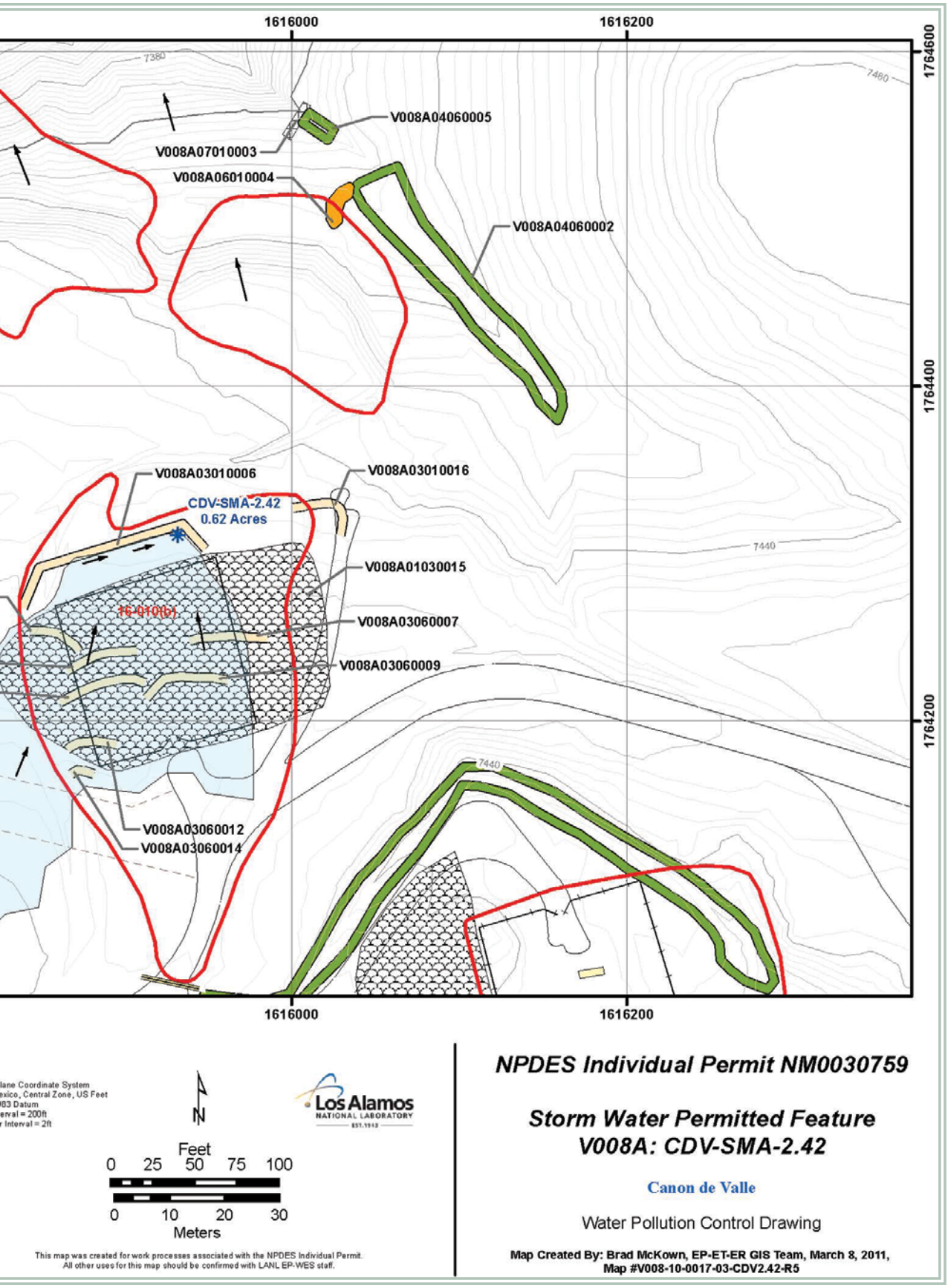
scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Gabions (V008A-07-01-0003)

The gabion is located at the outfall of the drainage channel near the lip of the canyon north of the SMA. It is used to restrict run-off from the area. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.9.4 Project Map




1616000
1616200
1764600
1764400
1764200
7380
7460
7440
V008A04060005
V008A07010003
V008A06010004
V008A04060002
V008A03010006
V008A03010016
CDV-SMA-2.42
0.62 Acres
V008A01030015
16-010(b)
V008A03060007
V008A03060009
V008A03060012
V008A03060014
lane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V008A: CDV-SMA-2.42
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 8, 2011,
Map #V008-10-0017-03-CDV2.42-R5

1000.9.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.9.6 Corrective Action Status

The Site associated with CDV-SMA-2.42 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.10 CDV-SMA-2.5

1000.10.1 Area Description

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

1000.10.3 Control Measures

1000.10.4 Project Map

1000.10.5 Storm Water Monitoring Plan and Schedule

1000.10.6 Corrective Action Status



1000.10 CDV-SMA-2.5

1000.10.1 Area Description

CDV-SMA-2.5 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved surfaces. The southern boundary of the SMA is influenced by structures and paved areas on the western edge. The receiving waters are along the southeastern edge of this boundary. The eastern boundary of the SMA is influenced by paved and unpaved access roads. The western boundary of the SMA is influenced by structures and paved areas.

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF V009, CDV-SMA-2.5, Sites 16-010(c), 16-010(d) and 16-028(a).

SWMU 16-010(c) is a former burn table at TA-16 that was converted to a flash pad/burn tray (structure 16-388). The burn table was used to treat HE scrap. The 100 x 100 ft enclosed area consisted of a concrete pad that was used to unload explosives and a 16 x 4 ft metal tray that was approximately two feet above the ground surface. Scrap HE was placed on the tray and burned. The current flash pad consists of a 22 x 22 ft concrete pad set on a secondary containment area and surrounded on three sides by a concrete wall. Prior to treatment, the HE-contaminated wastes are placed on steel pallets or steel trays. Propane burners are used as heat sources to treat the wastes at the flash pad, which can be covered with a movable steel roof when not in use. The current burn tray consists of a stainless-steel kettle that is 30 inches in diameter and 24 inches high. Propane burners are used to treat HE-contaminated liquid wastes at the burn tray. The entire assembly, which can be covered with a retractable cover, is provided with secondary containment. SWMU 16-010(c) is an active hazardous waste treatment unit operated under interim status and is managed in accordance with state and federal regulations.

SWMU 16-010(d) is a former burn slab at TA-16 that was converted to a burn tray (structure 16-399). The burn table is used to treat HE scrap. The 100 square foot enclosed area consists of a concrete pad that is used to unload explosives and a 16 x 4 ft metal tray on the burn table that is approximately two feet above the ground surface. HE is placed on the tray and burned. A metal-covered rain guard can be rolled back to expose the tray. In 1998, BMPs were installed at this site in the form of run-on diversion, repaving, and installation of an earthen berm and a roof covering. SWMU 16-010(d) is an active hazardous waste treatment unit operated under interim status and is managed in accordance with state and federal regulations.

SWMU 16-028(a) is the south drainage channel from the burning ground at TA-16. The channel runs between a water treatment shed (Building 16-363) and a former liquid impoundment, which has undergone RCRA closure. In 1997, straw bale barriers were installed at this site to minimize contaminant migration from the site. In 2000, additional BMPs were installed in the form of straw wattles and permanent seeding.

1000.10.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-010(c)	Burn site 16-388 RCRA Unit (active)	Co-located, Overlapping	Shared	•	•	•	SVC HE
16-010(d)	Burn site 16-399 RCRA unit (active)	Co-located, Overlapping	Shared	•	•	•	SVC HE
16-028(a)	Drainage Channel	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

Sites grouped within this SMA are associated with current or historical hazardous waste treatment activities. The Sites have similar contaminants and share a common drainage. Sites grouped within this SMA will discharge substantially identical effluent.

1000.10.3 Control Measures

There are multiple paved areas in and around this SMA that have the potential to contribute to run-on onto the SWMUs.

Subsections to 1000.10.3 list all control measures used to control pollutant sources identified in Section 1000.10.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.10.4.

1000.10.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V009 01 01 0003	Seed and Mulch - Seed and Wood Mulch		•	•	
V009 01 01 0004	Seed and Mulch - Seed and Wood Mulch	•		•	
V009 01 01 0023	Seed and Mulch - Seed and Wood Mulch			•	
V009 02 01 0012	Established Vegetation - Grasses and Shrubs			•	
V009 03 01 0011	Berms - Earthen		•		•

1000.10.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V009 03 06 0019	Berms - Straw Wattles	•			•
V009 03 06 0020	Berms - Straw Wattles		•		•
V009 03 06 0021	Berms - Straw Wattles		•		•
V009 04 06 0005	Channel/Swale - Rip Rap	•		•	
V009 04 06 0006	Channel/Swale - Rip Rap		•	•	
V009 04 06 0007	Channel/Swale - Rip Rap	•		•	
V009 04 06 0009	Channel/Swale - Rip Rap	•		•	
V009 06 01 0015	Check Dam - Rock	•			•
V009 06 01 0016	Check Dam - Rock	•			•
V009 06 01 0017	Check Dam - Rock	•			•
V009 06 01 0018	Check Dam - Rock	•			•
V009 06 01 0022	Check Dam - Rock	•			•
V009 06 03 0013	Check Dam - Juniper Bales		•		•
V009 06 03 0014	Check Dam - Juniper Bales		•		•

Southern Seed and Mulch (V009-01-01-0003)

This application of seed and mulch is located around the straw wattles northeast of structure 16-0441. It was applied to prevent erosion of the slope that might result from area run-off. Wood mulching consists of applying a mixture of shredded wood

mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Seed and Mulch - West (V009-01-01-0004)

This seed and mulch was applied to the north side of the wattles northwest of structure 16-0441. It was applied to prevent erosion of the area due to any run-on from above. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Seed and Mulch (V009-01-01-0023)

This mulch is in the northern portion of the site drainage near the northern rip-rap to control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (V009-02-01-0012)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (V009-03-01-0011)

This berm is located in the eastern portion of the SMA across the flow path to control run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Berms- Wattles (V009-03-06-0019)

This wattle controls run-on and sediment near building 16-0441. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - South (V009-03-06-0020, -0021)

This group of two wattles control run-off and sediment near building 16-0441. Straw wattles help to stabilize

slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Northwest Rip Rap (V009-04-06-0005)

This rip rap is located above the paved area north of structure 16-0441. It is used to control run-on and prevent erosion on the slope. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Southern Rip Rap (V009-04-06-0006)

This rip rap is located on the southeast side of the paved access road to structure 16-0441 in the drainage channel. It is used to restrict run-off from the paved area and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap - Central (V009-04-06-0007)

This rip rap is located in the drainage on the north side of Burning Ground Road. Its function is to mitigate run-on from the paved road and prevent erosion of the drainage area. Rip rap is a permanent,
erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Northern Rip Rap (V009-04-06-0009)

This rip rap is located in the northern area of the SMA at the culvert outlet. It follows the drainage channel northeast then continues towards the south east around the fenced Site. It is diverting run-on around the site and preventing erosion of the drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams (V009-06-01-0015, -0016, -0017, -0018)

This is a series of four check dams installed at the head of the drainage channel on the northwest side of 16-010(c). They are used to help control run-on and sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

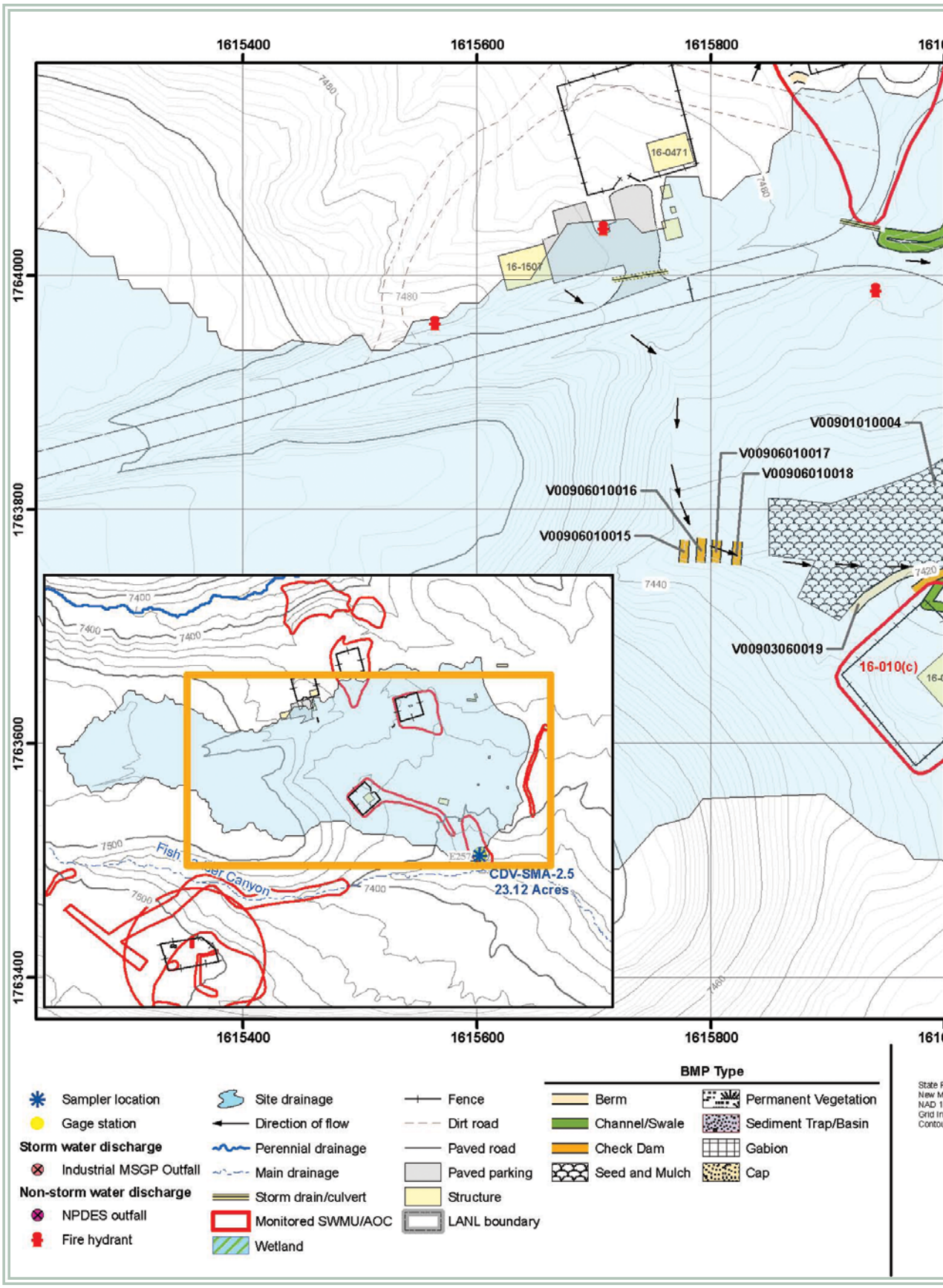
Check Dam (V009-06-01-0022)

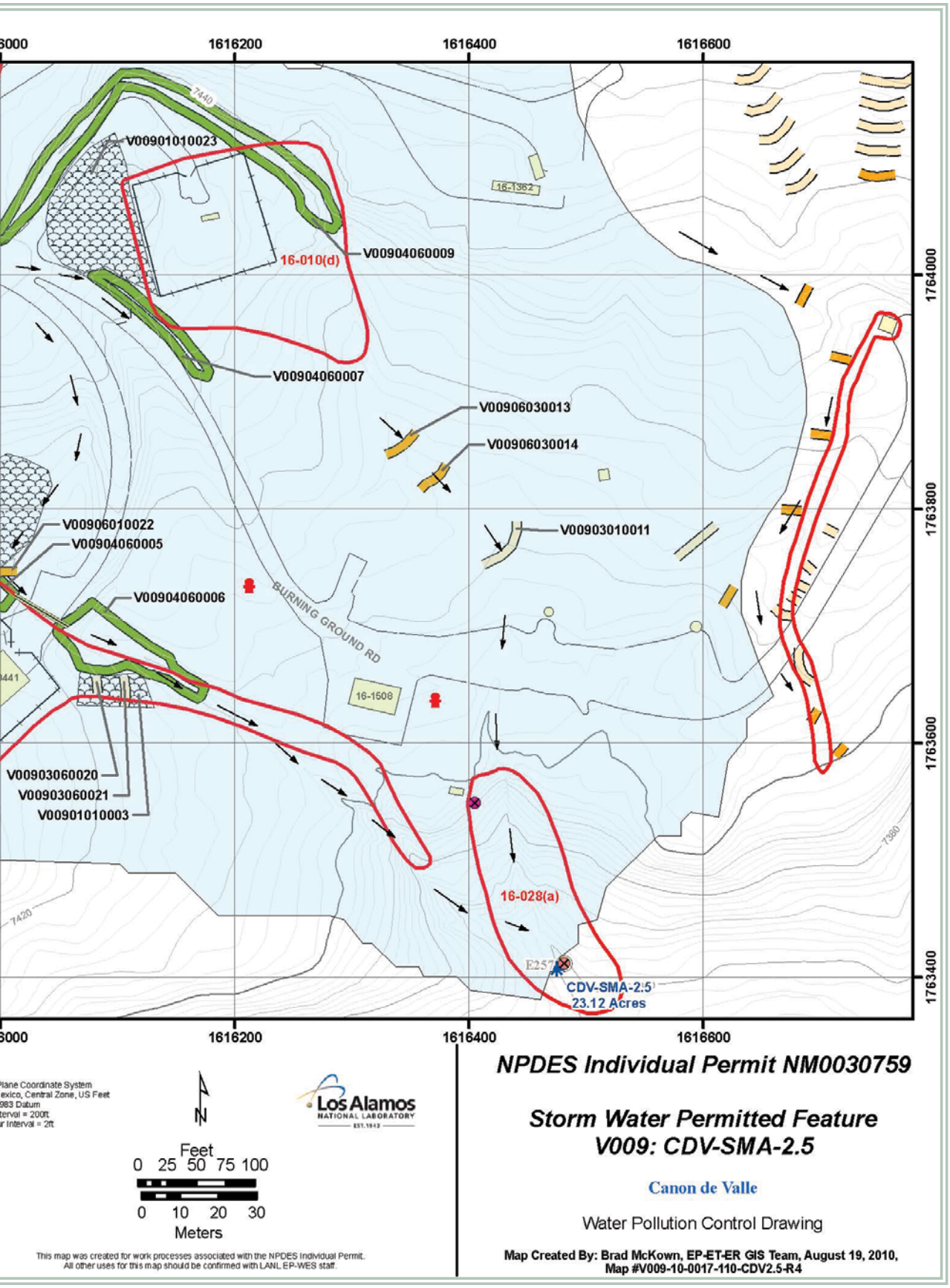
This dam controls run-on and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Juniper Bales (V009-06-03-0013, -0014)

This is a pair of juniper bales installed south of the Site 16-010(d), in the flow path, to control run-off and sediment. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.10.4 Project Map




1616200
1616400
1616600
1764000
1763800
1763600
1763400
V00901010023
16-010(d)
V00904060009
V00904060007
V00906030013
V00906030014
V00906010022
V00904060005
V00903010011
V00904060006
BURNING GROUND RD
16-1362
16-1508
V00903060020
V00903060021
V00901010003
16-028(a)
CDV-SMA-2.5
23.12 Acres
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V009: CDV-SMA-2.5
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 19, 2010,
Map #V009-10-0017-110-CDV2.5-R4

1000.10.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.10.6 Corrective Action Status

The Sites associated with CDV-SMA-2.5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.11 CDV-SMA-2.51

1000.11.1 Area Description

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

1000.11.3 Control Measures

1000.11.4 Project Map

1000.11.5 Storm Water Monitoring Plan and Schedule

1000.11.6 Corrective Action Status



1000.11 CDV-SMA-2.51

1000.11.1 Area Description

CDV-SMA-2.51 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped. The southern boundary of the SMA is influenced by a paved road on the eastern edge. The receiving waters are along the southeastern edge of this boundary. The eastern boundary of the SMA is influenced by a paved access road. The western boundary of the SMA is influenced by paved areas.

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V009A, CDV-SMA-2.51, Site 16-010(i).

SWMU 16-010(i) is structure 16-392, an inactive burn pad that formerly was a filter bed that received wash water from the basket-wash facility. The wash water was received through a trough (structure 16-1136). Filtered wash water from the basket-wash facility collected within perforated piping along the bottom of the filter bed and drained via gravity through a pipe to an adjacent outfall southeast of the filter bed. The filter bed was modified to a burn pad to burn suspected uranium-contaminated objects. The trough was dismantled when the filter bed was modified.

1000.11.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-010(i)	Burn Pad	Co-located, Overlapping	Individual	•	•	•	SVC HE

1000.11.3 Control Measures

The paved access road east of the SMA has the potential to contribute to run-on onto the Site.

Subsections to 1000.11.3 list all control measures used to control pollutant sources identified in Section 1000.11.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.11.4.

1000.11.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V009A 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V009A 02 02 0002	Established Vegetation - Forested/ Needle Cast			•	
V009A 03 02 0005	Berms - Base Course	•			•
V009A 03 02 0012	Berms - Base Course	•			•
V009A 03 06 0007	Berms - Straw Wattles	•			•
V009A 03 06 0008	Berms - Straw Wattles	•			•
V009A 03 06 0009	Berms - Straw Wattles	•			•
V009A 03 06 0010	Berms - Straw Wattles	•			•
V009A 03 06 0011	Berms - Straw Wattles	•			•
V009A 03 06 0018	Berms - Straw Wattles	•			•
V009A 03 06 0019	Berms - Straw Wattles	•			•
V009A 03 06 0020	Berms - Straw Wattles	•			•
V009A 03 06 0021	Berms - Straw Wattles	•			•
V009A 03 06 0022	Berms - Straw Wattles	•			•

1000.11.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V009A 03 06 0023	Berms - Straw Wattles	•			•
V009A 03 06 0024	Berms - Straw Wattles	•			•
V009A 03 06 0025	Berms - Straw Wattles	•			•
V009A 03 06 0026	Berms - Straw Wattles	•			•
V009A 03 06 0027	Berms - Straw Wattles	•			•
V009A 06 01 0003	Check Dam - Rock		•		•
V009A 06 01 0004	Check Dam - Rock		•		•
V009A 06 01 0006	Check Dam - Rock	•			•
V009A 06 01 0013	Check Dam - Rock		•		•
V009A 06 01 0014	Check Dam - Rock		•		•
V009A 06 01 0015	Check Dam - Rock		•		•
V009A 06 01 0016	Check Dam - Rock	•			•
V009A 06 03 0017	Check Dam - Juniper Bales	•			•

Permanent Vegetation (V009A-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm - East
(V009A-03-02-0005)
This berm is located east of the main flow path on the eastern side of Burning Ground Road. It is used to help mitigate run-on flow from the road. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berm - West
(V009A-03-02-0012)
This berm is located west of the SMA and north of the Burning Ground Road. It is used to help control run-on from the slope above. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles - South
(V009A-03-06-0007, -0008, -0009, -0010, -0011)
This is a series of five straw wattles located along the west side of Burning Ground Road near the curve in the road. They are used to help control run-on from the road. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West
(V009A-03-06-0018, -0019, -0020, -0021, -0022, -0023)
This is a series of six straw wattles located on the western side of the northern portion of the SMA. They are used to assist with the management of run-on from the undeveloped areas to the north. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - East
(V009A-03-06-0024, -0025, -0026, -0027)
This is a series of four straw wattles located on the eastern side of the northern portion of the SMA. They are used to assist with the management of run-on from the undeveloped areas to the north. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams - South
(V009A-06-01-0003, -0004)
This is a pair of check dams located in the drainage channel above the sampler. They are used to help control storm water run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam
(V009A-06-01-0006)
This check dam is located just west of the SMA near the bend in Burning Ground Road. It is in place to help control run-on to the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - West Channel (V009A-06-01-0013, -0014, -0015)

This is a series of three rock check dams located in the main drainage channel. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

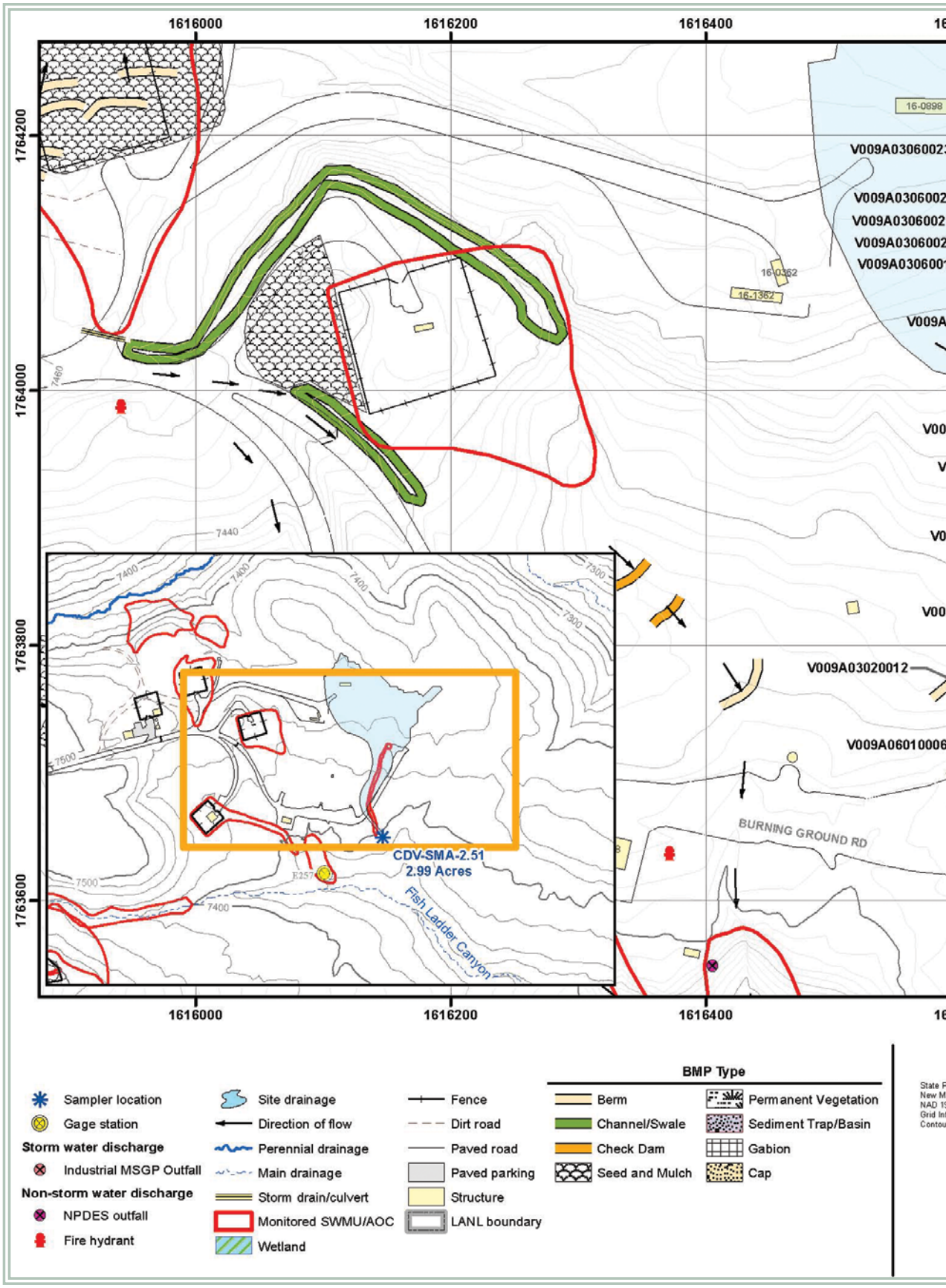
Rock Check Dam - Northwest (V009A-06-01-0016)

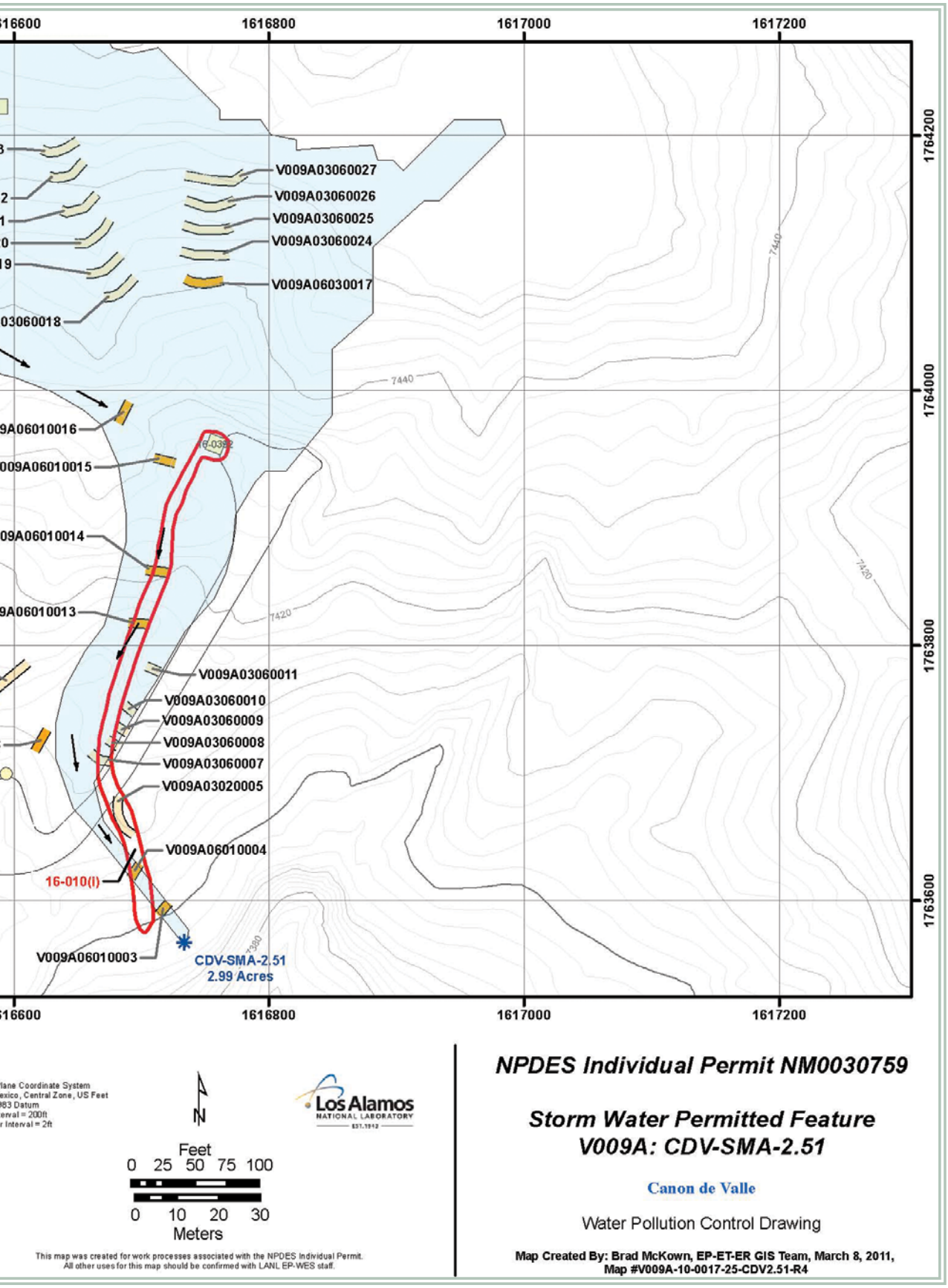
This check dam is located near the border of the SMA foot print northwest of structure 16-0362. It is used to help manage storm water run-on from the paved areas located above the Site. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Juniper Bales (V009A-06-03-0017)

The juniper bales are located in the northern portion of the SMA, just south of the Straw Wattles East. They are used to help manage run-on from the slope above. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.11.4 Project Map




1616600
1616800
1617000
1617200
1764200
1764000
1763800
1763600
V009A03060027
V009A03060026
V009A03060025
V009A03060024
V009A06030017
03060018
9A06010016
009A06010015
09A06010014
9A06010013
V009A03060011
V009A03060010
V009A03060009
V009A03060008
V009A03060007
V009A03020005
V009A06010004
16-010(i)
V009A06010003
CDV-SMA-2.51
2.99 Acres
7440
7420
7380
Feet
0 25 50 75 100
0 10 20 30
Meters
N
Los Alamos
NATIONAL LABORATORY
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V009A: CDV-SMA-2.51
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 8, 2011,
Map #V009A-10-0017-25-CDV2.51-R4

1000.11.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.11.6 Corrective Action Status

The Site associated with CDV-SMA-2.51 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.12 CDV-SMA-3

1000.12.1 Area Description

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

1000.12.3 Control Measures

1000.12.4 Project Map

1000.12.5 Storm Water Monitoring Plan and Schedule

1000.12.6 Corrective Action Status



1000.12 CDV-SMA-3

1000.12.1 Area Description

CDV-SMA-3 is located within TA-14 and access to the area is controlled. The northern boundary of the SMA is largely developed, paved, and gently sloping southwest towards the receiving waters. The southern boundary of the SMA undeveloped and gently sloping. The eastern boundary of the SMA is influenced by paved areas and structures. The western boundary of the SMA borders an unpaved access road and contains the receiving waters. Storm water flows southwest towards the receiving waters.

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V010, CDV-SMA-3, Site 14-009.

SWMU 14-009 is a 45 x 50 x 1 ft-deep surface disposal area on the southwest slope of the western firing area at TA-14. The disposal area consists of ruptured sandbags. When explosives were tested, sandbags were placed around a firing site to contain the detonation. When the pressure of a blast ruptured the sandbags, the sand was used to control erosion around the firing site.

1000.12.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
14-009	Surface disposal site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.12.3 Control Measures

The primary source of run-on for this Permitted Feature originates on the paved areas to the north and west of the SMA. Additional run-on from roof drains on building 14-0043 also impacts the SMA via the same flow patterns.

Subsections to 1000.12.3 list all control measures used to control pollutant sources identified in Section 1000.12.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.12.4.

1000.12.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V010 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
V010 03 12 0005	Berms - Rock	•			•
V010 03 12 0009	Berms - Rock		•		•
V010 04 06 0007	Channel/Swale - Rip Rap	•		•	
V010 04 06 0008	Channel/Swale - Rip Rap		•	•	
V010 06 01 0004	Check Dam - Rock		•		•

Established Vegetation (V010-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Berm - North (V010-03-12-0005)

The berm is located at the northern edge of the SMA, south of structure 14-0043. It is in place to help manage storm water run-on from above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock-Berm (V010-03-12-0009)

Installed in the southwestern section of the drainage area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Channel/Swale Rip-Rap (V010-04-06-0007)

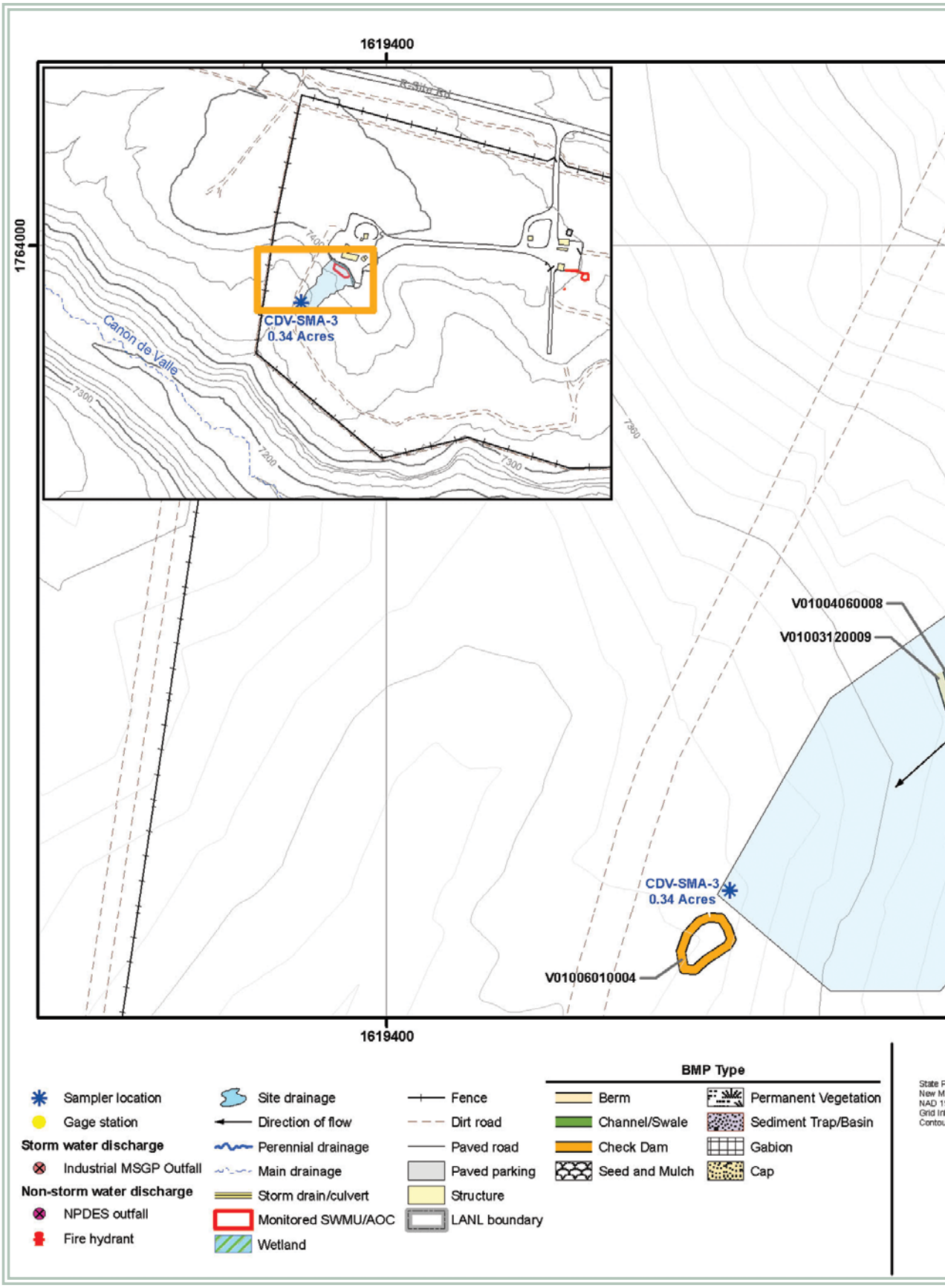
Installed south of building 14-0043. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

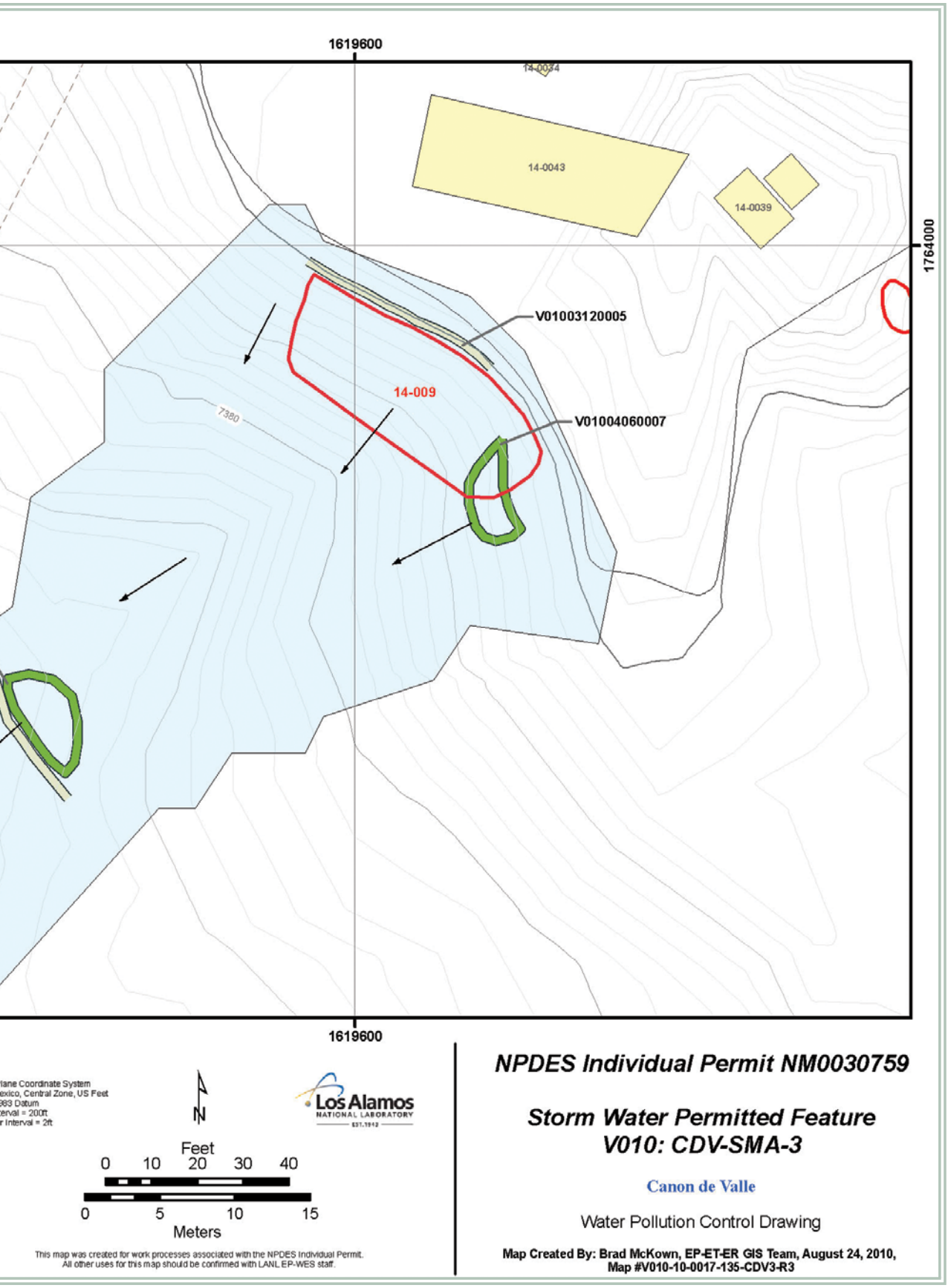
Rip-Rap Channel/Swale (V010-04-06-0008)

Installed in conjunction with rock berm -0009. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (V010-06-01-0004)
This rock check dam is located south of the sampler to control run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.12.4 Project Map




1619600
14-0034
14-0043
14-0039
1764000
V01003120005
14-009
7380
V01004060007
1619600
iane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V010: CDV-SMA-3
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 24, 2010,
Map #V010-10-0017-135-CDV3-R3

1000.12.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.12.6 Corrective Action Status

The Site associated with CDV-SMA-3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.13 CDV-SMA-4

1000.13.1 Area Description

1000.13.2 Potential Pollutant Source

1000.13.2.1 Historical Industrial Activity Areas

1000.13.3 Control Measures

1000.13.4 Project Map

1000.13.5 Storm Water Monitoring Plan and Schedule

1000.13.6 Corrective Action Status



1000.13 CDV-SMA-4

1000.13.1 Area Description

CDV-SMA-4 is located within TA-14 and access to the area is controlled. The northern and western boundaries of the SMA are influenced by paved areas and development. Storm water flows southeast from this developed area towards the receiving waters along the southwestern boundary of the SMA.

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V011, CDV-SMA-4, Site 14-010.

SWMU 14-010 is a decommissioned explosive waste sump and drain-line and its associated drainage area south of and adjacent to structure 14-2 [a decommissioned firing chamber, SWMU 14-002(a)]. The sump's contents were removed and disposed of in 1973 and the area was paved over or replaced by the bullet test facility.

1000.13.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
14-010	Soil contamination from former Sump and Drain lines	Discrete Location, No overlap	Individual	•	•	•	HE

1000.13.3 Control Measures

There is run-on to the SWMU from the paved area above the SMA. Existing controls address this potential run-on source.

Subsections to 1000.13.3 list all control measures used to control pollutant sources identified in Section 1000.13.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.13.4.

1000.13.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V011 01 01 0004	Seed and Mulch - Seed and Wood Mulch			•	
V011 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V011 03 12 0002	Berms - Rock	•			•
V011 06 01 0003	Check Dam - Rock		•		•

Seed and Wood Mulch (V011-01-01-0004)

This mulch contains erosion between rock berm -0002 and check dam -0003. It is northwest of the sampler. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (V011-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

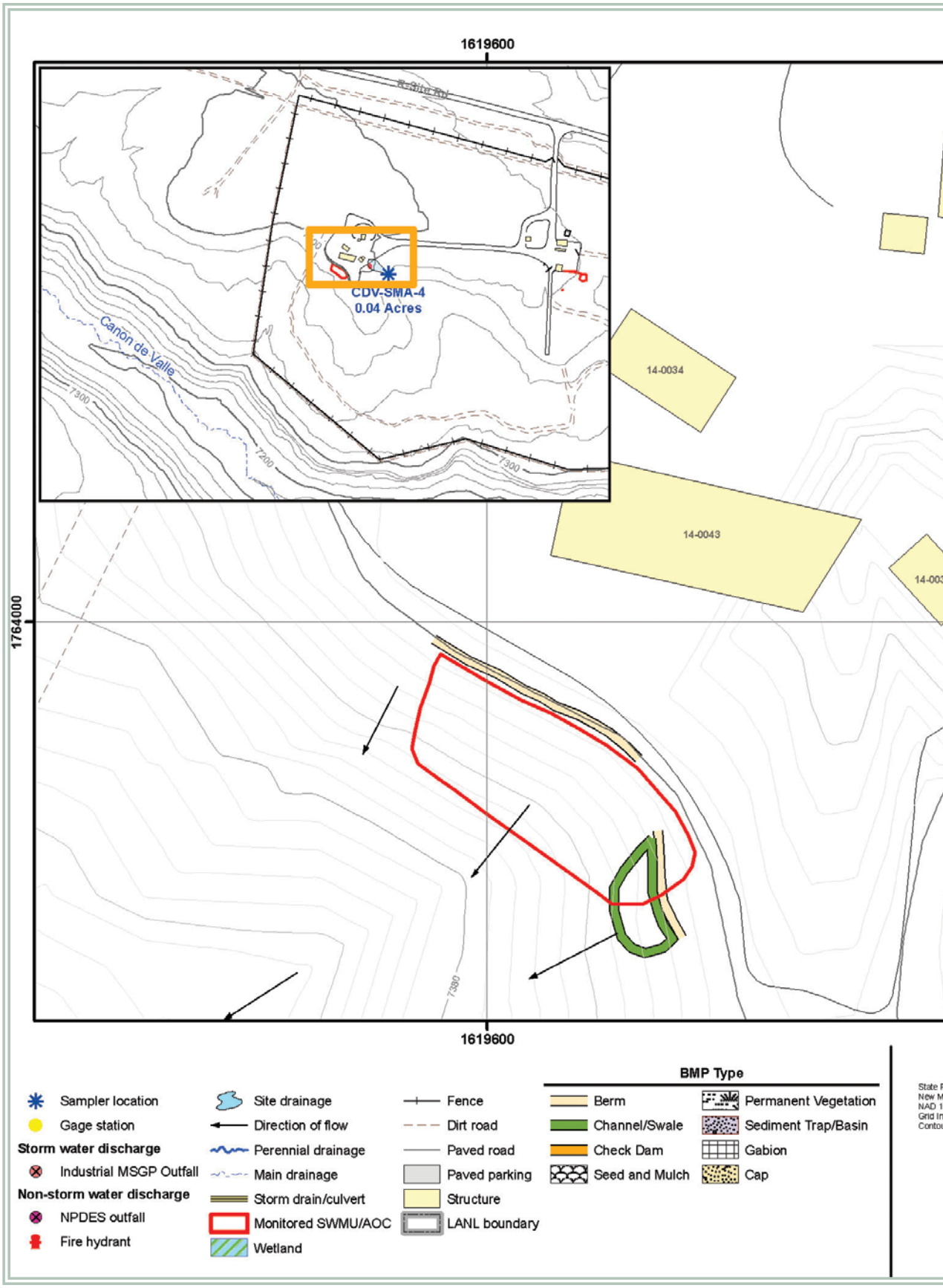
Rock Berms (V011-03-12-0002)

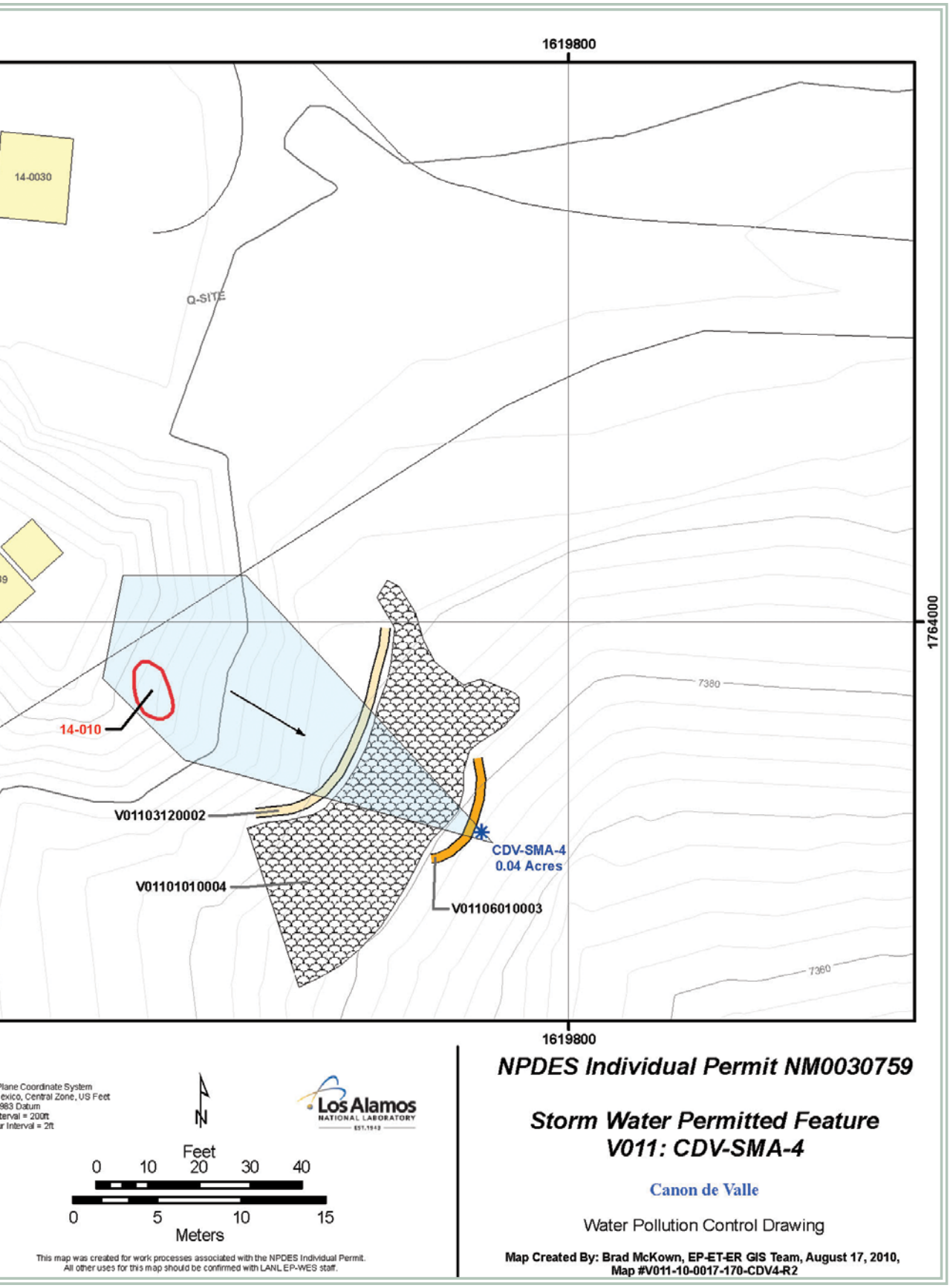
This rock berm is northwest of the sampler, above the mulched area, interrupting run-on and sediment from the northwest. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dam (V011-06-01-0003)

This check dam is immediately northwest of the sampler to control run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.13.4 Project Map




1619800
14-0030
Q-SITE
1764000
7380
14-010
V01103120002
CDV-SMA-4
0.04 Acres
V01101010004
V01106010003
7360
1619800
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V011: CDV-SMA-4
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 17, 2010,
Map #V011-10-0017-170-CDV4-R2

1000.13.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.13.6 Corrective Action Status

The Site associated with CDV-SMA-4 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.14 CDV-SMA-6.01

1000.14.1 Area Description

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

1000.14.3 Control Measures

1000.14.4 Project Map

1000.14.5 Storm Water Monitoring Plan and Schedule

1000.14.6 Corrective Action Status



1000.14 CDV-SMA-6.01

1000.14.1 Area Description

CDV-SMA-6.01 is located within TA-14 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas. Moving east, the terrain is largely undeveloped and gently sloping towards the southeast. The southern boundary of the SMA is influenced by unpaved access roads. The eastern boundary of the SMA is undeveloped and contains the receiving waters. Storm water flows southeast towards the receiving waters.

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF V012, CDV-SMA-6.01, Sites 14-001(g) and 14-006.

AOC 14-001(g) is a three-sided blast shield at an active firing site; the shield directs the force of detonation away from the nearby control building (Building 14-23). At the base, the shield is a 2 ft thick x 6 ft concrete pad overlaid by a neoprene shock pad, a 4.5 inch steel plate, and several inches of sand. Materials are placed on the pad and detonated from Building 14-23. Known as Q-site, TA-14 has been used since 1944 for explosives development and testing, including testing that involves radioactive materials. The site is served by four drainages that ultimately discharge to Cañon de Valle.

The ER Project issued an RFI report in 1996 that included AOC 14-001(g), although AOC 14-001(g) was not sampled during the RFI. The RFI report stated that any corrective action at this AOC would be deferred until the site is decommissioned.

SWMU 14-006 consists of an HE sump (structure 14-31), associated drain-line, and unpermitted outfall for a control building (Building 14-23) located at TA-14. Building 14-23 was built in late 1944 or 1945. The sump is made of steel and concrete, and is 4.5 ft wide x 8.3 ft long x 4.8 ft deep. The sump outlet is plugged. Two floor drains and an asphalt roof drain bypass the sump in a metal-covered concrete culvert and discharge to the outfall. Sludge in the sump is collected for burning.

1000.14.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
14-001(g)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
14-006	Sump and/or associated equipment	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA are associated with historical and current activities at TA-14, known as Q-Site. This area has been used since 1944 for explosives

development and testing. Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.14.3 Control Measures

There is potential run-on contributions from the paved areas around building 14-023. Subsections to 1000.14.3 list all control measures used to control pollutant sources identified in Section 1000.14.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.14.4.

1000.14.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V012 01 01 0010	Seed and Mulch - Seed and Wood Mulch			•	
V012 01 06 0007	Seed and Mulch - Erosion Control Blankets			•	
V012 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
V012 03 01 0006	Berms - Earthen	•			•
V012 03 02 0003	Berms - Base Course		•		•
V012 03 06 0008	Berms - Straw Wattles	•			•
V012 03 06 0009	Berms - Straw Wattles	•			•
V012 03 13 0004	Berms - S-Fence		•		•
V012 03 13 0005	Berms - S-Fence		•		•

Seed and Wood Mulch (V012-01-01-0010)

Seed and mulch has been applied between and around the wattles and berms above 14-006 to help prevent erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Erosion Control Blankets (V012-01-06-0007)

The erosion control blankets have been installed on the slope surrounding the S-fences in order to help control erosion. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (V012-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (V012-03-01-0006)

This berm is located along the eastern edge of paved area above the sampler. It is used to help control storm water run-on from the paved areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berm (V012-03-02-0003)

This berm is located south of the SMA boundary. It is used to control run-off from the associated firing site. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

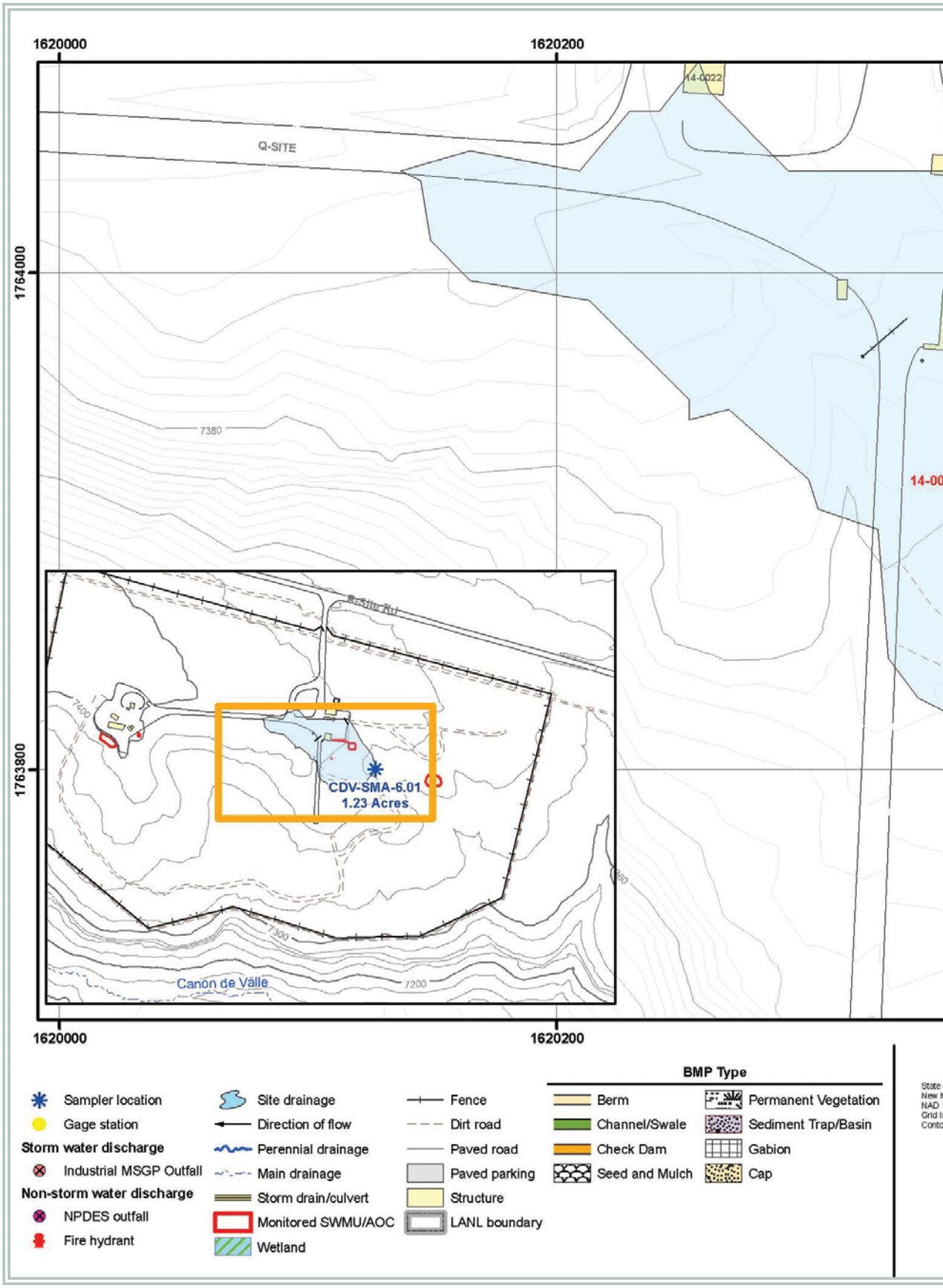
Straw Wattles (V012-03-06-0008, -0009)

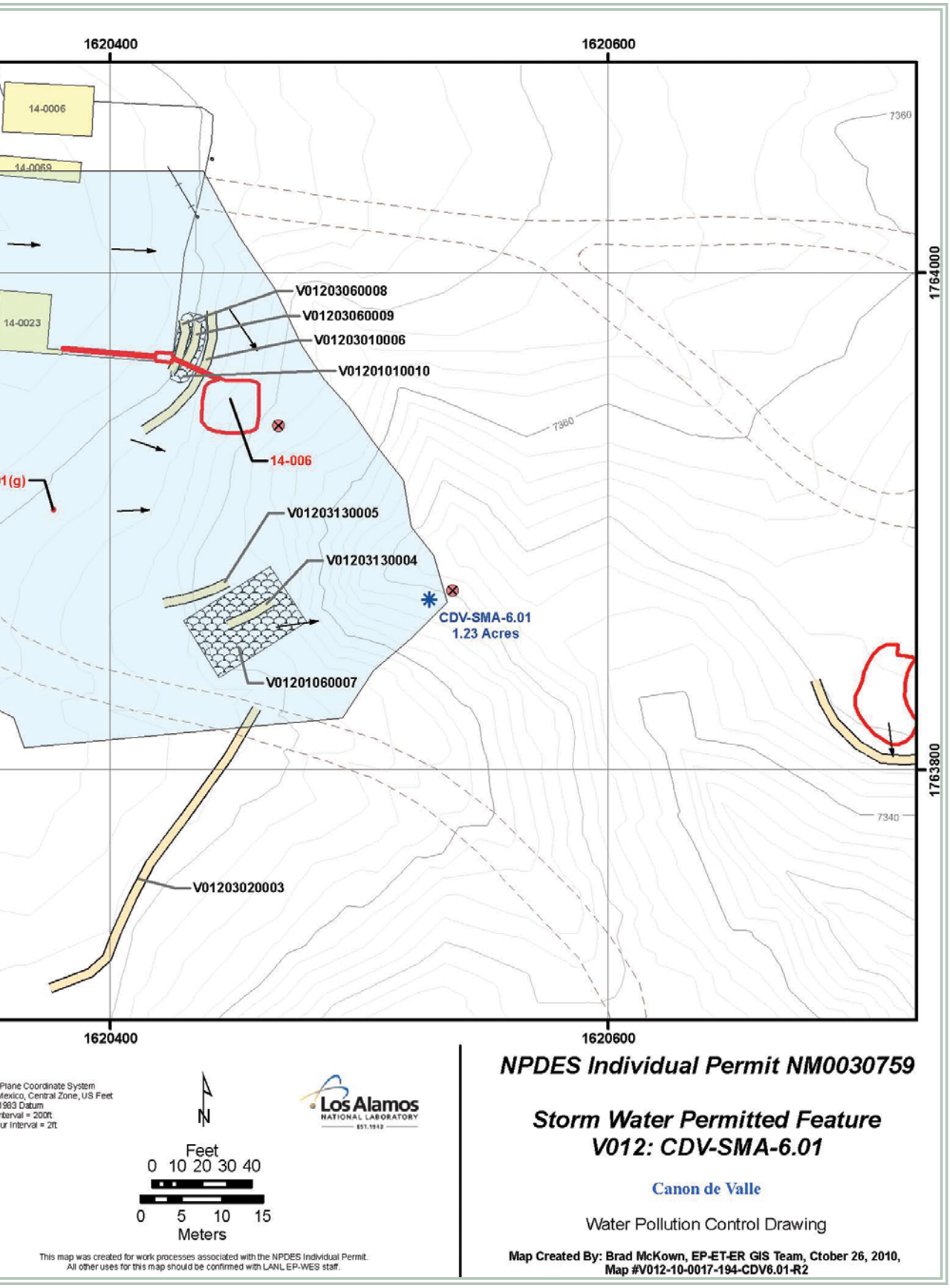
This is a pair of wattles located near the earthen berm along the eastern edge of paved area above the sampler. They are in place to help control storm water run-on from the paved areas. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

S-Fence (V012-03-13-0004, -0005)

This pair of S-fences is located in the southern portion of the SMA and is used to help mitigate storm water run-off from the area. S-Fence is used for sediment control applications, similar to silt fence. However, S-Fence is made of HDPE, is UV-resistant and designed to allow water flow-through and significantly reduces water velocity to reduce erosive energy while at the same time provides particle filtering. Install in accordance with manufacturer`s specifications.

1000.14.4 Project Map




1620400
1620600
1764000
1763800
14-0006
14-0069
14-0023
V01203060008
V01203060009
V01203010006
V01201010010
14-006
V01203130005
V01203130004
CDV-SMA-6.01
1.23 Acres
V01201060007
V01203020003
7360
7340
Plane Coordinate System
Mexico, Central Zone, US Feet
1983 Datum
nterval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V012: CDV-SMA-6.01
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, Ctober 26, 2010,
Map #V012-10-0017-194-CDV6.01-R2

1000.14.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.14.6 Corrective Action Status

The Sites associated with CDV-SMA-6.01 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.15 CDV-SMA-6.02

1000.15.1 Area Description

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

1000.15.3 Control Measures

1000.15.4 Project Map

1000.15.5 Storm Water Monitoring Plan and Schedule

1000.15.6 Corrective Action Status



1000.15 CDV-SMA-6.02

1000.15.1 Area Description

CDV-SMA-6.02 is located within TA-14 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and a paved access road. Moving east, the terrain is largely undeveloped and gently sloping towards the southeast. The southern boundary of the SMA is influenced by an unpaved access road. The eastern boundary of the SMA is undeveloped and contains the receiving waters. Storm water flows south towards the receiving waters.

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF V012A, CDV-SMA-6.02, Sites 14-002(d) and 14-002(e).

SWMU 14-002(d) is the site of one of two former firing pads at TA-14 that were located on a gravel area adjacent to the south end of Building 14-5. The pads were used from 1944 to the mid-1950s for small-scale explosives tests. The firing pads have been removed from the site.

SWMU 14-002(e) is the site of one of two former firing pads that were located on a gravel area adjacent to the south end of Building 14-5. The pads were used from 1944 to the mid-1950s for small-scale explosives tests. The firing pads have been removed from the site.

1000.15.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
14-002(d)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
14-002(e)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA are associated with historical and current activities at TA-14, known as Q-Site. This area has been used since 1944 for explosives development and testing. Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.15.3 Control Measures

There is potential run-on contributions from the paved access road north of the Permitted Feature.

Subsections to 1000.15.3 list all control measures used to control pollutant sources identified in Section 1000.15.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.15.4.

1000.15.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V012A 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V012A 03 01 0002	Berms - Earthen	•			•
V012A 03 01 0003	Berms - Earthen		•		•

Established Vegetation (V012-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

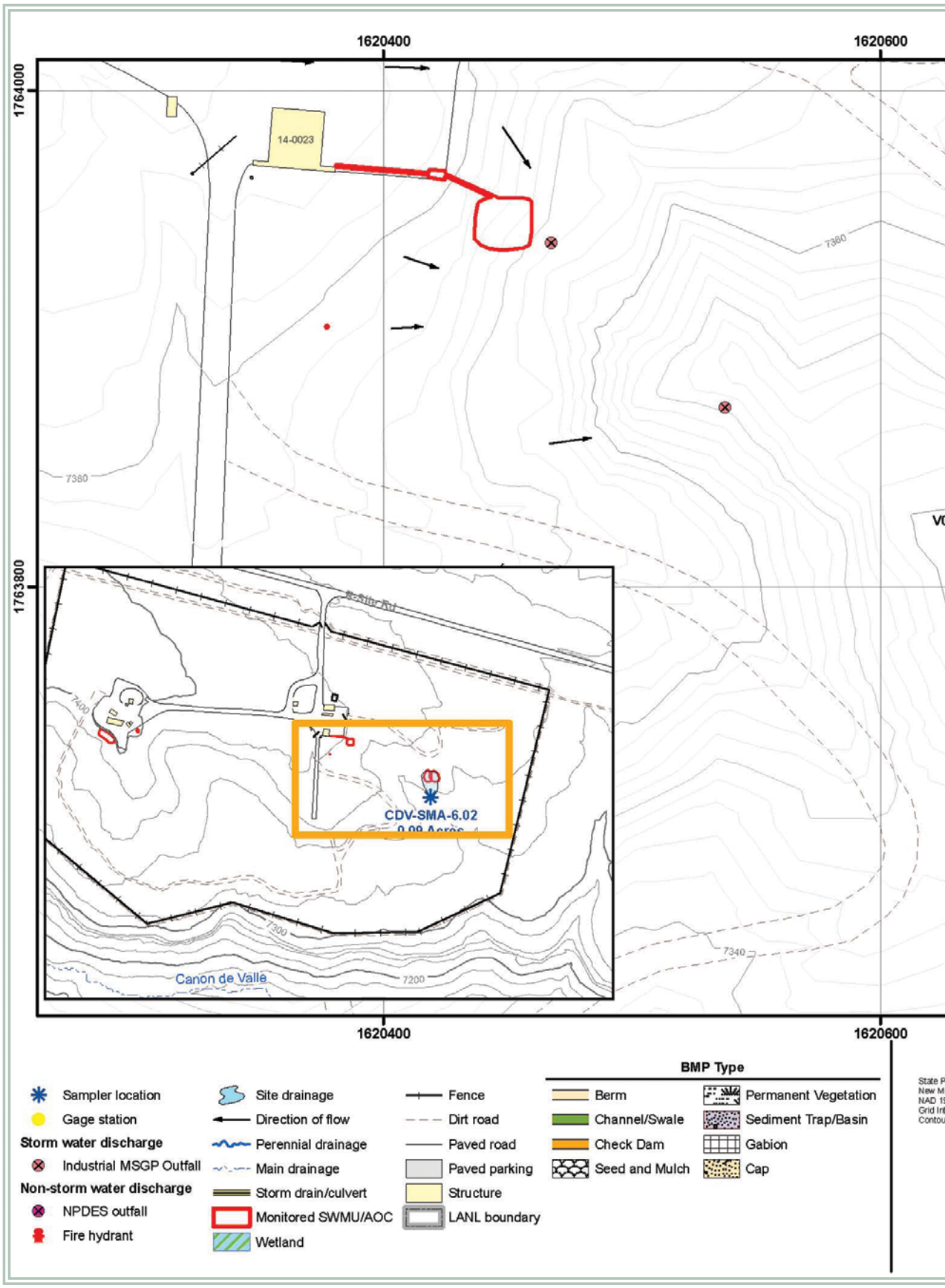
Earthen Berm - East (V012A-03-01-0002)

This berm is located south of the paved access road and helps divert storm water run-on away from the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm (V012A-03-01-0003)

This berm is located along the southern portion of the 14-002(d) and 14-002(e)SMWU boundaries. It is used to help control storm water run-off and deter sediment transport. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.15.4 Project Map



1620800
1764000
1763800
1620800
14-002(d)
14-002(e)
V012A03010002
012A03010003
7340
7320
CDV-SMA-6.02
0.09 Acres
lane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V012A: CDV-SMA-6.02
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 10, 2010,
Map #V012A-10-0017-24-CDV6.02-R2

1000.15.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.15.6 Corrective Action Status

The Sites associated with CDV-SMA-6.02 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.16 CDV-SMA-7

1000.16.1 Area Description

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

1000.16.3 Control Measures

1000.16.4 Project Map

1000.16.5 Storm Water Monitoring Plan and Schedule

1000.16.6 Corrective Action Status



1000.16 CDV-SMA-7

1000.16.1 Area Description

CDV-SMA-7 is located within TA-15 and access to the area is controlled. The northern boundary of this SMA is moderately sloping, undeveloped land. The southern boundary is moderately sloped, undeveloped land above the receiving waters. The immediate eastern boundary of the SMA is moderately sloping and undeveloped. The western boundary of the SMA is moderately sloping, undeveloped land.

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V013, CDV-SMA-7, Site 15-008(d).

SWMU 15-008(d) consists of building debris located south of Building 15-22. Building 15-22 is located on the west side of TA-15 in an area referred to as The Hollow. This building is now a storage building, but was originally constructed in the 1970s as a control center for an experimental accelerator in nearby Building 15-203. This control center was never needed to operate the accelerator, and the building was never used for this purpose. The RFI work plan states that no activities involving hazardous materials were conducted in Building 15-22 and that the building debris was not present in 1992 when the work plan was prepared.

1000.16.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-008(d)	Surface disposal	Discrete Location, No overlap	Individual	•		•	

1000.16.3 Control Measures

Potential run-on to this Permitted Feature primarily originates on the paved access road and natural areas around the SMA. Another source of run-on is from the concrete slab remaining from a removed building north and west of the SMA. Run-on from the road is diverted to the west and south away from the Site by a natural drainage channel.

Subsections to 1000.16.3 list all control measures used to control pollutant sources identified in Section 1000.16.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.16.4.

1000.16.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V013 02 01 0001	**Established Vegetation - Grasses and Shrubs**			•	
V013 03 01 0006	**Berms - Earthen**	•			•
V013 03 01 0007	**Berms - Earthen**		•		•

Established Vegetation (V013-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

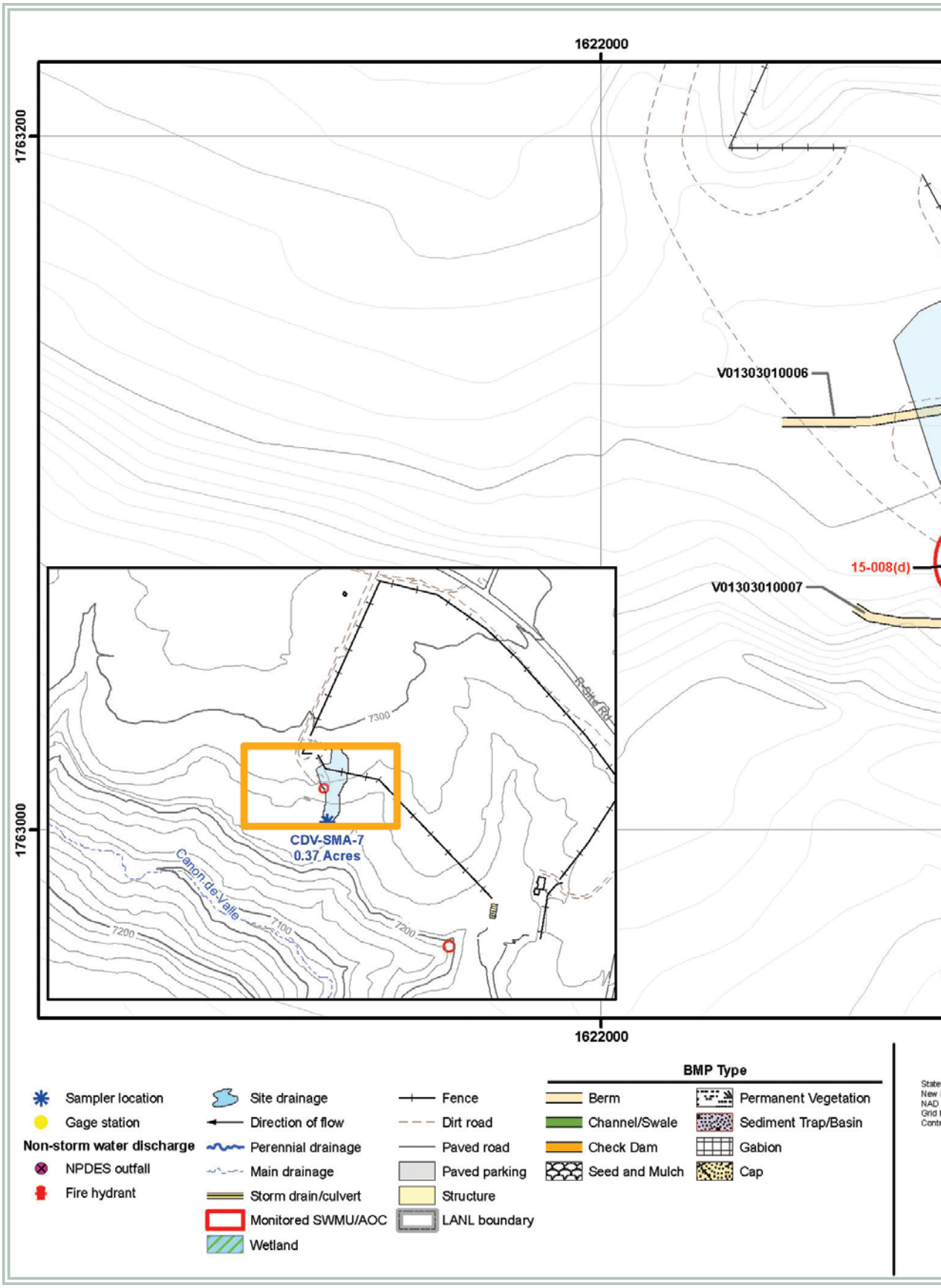
Earthen Berm - North (V013-03-01-0006)

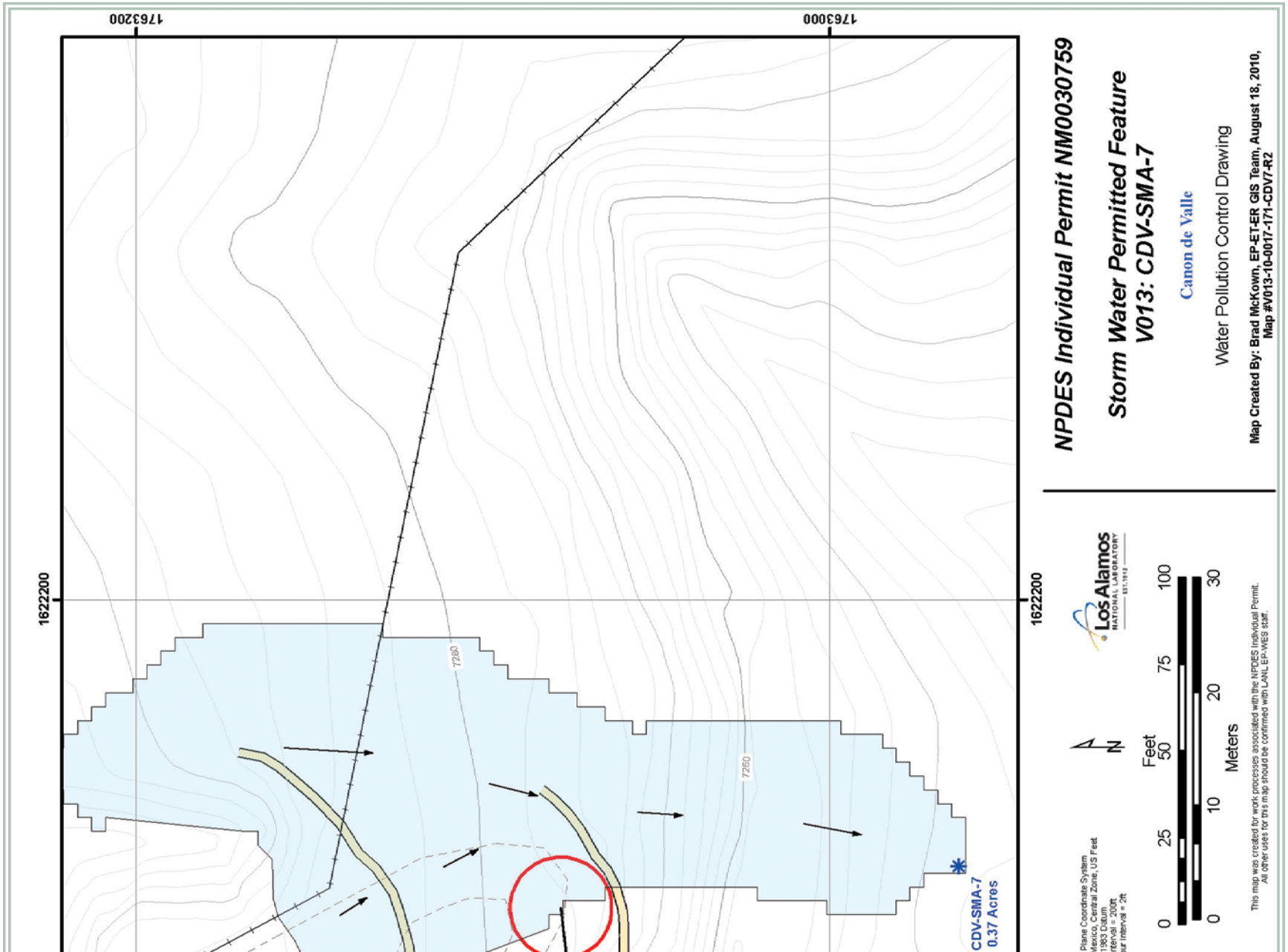
This berm is located north of Site 15-0008(d) and helps to control storm water run-on from the unpaved access roads. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - South (V013-03-01-0007)

This berm is located along the southern boundary of Site 15-0008(d) and is used to manage run-off from the area above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.16.4 Project Map




1763200
1763000
1622200
1622200
7280
7260
CDV-SMA-7
0.37 Acres
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V013: CDV-SMA-7
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 18, 2010,
Map #V013-10-0017-171-CDV7-R2
Los Alamos
NATIONAL LABORATORY
N
Feet
0
25
50
75
100
Meters
0
10
20
30
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.

1000.16.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.16.6 Corrective Action Status

The Site associated with CDV-SMA-7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.17 CDV-SMA-8

1000.17.1 Area Description

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

1000.17.3 Control Measures

1000.17.4 Project Map

1000.17.5 Storm Water Monitoring Plan and Schedule

1000.17.6 Corrective Action Status



1000.17 CDV-SMA-8

1000.17.1 Area Description

CDV-SMA-8 is located within TA-15 and access to the area is controlled. The monitored area is largely undeveloped. A paved access road runs along the northern and eastern boundary. Storm water flows southwest towards the receiving waters.

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V014, CDV-SMA-8, Site 15-011(c).

SWMU 15-011(c) consists of an outfall on the edge of Cañon de Valle, where many of the drainages associated with discharges in The Hollow converge. These discharges include those from SWMUs 15-011(a and b) and 15-014(i, j, and k). SWMU 15-011(c) is located west of, and approximately 100 feet lower than, the buildings in The Hollow. Materials that could have been discharged to this SWMU include acid residues from sulfuric, chromic, and hydrochloric acids; degreasing solvents; inorganic chemicals; and uranium. No previous environmental investigations have been performed at this SWMU.

1000.17.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-011(c)	Outfall Discrete Location, No overlap	**Co-located, Overlapping**	Individual	•	•	•	SVC

1000.17.3 Control Measures

There is run-on potential from the paved areas northeast of the sampler.

Subsections to 1000.17.3 list all control measures used to control pollutant sources identified in Section 1000.17.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.17.4.

1000.17.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V014 02 02 0001	Established Vegetation - Forested/ Needle Cast			•	
V014 02 03 0002	Established Vegetation - Forested/ Needle Cast		•	•	
V014 06 01 0003	Established Vegetation - Vegetative Buffer Strip	•			•
V014 06 01 0004	Check Dam - Rock	•			•
V014 06 01 0005	Check Dam - Rock	•			•
V014 06 01 0006	Check Dam - Rock	•			•

Established Vegetation (V014-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

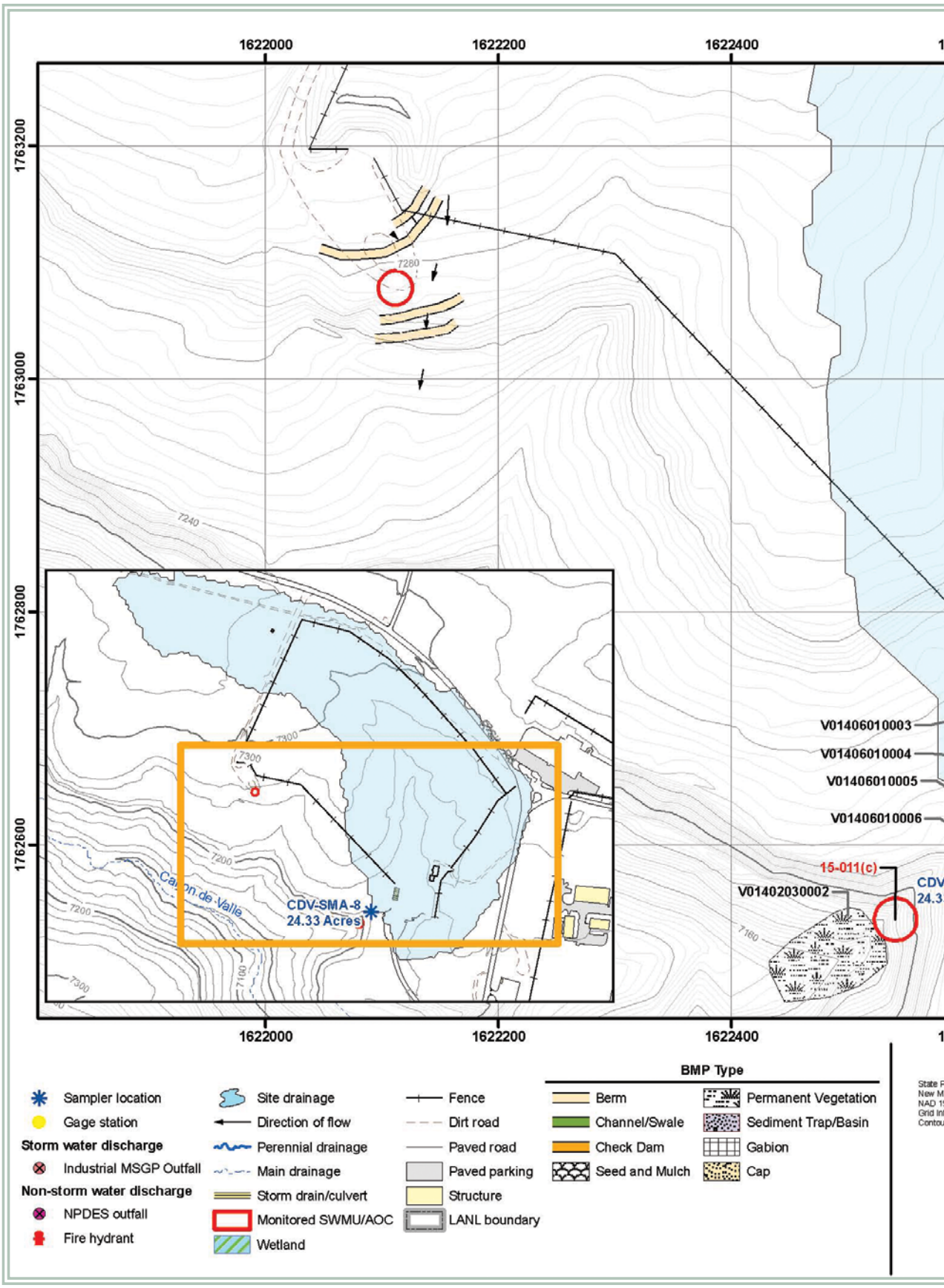
Vegetative Buffer Strip (V014-02-03-0002)

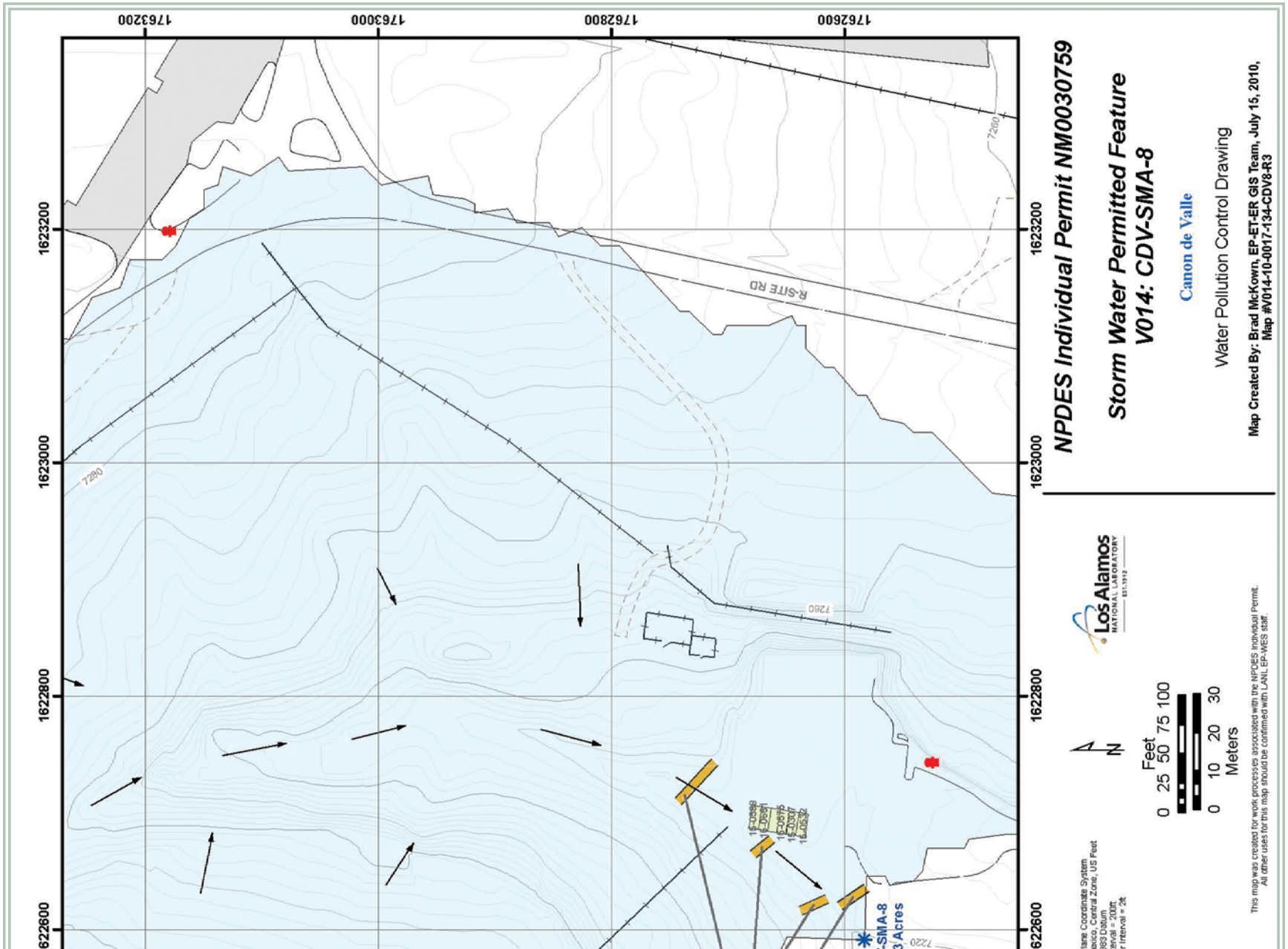
The buffer strip is located southwest of the sampler, at the base of the gully. It is positioned to slow run-off exiting the SMA and to prevent erosion on the slope. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Rock Check Dams (V014-06-01-0003, -0004, -0005, -0006)

This is a series of four check dams that have been installed in the drainage northeast of the sampler. They are being used to help control area run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.17.4 Project Map




NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V014: CDV-SMA-8
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 15, 2010,
Map #V014-10-0017-134-CDV8-R3
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
0 25 50 75 100
Meters
0 10 20 30
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
1763200
1763000
1762800
1762600
1623200
1623000
1622800
1622600
R-SITE RD
7280
7260
7220
V014: CDV-SMA-8
3 Acres

1000.17.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.17.6 Corrective Action Status

The Site associated with CDV-SMA-8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.18 CDV-SMA-8.5

1000.18.1 Area Description

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

1000.18.3 Control Measures

1000.18.4 Project Map

1000.18.5 Storm Water Monitoring Plan and Schedule

1000.18.6 Corrective Action Status



1000.18 CDV-SMA-8.5

1000.18.1 Area Description

CDV-SMA-8.5 is located within the secure area of TA-15 and access to the area is controlled. The northern, eastern, and southern boundaries of the SMA are developed. Storm water flows down a gentle grade northwest towards the receiving waters.

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V015, CDV-SMA-8.5, Site 15-014(a).

SWMU 15-014(a) is a former NPDES permitted outfall that is used for discharges from various drains in Building 15-183. This outfall has been in use since 1961. Originally, waste discharged to this outfall included photographic waste. The drain associated with this outfall was replaced in 1987 with a new drain installed at the same location. This outfall was removed from the NPDES permit January 14, 1998. No photographic wastes were discharged to this outfall after it was added to the NPDES permit. This outfall is located approximately 130 feet from the edge of Cañon de Valle. Discharges from the outfall follow a surface drainage to the canyon and the location of the drainage is marked by increased vegetation. No previous investigations have been conducted at this SWMU, other than the routine monitoring required by the NPDES permit. NPDES monitoring included sampling and analysis of pH and silver and, before August 1994, also included analysis of cyanide. LANL conducted a Phase I RFI at SWMU 15-014(a) from June 1995 through March 1996.

1000.18.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-014(a)	Outfalls from Building 15-183	Discrete Location, No overlap	Individual	•		•	

1000.18.3 Control Measures

Run-on is a result of flow off the paved area at the north corner of building 16-0313 and the associated roof drainage. Potential run-on from both the paved area and roof drains are captured by a culvert and diverted southwest of the area.

Subsections to 1000.18.3 list all control measures used to control pollutant sources identified in Section 1000.18.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.18.4.

1000.18.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V015 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V015 03 01 0004	Berms - Earthen		•		•
V015 03 01 0005	Berms - Earthen	•			•

Established Vegetation (V015-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

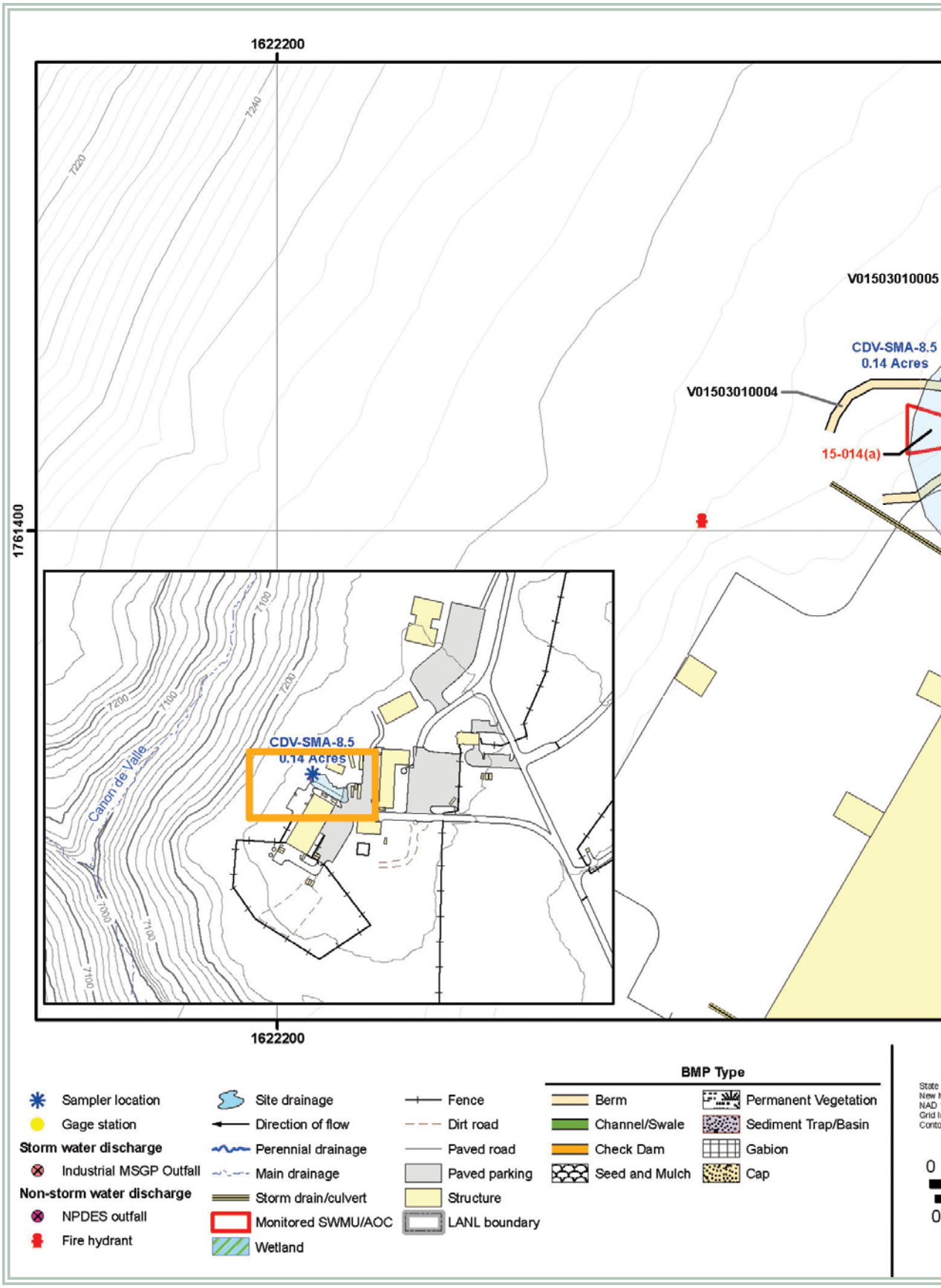
Earthen Berm - West (V015-03-01-0004)

This berm is located adjacent to the sampler, running east to west and helps mitigate run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - East (V015-03-01-0005)

This berm is located near the paved access road above the sampler. It is used to help control storm water run-on from the paved areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.18.4 Project Map



1622400
1761400
15-0468
15-0447
15-0456
15-0432
15-0465
15-0464
15-0556
15-0554
15-0313
GEORGE
1622400
Plane Coordinate System
Mexico, Central Zone, US Feet
1983 Datum
nterval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
25
50
75
100
10
20
30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V015: CDV-SMA-8.5
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 19, 2010,
Map #V015-10-0017-184-CDV8.5-R2

1000.18.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.18.6 Corrective Action Status

The Site associated with CDV-SMA-8.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.19 CDV-SMA-9.05

1000.19.1 Area Description

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

1000.19.3 Control Measures

1000.19.4 Project Map

1000.19.5 Storm Water Monitoring Plan and Schedule

1000.19.6 Corrective Action Status



1000.19 CDV-SMA-9.05

1000.19.1 Area Description

CDV-SMA-9.05 is located within TA-15 and access to the area is controlled. The surrounding area is largely undeveloped. The northern and eastern boundaries of the SMA contain a paved access road that runs along the periphery. The western boundary of the SMA is undeveloped and gently sloping towards the receiving waters, south along this boundary. Storm water flows northwest towards the receiving waters.

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V016, CDV-SMA-9.05, Site 15-007(b).

SWMU 15-007(b) consists of a landfill known as MDA Z. MDA Z is located near inactive Firing Site G in the south central portion of TA-15. MDA Z operated from 1965 to 1981 and received construction debris, used sandbags filled with concrete, and steel blast matting from PHERMEX. In 1995, waste materials observed at the site included concrete, steel reinforcing bars, and partially burned wood. MDA Z is roughly triangular in shape, with dimensions of approximately 225 x 50 ft, and appears to have been constructed in a natural depression. The used sandbags filled with concrete were apparently used to form a retaining wall along one side of the landfill, and waste was placed behind this wall. The waste materials disposed of at this site are not covered with soil and are exposed.

1000.19.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-007(b)	Material disposal area (MDA) Z	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.19.3 Control Measures

There is no evidence of significant run-on from the asphalt drive above the Permitted Feature.

Subsections to 1000.19.3 list all control measures used to control pollutant sources identified in Section 1000.19.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.19.4.

1000.19.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
V016 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
V016 03 01 0002	Berms - Earthen		•		•
V016 03 01 0003	Berms - Earthen		•		•
V016 03 01 0004	Berms - Earthen	•			•

Established Vegetation (V016-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

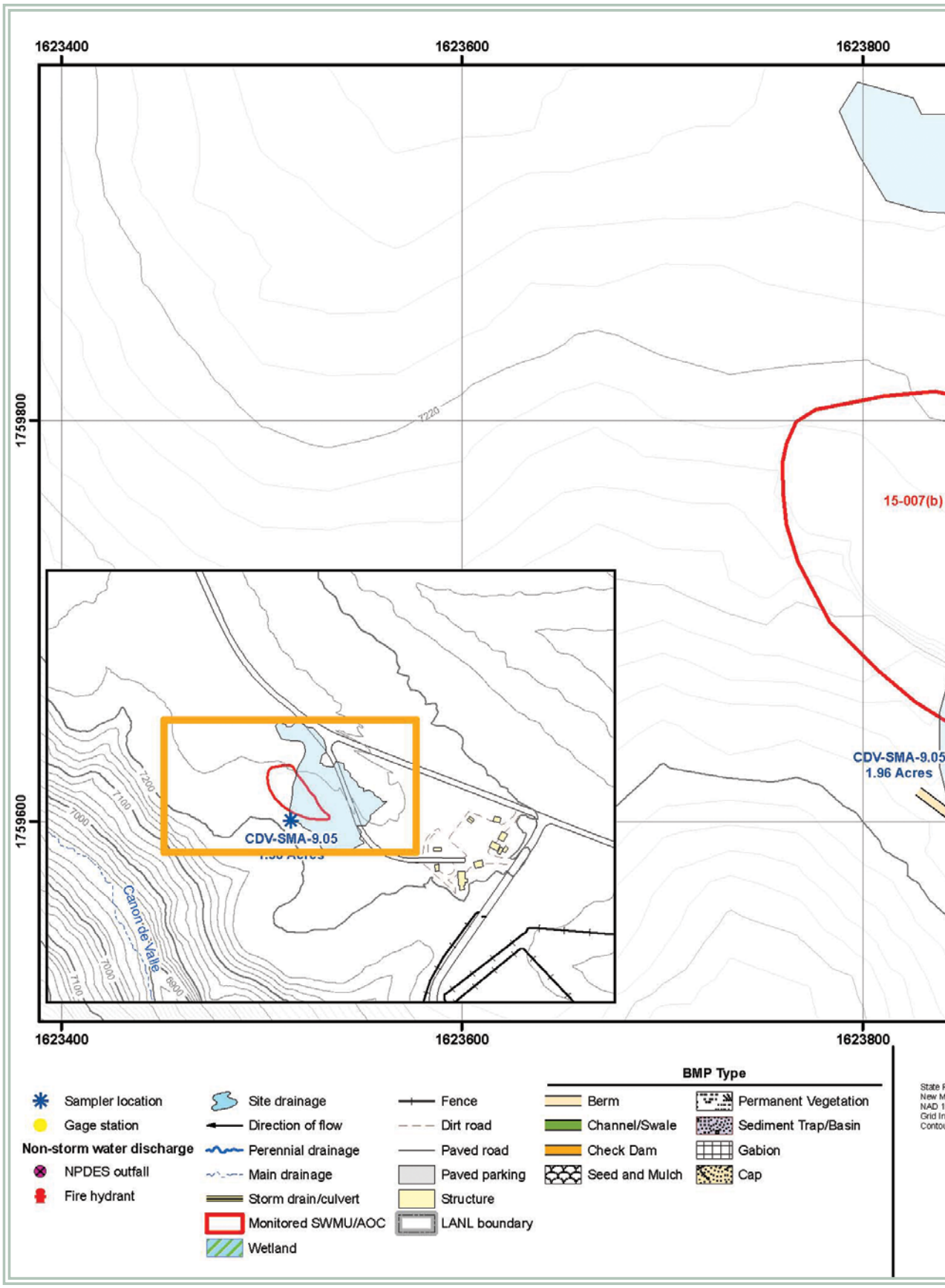
Earthen Berms (V016-03-01-0002, -0003)

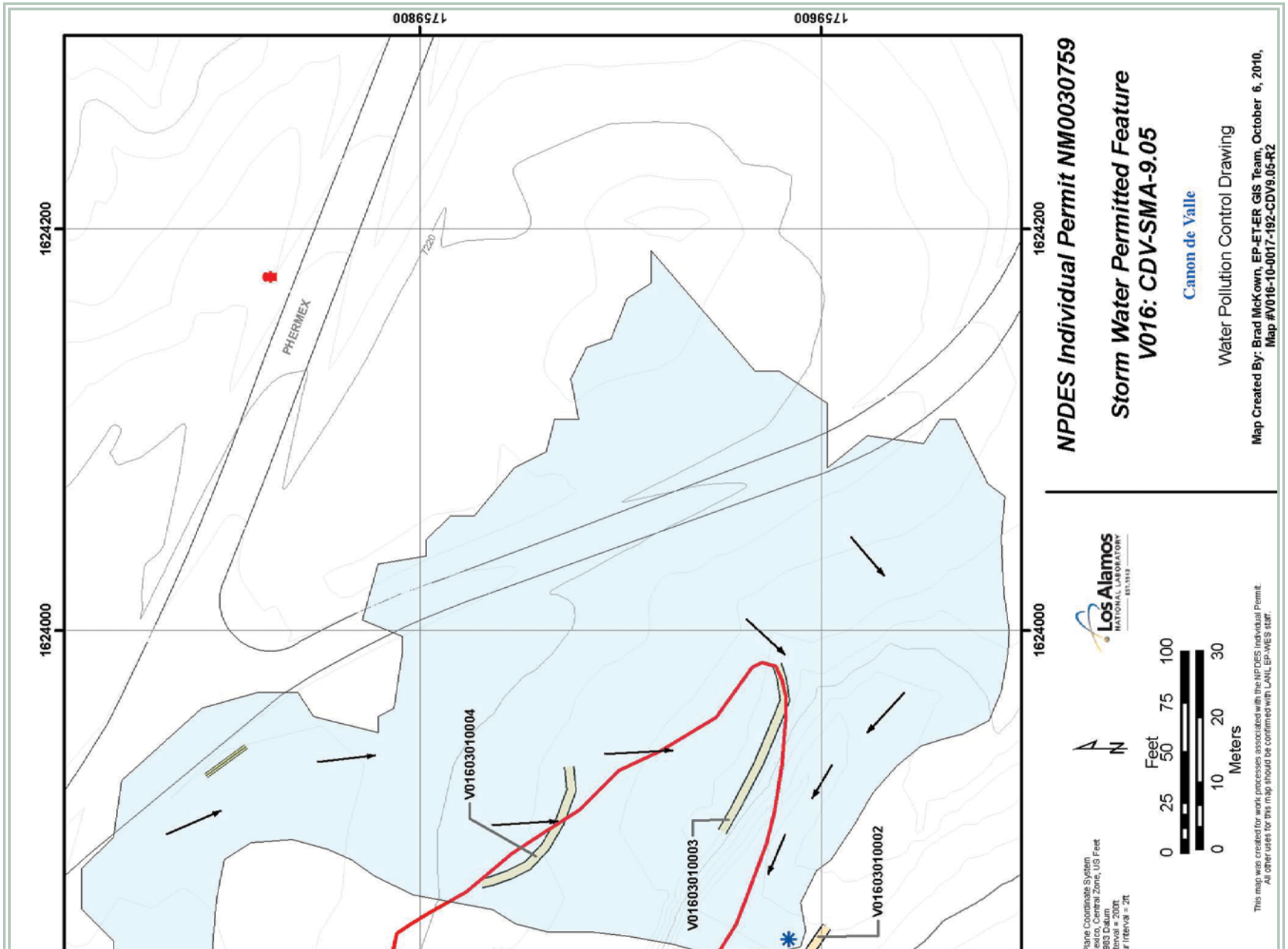
This pair of berms bracket the sampler in order to help control run-off and sediment transport. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earth Berm (V016-03-01-0004)

This berm is located in the western central portion of the Site drainage, north of berm -0003. It controls run-on and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.19.4 Project Map




1759800
1759600
1624200
1624000
PHERMEX
7220
V01603010004
V01603010003
V01603010002
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V016: CDV-SMA-9.05
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 6, 2010,
Map #V016-10-0017-192-CDV9.05-R2
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
0 25 50 75 100
Meters
0 10 20 30
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.

1000.19.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.19.6 Corrective Action Status

The Site associated with CDV-SMA-9.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.20 F-SMA-2

1000.20.1 Area Description

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

1000.20.3 Control Measures

1000.20.4 Project Map

1000.20.5 Storm Water Monitoring Plan and Schedule

1000.20.6 Corrective Action Status



1000.20 F-SMA-2

1000.20.1 Area Description

F-SMA-2 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved access roads. The southern boundary of the SMA is influenced by an unpaved access road and moderately sloping canyon walls. The eastern boundary of the SMA is moderate to steeply sloped moving towards the receiving waters. The western boundary of the SMA is moderately sloping canyon walls. Storm water flows from the developed area, towards the receiving waters east of the area.

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF F001, F-SMA-2, Site 36-004(c).

AOC 36-004(c) is the Minie Firing Site located near the head of Fence Canyon, approximately 800 ft southeast of the Meenie Firing Site [AOC 36-004(b)]. AOC 36-004(c) is an active RCRA-regulated OD site and is also used to conduct experiments involving explosives. This firing site consists of the firing point, a control bunker (building 36-0008), a make-up building (36-0007), a firing platform (no structure number), and an x-ray house (no structure number). Construction of the Minie Firing Site began in 1949 and was completed in 1950. The site has been extensively used to conduct armor-piercing experiments. In these experiments, penetrator jets are directed at targets on the canyon wall to the west of the site. Metal plates are placed behind the targets to stop the penetrators. AOC 36-004(c) has also been used for OD of scrap HE. Emergency detonation of leaking gas cylinders has also been performed, but very infrequently.

1000.20.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
36-004(c)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.20.3 Control Measures

Run-on at this Permitted Feature is controlled by a diversion channel, drop inlet, and culvert. The diversion channel discharges into a flat grassy area where flow infiltrates. The majority of the potential run-on at this SMA originates on the natural slope on the northern side.

Subsections to 1000.20.3 list all control measures used to control pollutant sources identified in Section 1000.20.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.20.4.

1000.20.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
F001 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
F001 03 12 0008	Berms - Rock		•		•
F001 04 01 0001	Channel/Swale - Earthen	•		•	
F001 04 04 0003	Channel/Swale - Culvert	•		•	
F001 06 01 0004	Check Dam - Rock		•		•
F001 06 01 0005	Check Dam - Rock		•		•
F001 06 01 0006	Check Dam - Rock		•		•
F001 06 01 0007	Check Dam - Rock		•		•

Established Vegetation (F001-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Berm (F001-03-12-0008)

The rock berm is located on the slope northwest of the sampler. It is used to help manage run-off from the natural areas above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Earthen Channel (F001-04-01-0001)

The channel is located around the western and southern sides of the SMA. It is diverting run-on from the area around and to the west. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Culvert (F001-04-04-0003)

The culvert is located across the unpaved access road to the SMA. The culvert directs run-on from the paved areas, away from Site 36-004(c), to the south and west. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

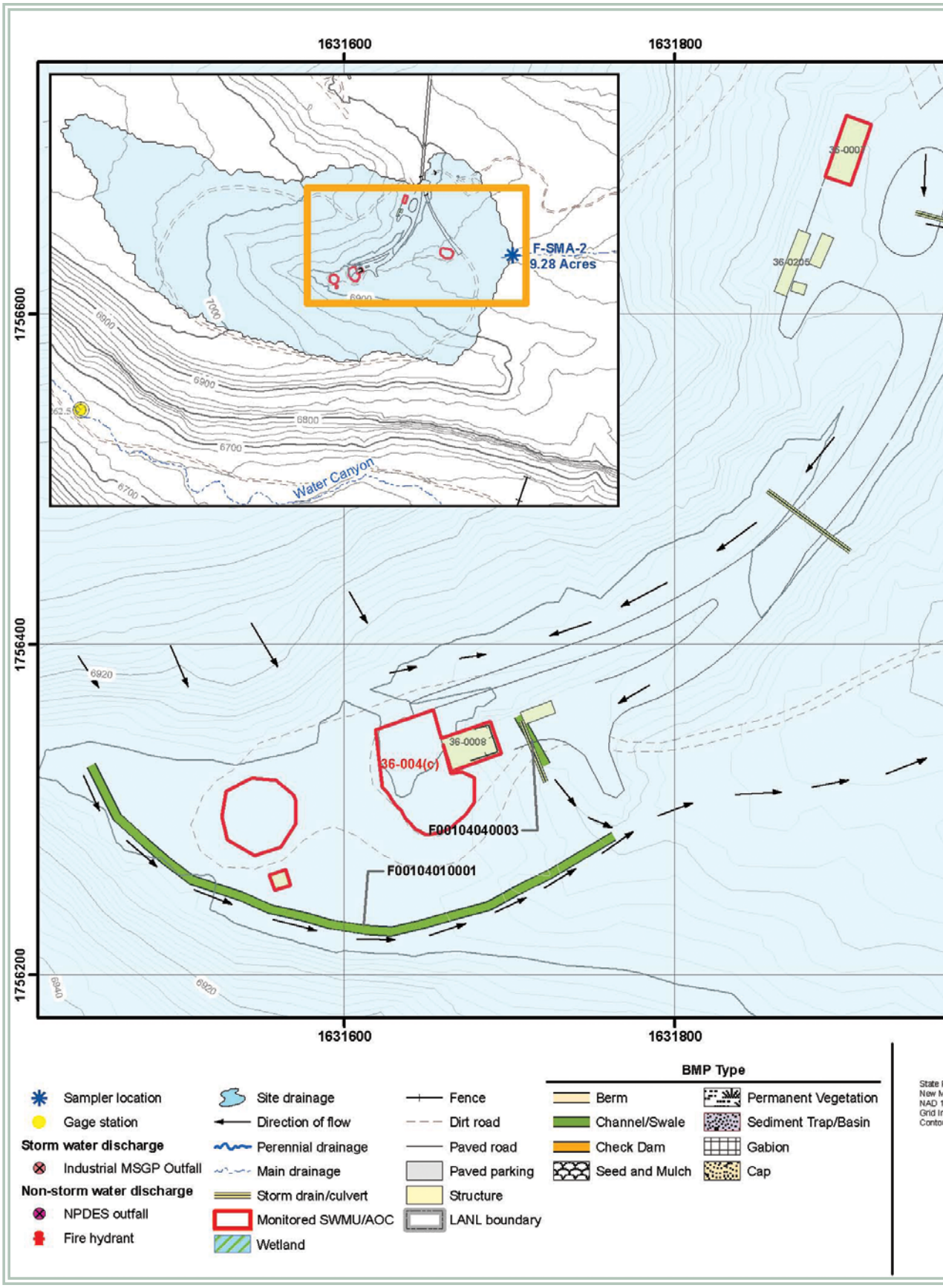
Rock Check Dams South
(F001-06-01-0004, -0005)

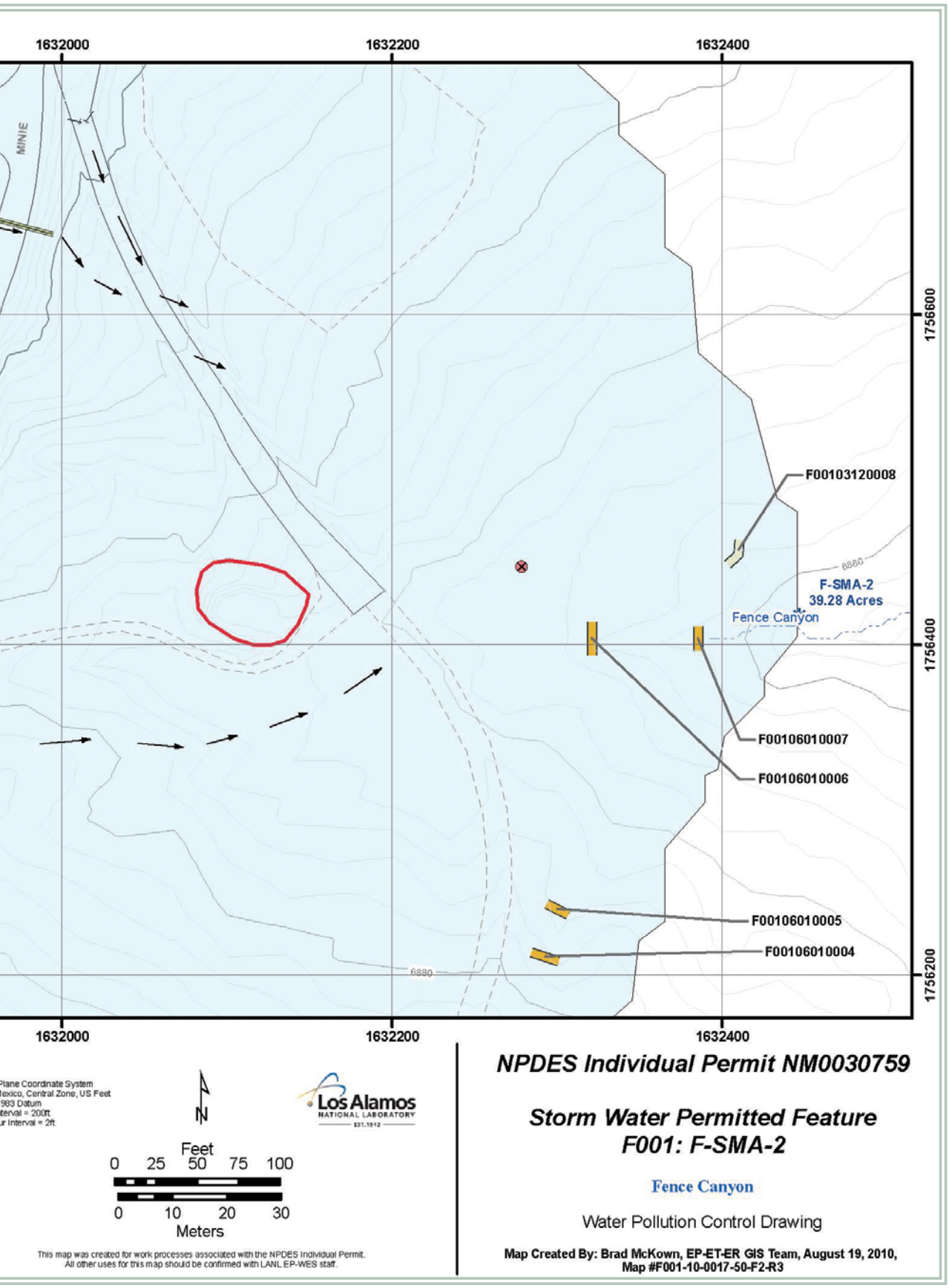
This is a pair of rock check dams located east of the curve in the unpaved access road. They are used to mitigate storm water run-off and prevent sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams East
(F001-06-01-0006, -0007)

This pair of rock check dams is located west of the sampler in the drainage channel. They are functioning as run-off controls for storm water flow from the area and controlling sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.20.4 Project Map




1632000
1632200
1632400
1756600
1756400
1756200
MINIE
F00103120008
6880
F-SMA-2
39.28 Acres
Fence Canyon
F00106010007
F00106010006
F00106010005
F00106010004
6880
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
F001: F-SMA-2
Fence Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 19, 2010,
Map #F001-10-0017-50-F2-R3

1000.20.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.20.6 Corrective Action Status

The Site associated with F-SMA-2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.21 PT-SMA-0.5

1000.21.1 Area Description

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

1000.21.3 Control Measures

1000.21.4 Project Map

1000.21.5 Storm Water Monitoring Plan and Schedule

1000.21.6 Corrective Action Status





1000.21 PT-SMA-0.5

1000.21.1 Area Description

PT-SMA-0.5 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is flat and undeveloped. The southern boundary of the SMA slopes moderately towards the receiving waters. The eastern boundary of the SMA is flat and undeveloped. There is a paved access road along this boundary. The western boundary of the SMA is also flat and undeveloped.

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I001, PT-SMA-0.5, Sites 15-009(e) and C-15-004.

SWMU 15-009(e) is a decommissioned 1500-gal. septic tank (structure 15-0072) at E-F Firing Site [SWMU 15-004(f)]. The septic tank was constructed in 1947 and received sanitary waste from the E-F Firing Site control building (15-0027), located approximately 175 ft northeast of the tank; the drainline goes around structure 15-0463, which is a transportable used for storage. The septic tank is constructed of 4- to 6-in. reinforced concrete and is 5 ft long × 9 ft deep × 7 ft wide. The septic tank was used until 1981 when E-F Firing Site last operated. Discharges from the septic tank flowed through a vitrified clay pipe to an outfall located approximately 30 ft from the tank at the edge of Potrillo Canyon.

AOC C-15-004, a former transformer station (former structure 15-0056), was located approximately 30 ft southwest of the former E-F Firing Site control room (building 15-0027). Two transformers (18-gal. and 30-gal. capacity) were located on a 5-ft-long wooden platform 10 ft above the ground. Each transformer contained mineral oil with polychlorinated biphenyls (PCBs) of unknown concentration. The date of installation is also not known, but the transformers were removed from the site in 1989. No evidence was found of a release on the wooden platform or on the soil beneath the platform.

1000.21.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-009(e)	Septic system	Co-located, Overlapping	Shared	•	•	•	SVC HE PCBs
C-15-004	Former Transformer Station	Co-located, Overlapping	Shared	•	•	•	SVC HE PCBs

Substantially Identical Determination

Sites grouped within this SMA were associated with the operation of the E-F Firing Site control building (15-0027). Both structures were present on the northern edge of Portrillo Canyon. Because of the shared drainage, similar contaminants, and physical disturbance of the area, these Sites will discharge substantially identical effluent.

1000.21.3 Control Measures

The culvert and drainage along the north and south of the access road contribute minor run-on. Existing controls address the minimal run-on contribution associated with this access road.

Subsections to 1000.21.3 list all control measures used to control pollutant sources identified in Section 1000.21.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.21.4.

1000.21.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I001 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•	
I001 02 01 0001	Seed and Mulch - Seed and Wood Mulch			•	
I001 03 01 0002	Berms - Earthen		•		•
I001 03 01 0003	Berms - Earthen	•			•
I001 06 01 0004	Check Dam - Rock	•			•

Seed and Wood Mulch (I001-01-01-0005)

Seed and mulch has been applied off the southwest corner of the paved parking area in order to help control erosion of the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (I001-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm - South (I001-03-01-0002)

This berm is located south of the seed and wood mulch and is in place to help control run-off from the slope above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

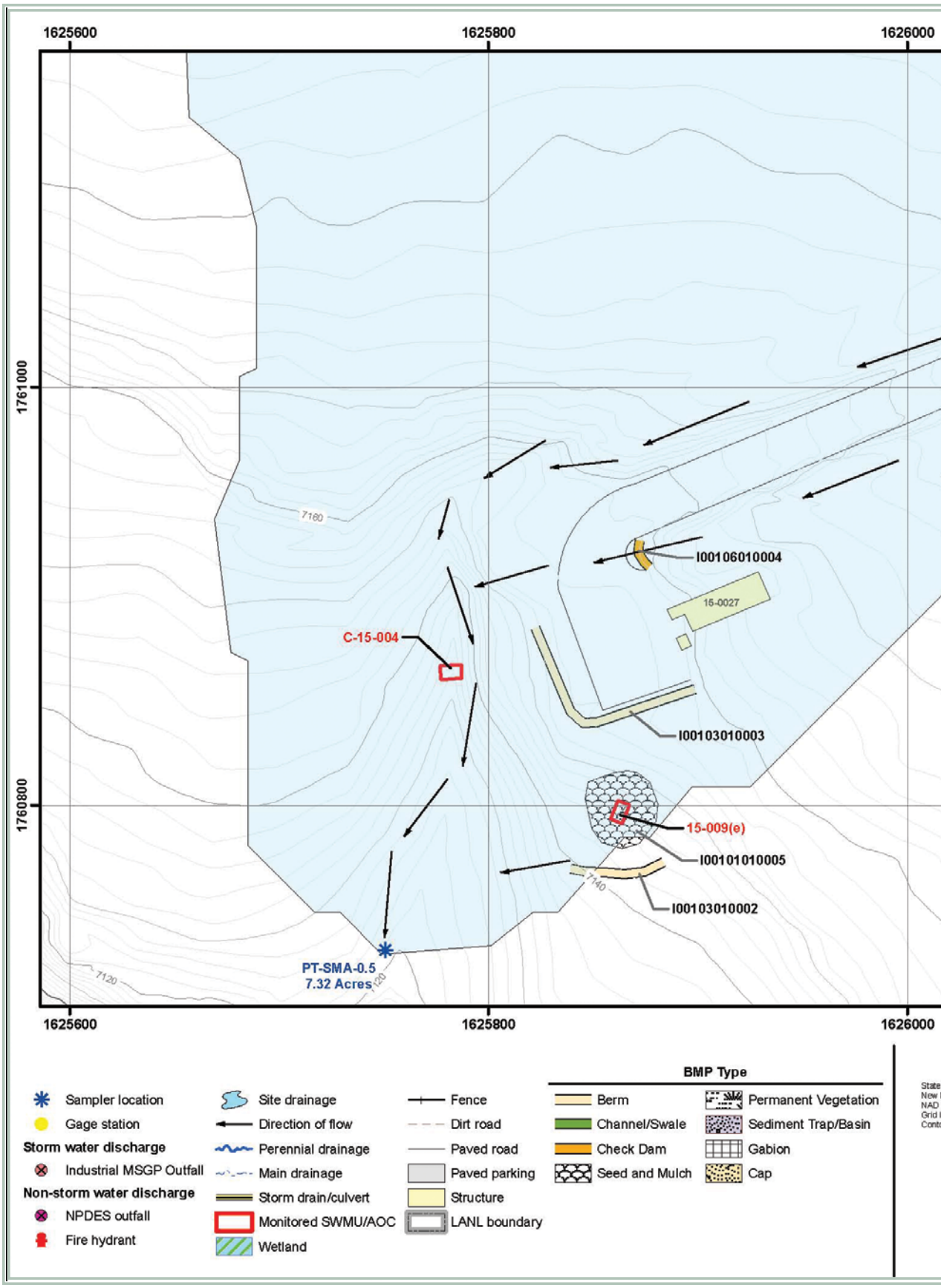
Earthen Berm - North (I001-03-01-0003)

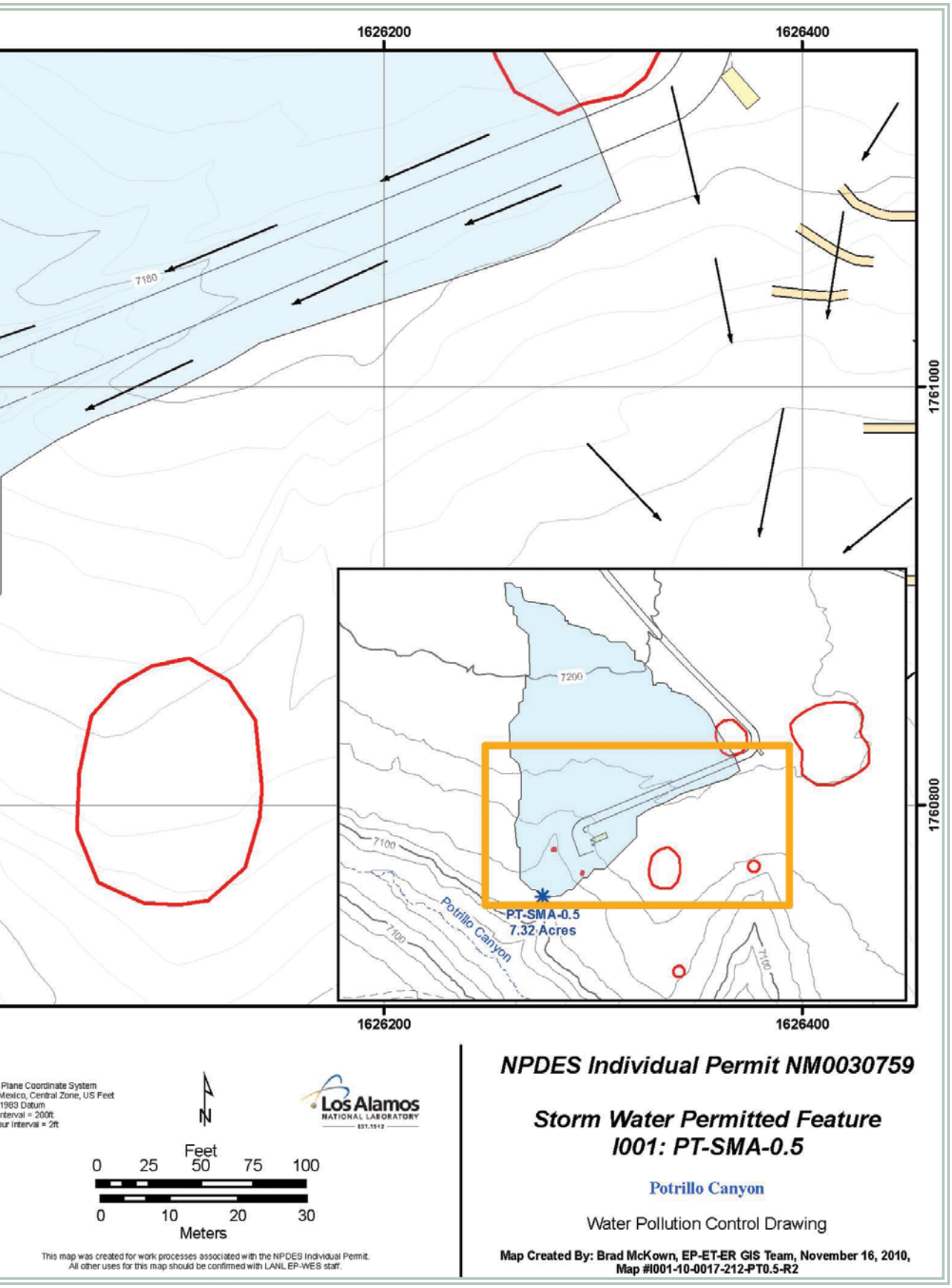
This berm is located at the southwest corner of the paved parking area. It is used to help control run-on from the paved areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Check Dam (I001-06-01-0004)

This check dam is located in the roadside drainage channel at the intersection of the paved access road and the paved parking area. It is used to help control area storm water run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.21.4 Project Map




1626200
1626400
1761000
1760800
7180
7200
7100
7100
7100
Potrillo Canyon
PT-SMA-0.5
7.32 Acres
Plane Coordinate System
Mexico, Central Zone, US Feet
1983 Datum
nterval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I001: PT-SMA-0.5
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 16, 2010,
Map #I001-10-0017-212-PT0.5-R2

1000.21.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2) HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.21.6 Corrective Action Status

The Sites associated with PT-SMA-0.5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.22 PT-SMA-1

1000.22.1 Area Description

1000.22.2 Potential Pollutant Sources

1000.22.2.1 Historical Industrial Activity Areas

1000.22.3 Control Measures

1000.22.4 Project Map

1000.22.5 Storm Water Monitoring Plan and Schedule

1000.22.6 Corrective Action Status



1000.22 PT-SMA-1

1000.22.1 Area Description

PT-SMA-1 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is flat and undeveloped. The southern boundary of the SMA slopes directly towards the receiving waters. The eastern boundary of the SMA is gently sloped and undeveloped. The western boundary of the SMA is undeveloped and influenced by a paved access road.

1000.22.2 Potential Pollutant Sources

1000.22.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I002, PT-SMA-1, Sites 15-004(f) and 15-008(a).

SWMU 15-004(f) is an inactive firing site, E-F Firing Site, that consists of three inactive firing points (D, E, and F) covering a total area of approximately 60 acres. Together with SWMU 15-008(a), SWMU 15-004(f) comprises Consolidated Unit 15-004(f)-99. E-F Firing Site began operating in 1946 and was last used in 1981. It was operated extensively from 1947 to 1973 and was the largest firing site at the Laboratory.

Originally, E-F Firing Site consisted of a single firing point (D) that was built in 1946 and that ceased to operate in 1949. In 1947, the firing area was expanded to include Firing Point E, which was used for large-scale shots containing up to 2500 lb of HE, and Firing Point F, which was used for smaller-scale shots. Firing Points E and F were approximately 800 ft apart and were wired to an underground control bunker (structure 15-0027). Tests at the two firing points were conducted on the ground and created depressions in the ground. After test shots, the firing points were either regraded or backfilled with gravel to fill in any depressions. Eventually, soil mounds were constructed on two sides of Firing Point E to protect TA-15 structures from shrapnel.

Tests at E-F Firing Site involved HE, uranium, beryllium, lead, and mercury.

SWMU 15-008(a) consists of two small surface disposal areas located on the edge of Potrillo Canyon directly south of E-F Firing Site [SWMU 15-004(f)]. Together with SWMU 15-004(f), SWMU 15-008(a) comprises Consolidated Unit 15-004(f)-99. The disposal areas are located within 200 ft of each other, with each disposal area having dimensions of approximately 8 ft in diameter × 2 ft high. Both areas were used to dispose of debris from tests conducted at the E-F Firing Site, including soil, rock, pebbles, metal fragments, plastic, electrical cable, electrical accessories. The exact period of operation of the surface disposal sites is not known but probably falls within the period of operation for E-F Firing Site (1946 to 1981).

1000.22.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-004(f)	Firing site E-F	Co-located, Overlapping	Shared	•	•	•	SVC HE
15-008(a)	Surface Disposal Site (E-F Site)	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

Both Sites are associated with the operation of an open detonation firing Site E-F. Because of the similarities in contaminants, operational history, and shared drainage, these Sites will discharge substantially identical effluent.

1000.22.3 Control Measures

Road run-on impacts the SMA at the 90 degree bend. This is the primary source of run-on to the Permitted Feature. Planned controls are to address this run-on source and to further stabilize bare areas.

Subsections to 1000.22.3 list all control measures used to control pollutant sources identified in Section 1000.22.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.22.4.

1000.22.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I002 01 01 0022	Seed and Mulch - Seed and Wood Mulch			•	
I002 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
I002 03 01 0018	Berms - Earthen		•		•
I002 03 01 0019	Berms - Earthen		•		•
I002 03 01 0020	Berms - Earthen		•		•
I002 03 01 0021	Berms - Earthen		•		•
I002 03 12 0012	Berms - Rock	•			•
I002 03 12 0013	Berms - Rock	•			•

1000.22.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I002 03 12 0014	Berms - Rock		•		•
I002 03 12 0015	Berms - Rock		•		•
I002 03 12 0015	Berms - Rock		•		•

Seed and Wood Mulch (I002-01-01-0022)

Seed and wood mulch has been to the area south of the 90 degree bend in the paved access road to the east extending past the earthen berms. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (I002-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms (I002-03-01-0018, -0019, -0020, -0021)

This is a group of four berms that are located east of the 90 degree bend in the paved access road. They are being used to help control run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

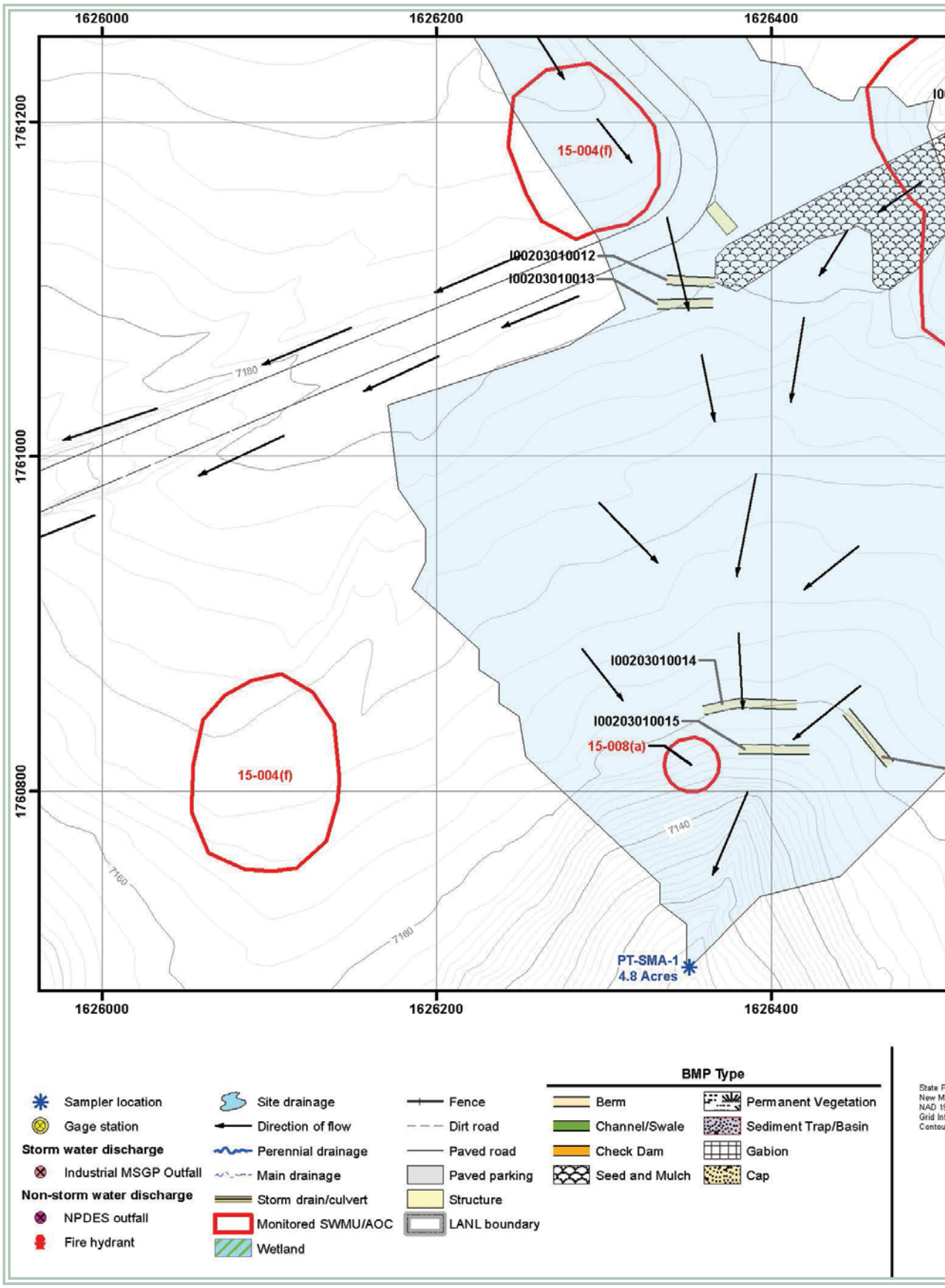
Rock Berms (I002-03-12-0012, -0013)

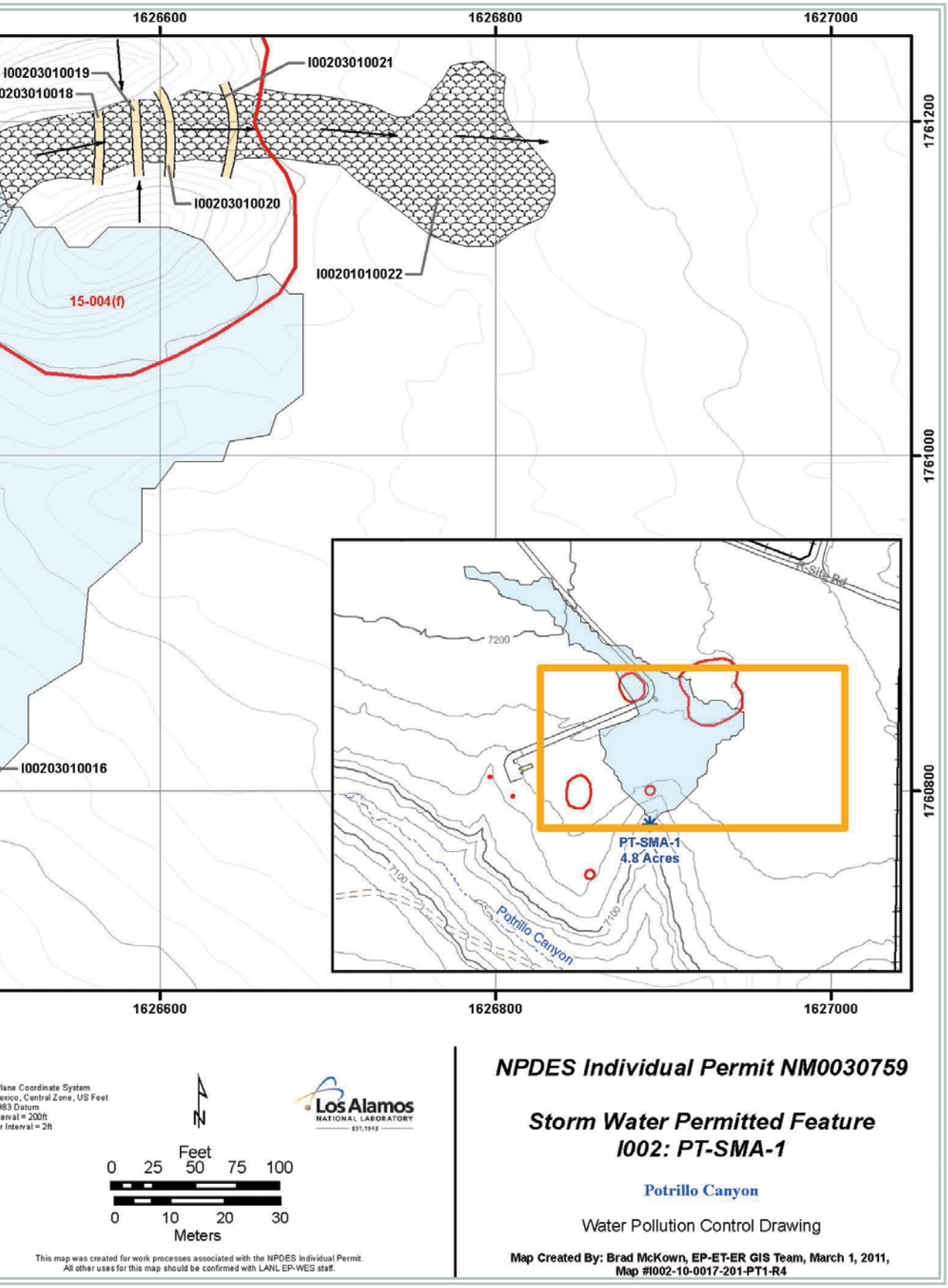
This is a pair of berms located southeast of the 90 degree bend in the paved access road. They are in place to help control run-on from the road. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Berms - South (I002-03-12-0014, -0015, -0016)

This is a group of four berms located near the edge of the mesa above the sampler. They are used to help mitigate run-off from the area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

1000.22.4 Project Map




1626600
1626800
1627000
1761200
1761000
1760800
I00203010019
I00203010018
I00203010021
I00203010020
I00201010022
15-004(f)
I00203010016
Site Rd
7200
7100
PT-SMA-1
4.8 Acres
Potrillo Canyon
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I002: PT-SMA-1
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 1, 2011,
Map #I002-10-0017-201-PT1-R4

1000.22.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.22.6 Corrective Action Status

The Sites associated with PT-SMA-1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.23 PT-SMA-1.7

1000.23.1 Area Description

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

1000.23.3 Control Measures

1000.23.4 Project Map

1000.23.5 Storm Water Monitoring Plan and Schedule

1000.23.6 Corrective Action Status



1000.23 PT-SMA-1.7

1000.23.1 Area Description

PT-SMA-1.7 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes to the east. The receiving waters are north and east along this boundary. The southern boundary of the SMA is undeveloped and slopes to the east. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is influenced by structures and paved areas.

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF I003, PT-SMA-1.7, Site 15-006(a).

SWMU 15-006(a), the PHERMEX firing site, is deferred for investigation per Table IV-2 of the Consent Order. Together with SWMU 15-003 (also deferred), this SWMU comprises Consolidated Unit 15-003-00. The PHERMEX firing site consists of a firing chamber (structure 15-0184) and related equipment. The PHERMEX firing site and associated facilities were built in the early 1960s.

1000.23.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-006(a)	Phermex site (TA-15-184)	Discrete Location, No overlap	Individual	•	•	•	HE

1000.23.3 Control Measures

There is a potential for run-on from the impervious areas in the western portion of the SMA. The 'U' shaped mound in the center portion of the Permitted Feature controls run-off from the area. This configuration is part of the construction of the firing area.

Subsections to 1000.23.3 list all control measures used to control pollutant sources identified in Section 1000.23.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.23.4.

1000.23.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I003 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
I003 03 06 0002	Berms - Straw Wattles		•		•
I003 03 06 0003	Berms - Straw Wattles		•		•
I003 03 06 0004	Berms - Straw Wattles		•		•
I003 03 06 0005	Berms - Straw Wattles	•			•
I003 03 06 0008	Berms - Straw Wattles		•		•
I003 03 06 0009	Berms - Straw Wattles		•		•
I003 06 01 0010	Check Dam - Rock	•			•
I003 06 01 0011	Check Dam - Rock	•			•

Established Vegetation (I003-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

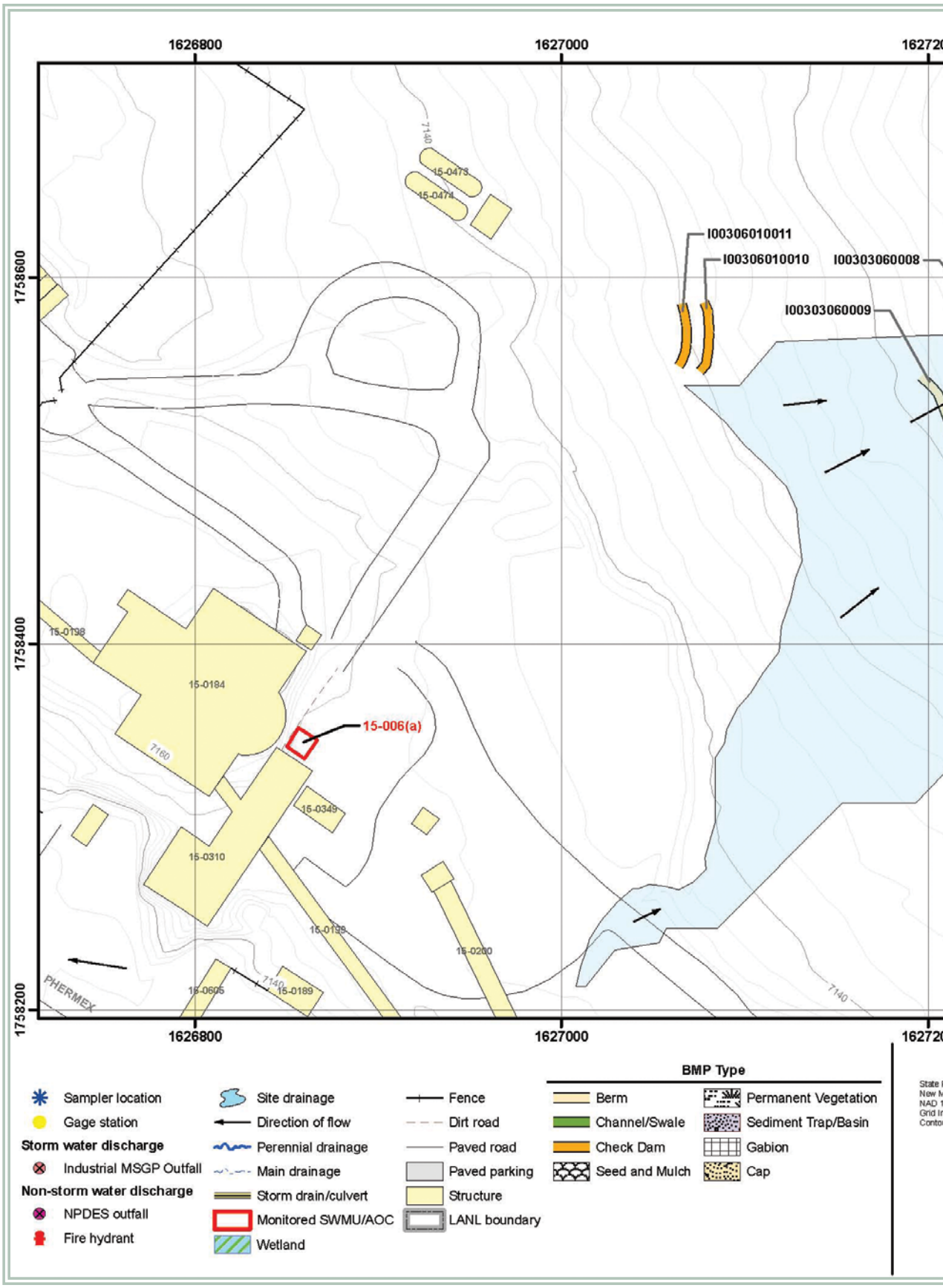
Straw Wattles (I003-03-06-0002, -0003, -0004, -0005, -0008, -0009)

A series of 6 wattles have been installed to mitigate run-on to the SMA and to reduce sediment loading in run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams (I003-06-01-0010, -0011)

This is a pair of check dams located on the slope southeast of 15-0474. They are in place to help control storm water run-on from the paved area above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.23.4 Project Map



1627400
1627600
1758600
1758400
1758200
I00303060005
I00303060004
I00303060003
I00303060002
PT-SMA-1.7
1.62 Acres
7060
7080
7100
7120
7000
Potrillo Canyon
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I003: PT-SMA-1.7
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 1, 2010,
Map #I003-10-0017-113-PT1.7-R3

1000.23.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.23.6 Corrective Action Status

The Site associated with PT-SMA-1.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.24 PT-SMA-2

1000.24.1 Area Description

1000.24.2 Potential Pollutant Sources

1000.24.2.1 Historical Industrial Activity Areas

1000.24.3 Control Measures

1000.24.4 Project Map

1000.24.5 Storm Water Monitoring Plan and Schedule

1000.24.6 Corrective Action Status



1000.24 PT-SMA-2

1000.24.1 Area Description

PT-SMA-2 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA is influenced by a paved access road. The southern boundary of the SMA is influenced by an unpaved access road. Further to the south are the receiving waters.

1000.24.2 Potential Pollutant Sources

1000.24.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF I004, PT-SMA-2, Sites 15-008(f), 36-003(b) and 36-004(e).

AOC 15-008(f) consists of several sand mounds located adjacent to the I-J Firing Site [SWMU 36-004(e)]. AOC 15-008(f) is deferred for investigation per Table IV-2 of the Consent Order. The I-J Firing Site is located on a mesa overlooking Potrillo Canyon and was originally located in TA-15 when it was constructed in 1948, although it is now part of TA-36.

SWMU 36-003(b) is a decommissioned septic system located at the west end of TA-36. The septic system consists of a septic tank (structure 36-0061) and its associated drainlines and outfall. The septic tank sits near the edge of Mesita del Potrillo, approximately 100 ft southwest of building 36-0055, the control bunker for the I-J Firing Site. The control bunker housed the electronics and instrumentation used in the operation of the I-J Firing Site [SWMU 36-004(e)] and also contained a toilet, sink, and water fountain, all of which were connected to the septic tank via a 4-in.-diameter clay-tile pipe. The septic tank is constructed of reinforced concrete and measures 7 ft long × 3.5 ft wide × 5.73 ft deep with a capacity of 420 gal. The tank has a buried overflow pipe that formerly discharged near the north rim of Potrillo Canyon. The overflow pipe was capped in 1989 to stop its discharge into the canyon. After the overflow pipe was capped, the septic tank continued to be used. Until the early 1990s when the tank was taken out of service, the tank contents were periodically removed and taken to a sanitary wastewater treatment plant for treatment and disposal after the overflow pipe had been capped.

AOC 36-004(e) is the I-J Firing Site located at the west end of TA-36 on Mesita del Potrillo along the north rim of Potrillo Canyon. AOC 36-004(e) is deferred for investigation per Table IV-2 of the Consent Order. The I-J Firing Site consists of two firing points (I and J) and the control building (36-0055). The site was constructed in 1948 and was located in TA-15 until 1981 when the boundary of TA-36 was expanded to encompass the portion of TA-15 that contained the I-J Firing Site. Shots at I-J Firing Site used up to 500 lb of HE and involved a variety of solid and liquid explosives and inorganic chemicals. According to former employees, significant amounts of DU were used at I-J Firing Site in addition to small quantities of mercury and cadmium. Some shots were fired into iron, copper, or lead targets. Other metals used in shots included aluminum, antimony, various steels, lithium-magnesium alloys, and lithium hydride. In addition, hydrocarbons, argon, benzene, small amounts of mercury, cadmium, and beryllium were used in shots.

All shots involving radioactive materials at the I-J Firing Site were conducted in fully enclosed containment vessels. These vessels were removed from the I-J Firing Site for use at TA-15, although one was later returned to the I-J Firing Site. The returned vessel was identified in the 1990 SWMU report as AOC C-36-001 and was subsequently removed from the site in 1994 and disposed of at MDA G, TA-54. Other firing-site activities conducted at I-J Firing Site included tests in which DU projectiles were fired into an embankment. This projectile test area was designated as AOC C-36-006(e).

1000.24.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-008(f)	I-J Firing site mounds at TA-36	Co-located, Overlapping	Shared	•	•	•	SVC HE
36-003(b)	Septic system, I-J Site	Discrete Location, No overlap	Shared	•	•	•	SVC HE
36-004(e)	Firing site	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

These Sites were all associated with the operation of I-J Firing site and involved experiments using a variety of solid and liquid explosives and inorganic chemicals (LANL 1993, 020946, p. 5-40). Because of the nature of activities, similarity of contaminants, and common drainage, these Sites will discharge substantially identical effluent.

1000.24.3 Control Measures

Road run-off discharges at the southern portion of the turn around. Existing controls help to address the run-on generated from the pavement.

Subsections to 1000.24.3 list all control measures used to control pollutant sources identified in Section 1000.24.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.24.4.

1000.24.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I004 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
I004 03 01 0009	Berms - Earthen		•		•
I004 03 12 0010	Berms - Rock	•			•

Established Vegetation (I004-02-01-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified

as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

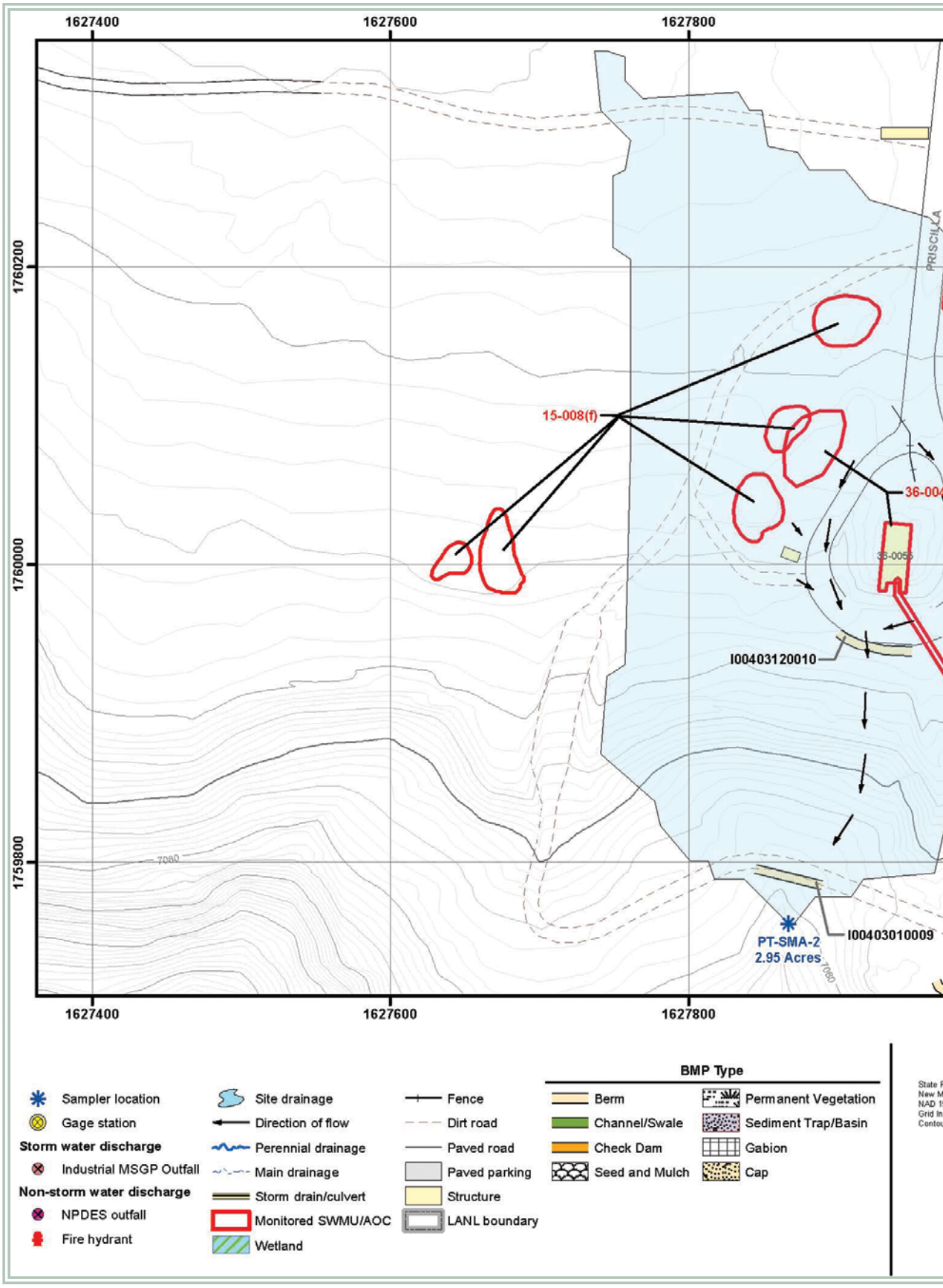
Earthen Berm (I004-03-01-0009)

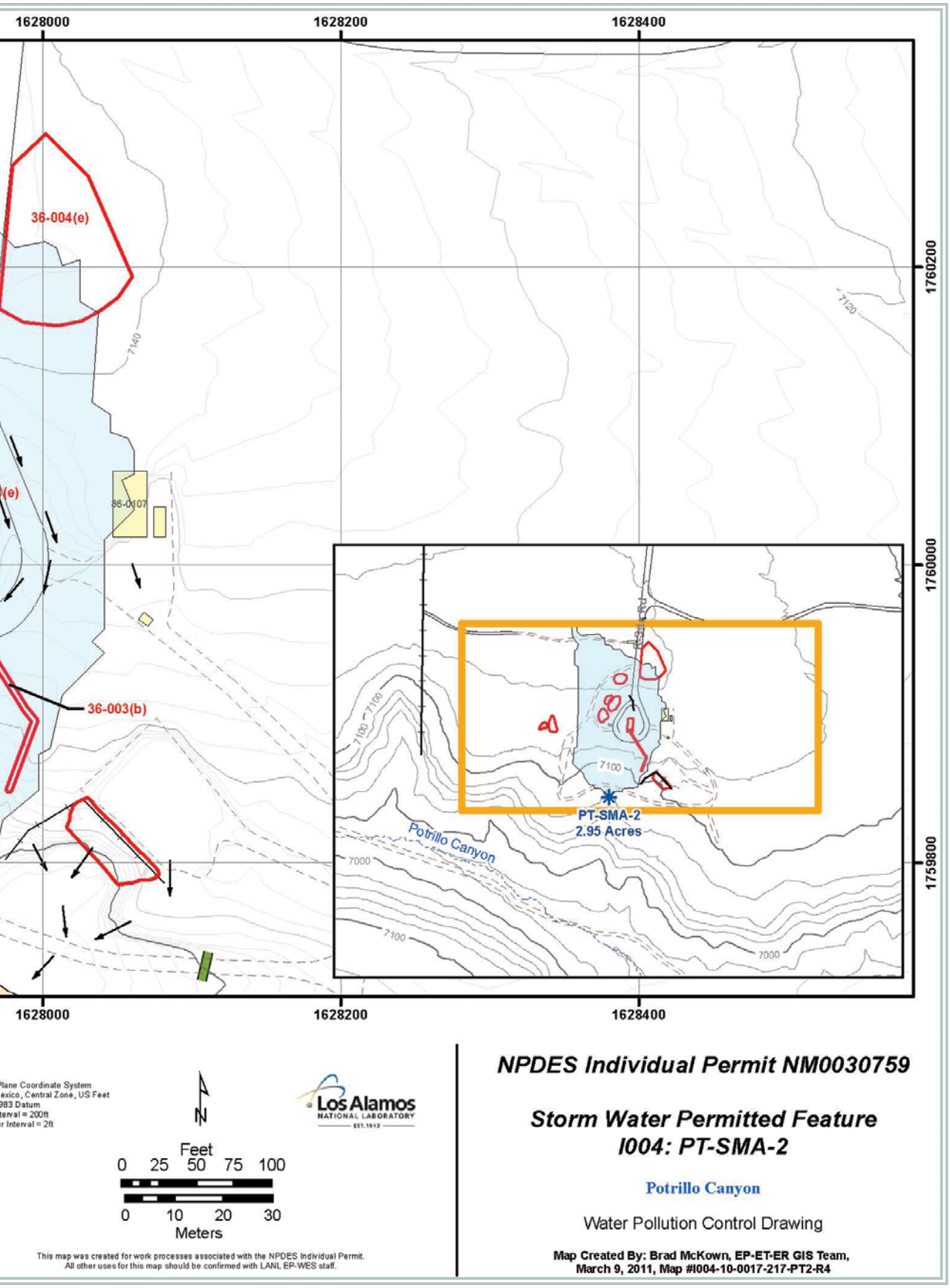
This berm is located just north of the sampler location south of the unpaved access road. It is used to help control run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berms (I004-03-12-0010)

This berm is located in roughly the center of the site drainage, south of building 36-0055. It replaces a trio of straw wattles and controls run-on and sediment. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

1000.24.4 Project Map




1628000
1628200
1628400
1760200
1760000
1759800
36-004(e)
36-0107
36-003(b)
PT-SMA-2
2.95 Acres
Potrillo Canyon
7100
7000
7120
7140
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I004: PT-SMA-2
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 9, 2011, Map #I004-10-0017-217-PT2-R4

1000.24.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.24.6 Corrective Action Status

The Sites associated with PT-SMA-2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.25 PT-SMA-2.01

1000.25.1 Area Description

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

1000.25.3 Control Measures

1000.25.4 Project Map

1000.25.5 Storm Water Monitoring Plan and Schedule

1000.25.6 Corrective Action Status



1000.25 PT-SMA-2.01

1000.25.1 Area Description

PT-SMA-2.01 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA is influenced by a paved access road. The southern boundary of the SMA is influenced by an unpaved access road. Further to the south are the receiving waters.

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I004A, PT-SMA-2.01, Sites C-36-001 and C-36-006(e).

AOC C-36-001 is a former containment vessel that provided secondary containment for explosives tests at TA-36. The containment vessel was manufactured in 1970 and located at the PHERMEX test facility at TA-15. The containment vessel was later relocated to the I-J Firing Site and placed south of building 36-0055 where it remained until 1983 when it was removed. The containment vessel consisted of a 19.5-ton steel sphere that was 12 ft in diameter. An explosive device was placed and detonated in a primary containment vessel which, in turn, was placed inside the AOC C-36-001 containment vessel. The explosion gases were vented through a filtration system that captured particulates and did not allow release of the test material. No specific location(s) exists for this site; the location is identified only as the general area south of building 36-0055.

AOC C-36-006(e) is a former projectile test area located within the southern portion of the I-J Firing Site [AOC 36-004(e)] along the north rim of Potrillo Canyon. AOC C-36-006(e) was formerly used for testing DU projectiles as part of I-J Firing Site activities. Projectiles were fired from a 120-mm gun into a nearby embankment. Although some projectiles were recovered after an experiment was completed, much of the projectile material remains on site.

Originally, the I-J Firing Site was located within the boundary of TA-15. In 1981, the boundary of TA-36 was expanded to include portions of TA-15. As part of this expansion, the area in which the I-J Firing Site was located was transferred to TA-36. However, the 1990 SWMU report is inconsistent in addressing the SWMUs and AOCs affected by the transfer. Although the SWMU report addresses the I-J Firing Site as SWMU 36-004(e), it addresses the nearby projectile test area (which was also part of the 1981 transfer to TA-36) as AOC 15-006(e). AOC 15-006(e) was renamed AOC C-36-006(e) in the OU 1086 work plan because the projectile test area was within the boundaries of TA-36 when the work plan was written.

1000.25.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
C-36-001	Containment vessel	Co-located, Overlapping	Shared	•	•	•	SVC HE
C-36-006(e)	I-J Firing Site, projectile test area	Discrete Location, No overlap	Shared	•	•	•	SVC HE

Substantially Identical Determination

These Sites were all associated with the operation of I-J Firing site and involved experiments using a variety of solid and liquid explosives and inorganic chemicals (LANL 1993, 020946, p. 5-40). Because of the nature of activities, similarity of contaminants, and common drainage, these Sites will discharge substantially identical effluent.

1000.25.3 Control Measures

An unpaved access road located in the southern portion of the area has the potential to generate run-on to this SMA. Control measures are implemented to mitigate any influences from this potential run-on source.

Subsections to 1000.25.3 list all control measures used to control pollutant sources identified in Section 1000.25.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.25.4.

1000.25.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I004A 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
I004A-03-01-0003	Berms Earthen		•		•
I004A-04-05-0002	Channel/Swale Water Bar	•		•	

Established Vegetation (I004A-02-01-0001)

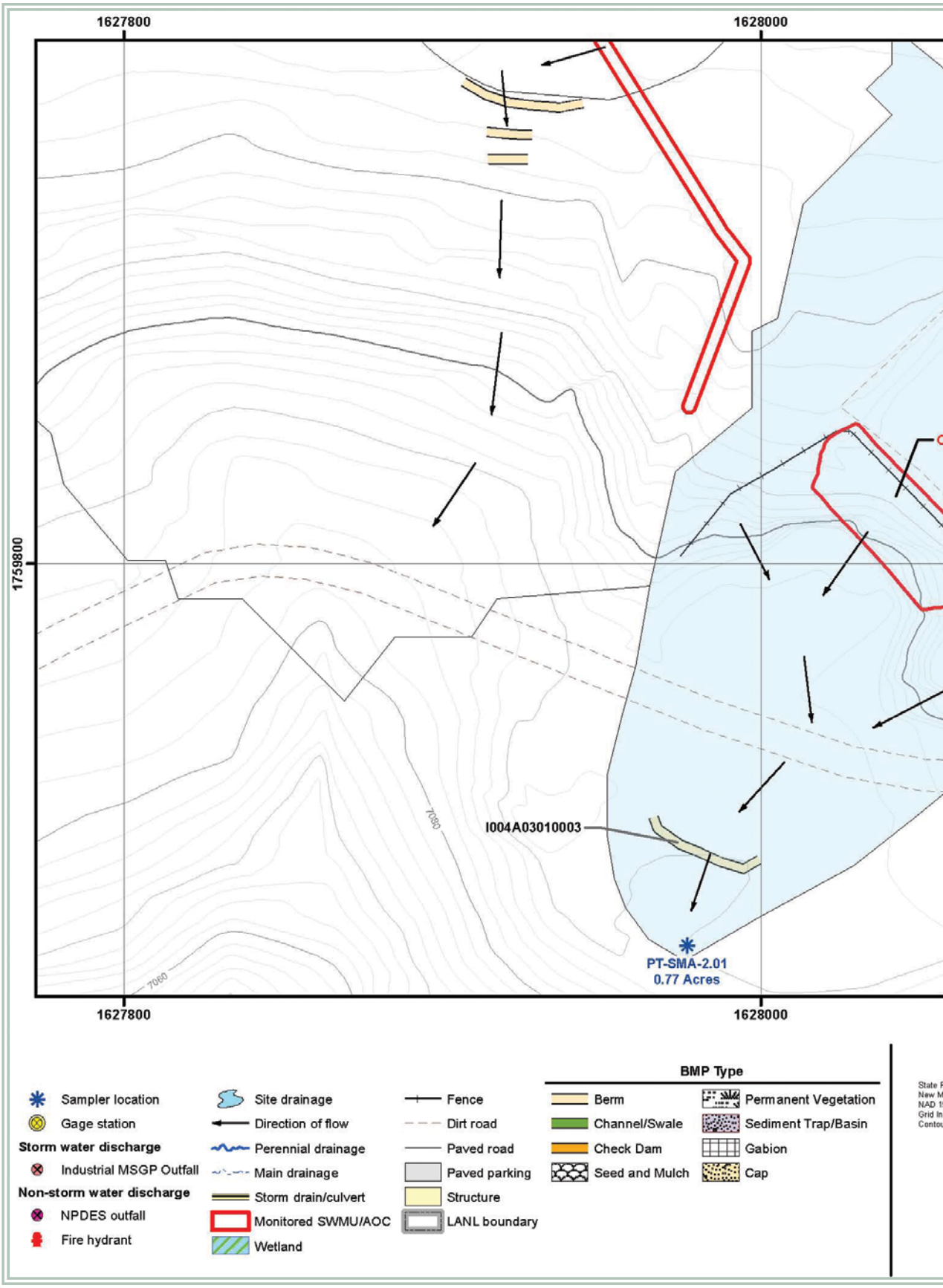
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as

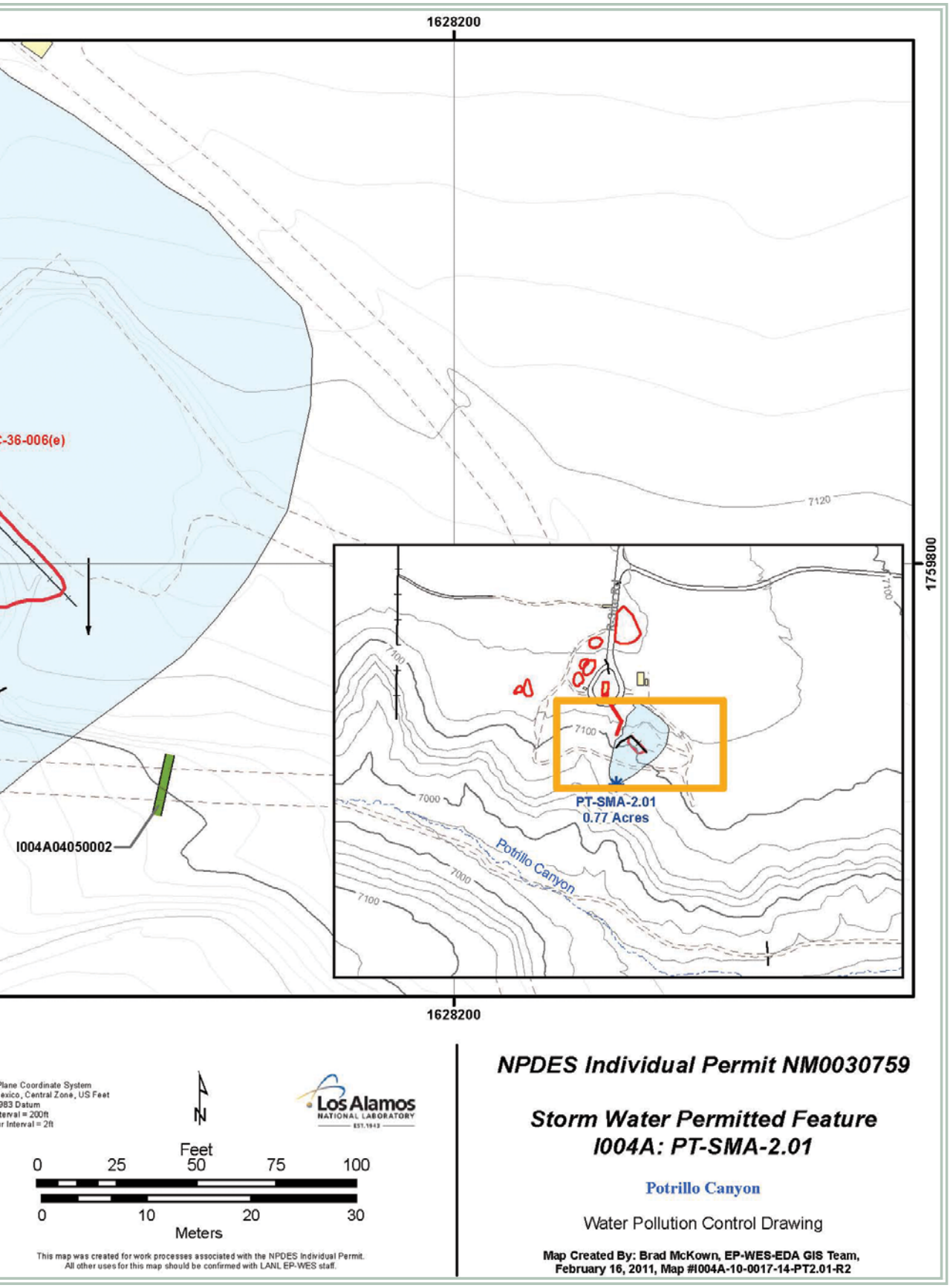
grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm
(I004A-03-01-0003)
This berm is located on the south side of the unpaved access road, north of the sampler. It is used to help control run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Water Bar
(I004A-04-05-0002)
This water bar is located across the unpaved access road east of the SMA. It is used to help control run-on and prevent erosion. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

1000.25.4 Project Map




1628200
1759800
1628200
C-36-006(e)
I004A04050002
PT-SMA-2.01
0.77 Acres
Potrillo Canyon
7120
7100
7000
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I004A: PT-SMA-2.01
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team,
February 16, 2011, Map #I004A-10-0017-14-PT2.01-R2

1000.25.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.25.6 Corrective Action Status

The Sites associated with PT-SMA-2.01 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.26 PT-SMA-3

1000.26.1 Area Description

1000.26.2 Potential Pollutant Sources

1000.26.2.1 Historical Industrial Activity Areas

1000.26.3 Control Measures

1000.26.4 Project Map

1000.26.5 Storm Water Monitoring Plan and Schedule

1000.26.6 Corrective Action Status



1000.26 PT-SMA-3

1000.26.1 Area Description

PT-SMA-3 is located within TA-33 and access to the area is controlled. The northern boundary of the SMA is steeply sloped and undeveloped. The southern boundary of the SMA is steeply sloped and influenced by paved and unpaved access roads. Storm water flows from the developed area northeast towards the receiving waters.

1000.26.2 Potential Pollutant Sources

1000.26.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I005, PT-SMA-3, Sites 36-004(a) and 36-006.

AOC 36-004(a) is the Eenie Firing Site located on Mesita del Potrillo on the rim of Potrillo Canyon. AOC 36-004(a) is deferred for investigation per Table IV-2 of the Consent Order. Together with SWMU 36-006, AOC 36-004(a) comprises Consolidated Unit 36-006-99. AOC 36-004(a) consists of the impact area, a control bunker (building 36-0003), and a make-up building (36-0004) that contains a storage area. Construction of the Eenie Firing Site began in 1949 and was completed in 1951. Materials used in experimental shots include lead oxide, mercury, copper, nickel, brass, DU, and nitroglycerine. Other activities conducted at the site include shoulder-mounted projectiles fired into targets in the southern portion of the firing site.

SWMU 36-006 consists of an inactive surface disposal area located on the southern slope of Potrillo Canyon, approximately 100 ft north of the Eenie Firing Site [AOC 36-004(a)]. Together with AOC 36-004(a), SWMU 36-006 comprises Consolidated Unit 36-006-99. SWMU 36-006 was used to dispose of cables, metal, concrete, and other similar debris from the TA-36 firing sites. The majority of the debris covers an approximately 75-ft-wide area that extends approximately 100 ft down the south canyon slope. The remainder of the debris is scattered laterally 300 ft along the south canyon slope. This debris was dumped into the canyon from trucks. SWMU 36-006 was used from 1955 to 1970. Although the TA-36 firing sites are still active, SWMU 36-006 is no longer used as a surface disposal area.

1000.26.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
36-004(a)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
36-006	Surface disposal site	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

These Sites are both associated with the operation and experimental testing of high explosives. Because of the period of operation, shared drainage, and similar contaminants, these Sites will discharge substantially identical effluent.

1000.26.3 Control Measures

Run-on to this Permitted Feature may originate from the unpaved access road located in the southern portion of the area. Natural channels divert a portion of this potential run-on influence to the west away from the SMA. Installed control measures serve to moderate storm water flow across the SMA.

Subsections to 1000.26.3 list all control measures used to control pollutant sources identified in Section 1000.26.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.26.4.

1000.26.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I005 04 04 0005	Channel/Swale - Culvert	•		•	
I005 04 06 0004	Channel/Swale - Rip Rap	•		•	
I005 06 01 0006	Check Dam - Rock		•		•

Culvert (I005-04-04-0005)

The culvert is located under the unpaved access road to the parking/storage area. It directs flow away from the SMA to the east. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

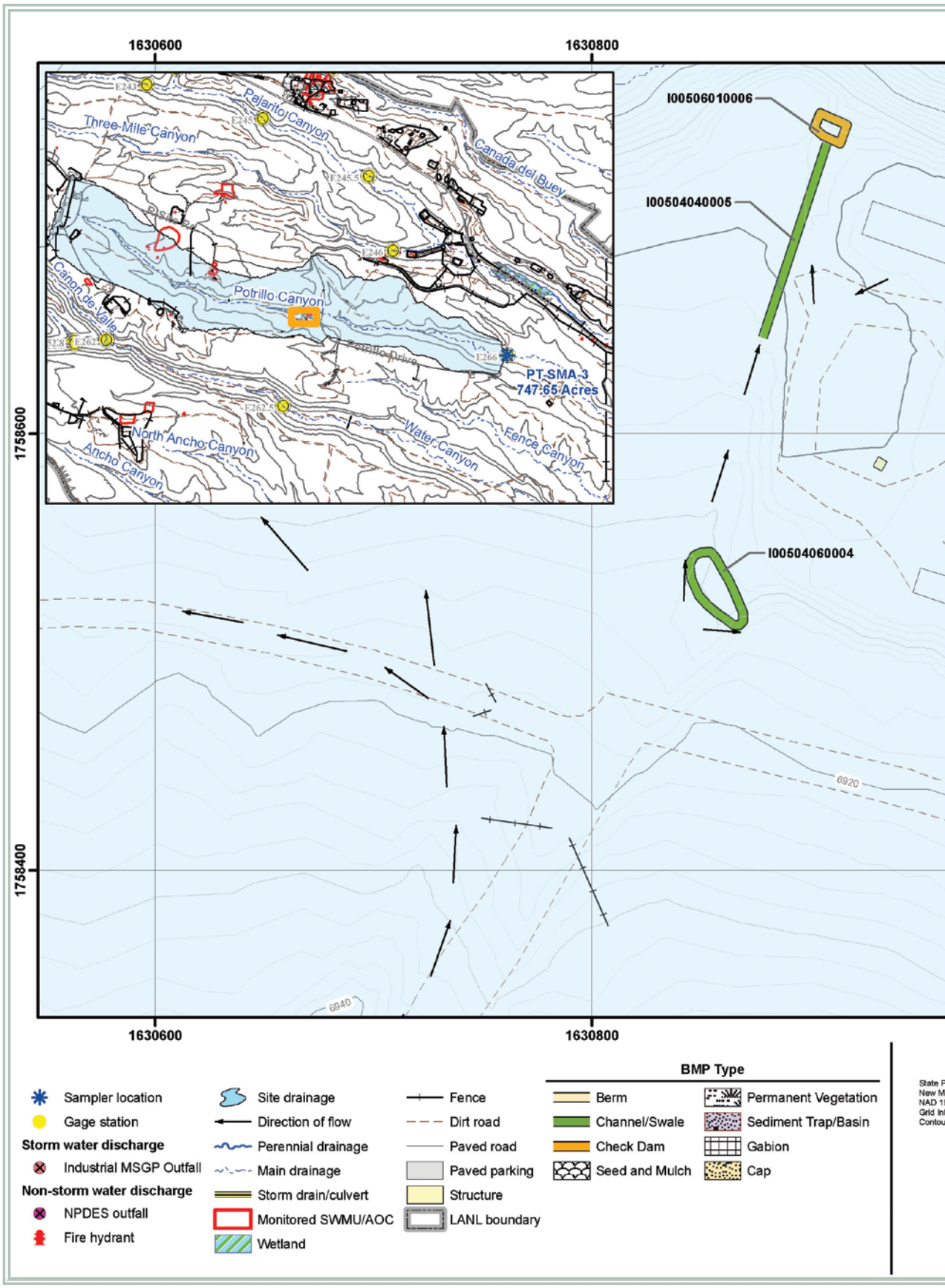
Rip Rap - West (I005-04-06-0004)

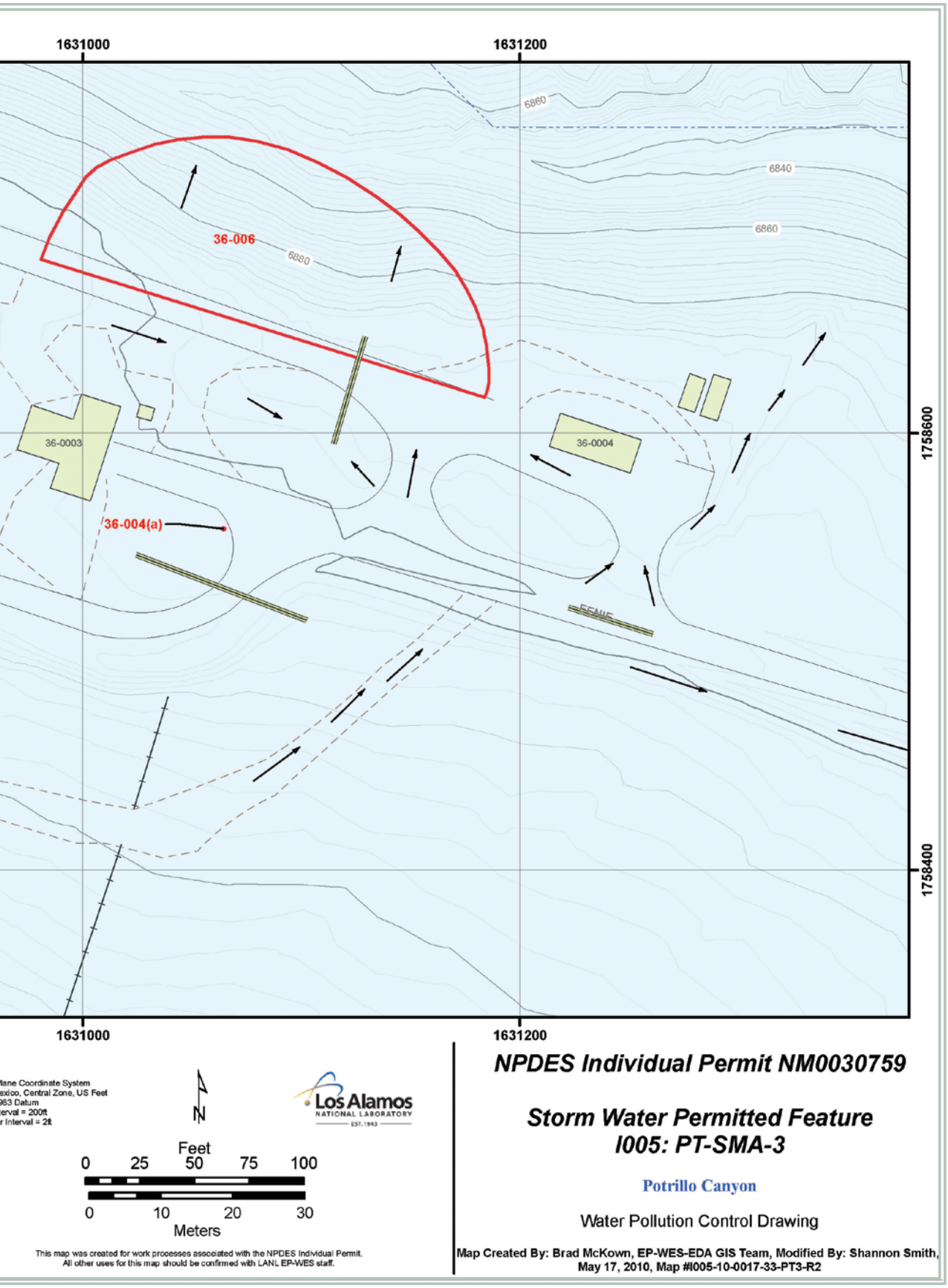
Rip rap has been placed in a flow path within the SMA. The rip rap serves to dissipate the velocity of run-on from the unpaved access road along the southern portion of the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (I005-06-01-0006)

A rock check dam is located on the western side of the SMA and serves to reduce sediment loading in storm water discharges from the related culvert. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.26.4 Project Map




1631000
1631200
6860
6840
6860
36-006
6880
36-0003
36-0004
36-004(a)
FENCE
1758600
1758400
1631000
1631200
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
EST. 1943
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I005: PT-SMA-3
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
May 17, 2010, Map #I005-10-0017-33-PT3-R2

1000.26.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.26.6 Corrective Action Status

The Sites associated with PT-SMA-3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.27 PT-SMA-4.2

1000.27.1 Area Description

1000.27.2 Potential Pollutant Sources

1000.27.2.1 Historical Industrial Activity Areas

1000.27.3 Control Measures

1000.27.4 Project Map

1000.27.5 Storm Water Monitoring Plan and Schedule

1000.27.6 Corrective Action Status



1000.27 PT-SMA-4.2

1000.27.1 Area Description

PT-SMA-4.2 is located within TA-36 and access to the area is controlled. The northern and western boundaries of the SMA are influenced by paved areas and access roads. The southern and eastern boundaries of the SMA are largely undeveloped. Storm water flows from the developed areas, southeast towards the receiving waters.

1000.27.2 Potential Pollutant Sources

1000.27.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF I007, PT-SMA-4.2, Site 36-004(d).

SWMU 36-004(d) consists of the Lower Slobbovia Firing Site and the Skunk Works Firing Site, located in Potrillo Canyon, and three burn pits located on the mesa top next to Potrillo Canyon. AOC 36-004(d) is deferred for investigation per Table IV-2 of the Consent Order.

The Lower Slobbovia Firing Site consists of two firing points and a control building (36-0012). One of the firing points (structure 36-0013) was constructed in 1950 and is located on top of an approximately 200-ft-diameter sand and dirt pad. The control building (36-0012) was constructed into the side of the pad. The second firing point consisted of a wooden tower (structure 36-0120), constructed in 1986 at the northwest end of a 1000-ft long sled track for conducting drop tests. Shots fired at the Lower Slobbovia Firing Site primarily involve HE. Less than 2% of the shots have involved significant amounts of metal (e.g., DU, lead, copper, aluminum, and steel). The largest shot fired at Lower Slobbovia used 5000 to 6000 lb of HE. In addition, underground tests, buried to approximately 100 ft, were conducted at this site.

The Skunk Works Firing Site, located approximately 0.5 mi northwest of the Lower Slobbovia Firing Site, was used to conduct small-explosives experiments during the 1950s. These experiments involved gas (acetylene and oxygen), liquid (tetranitromethane), and solid explosives. Beryllium and radioactive materials were not used at the site. Structures at the Skunk Works Firing Site included a 5-ft × 5.5-ft × 5-ft belowgrade structure that formerly served as a battery storage room and two buildings (36-0044 and 36-0045) that were moved to the site from TA-15. All the structures have been removed. The Skunk Works firing pad was located next to building 36-0045. A shallow depression, located approximately 100 ft farther up the canyon, was also used as a firing pad.

The burn pits were used for burning and disposal of test debris before MDA AA was established in the mid-1960s. These pits are located on Mesita del Potrillo approximately 4000 ft west of the Lower Slobbovia control building (36-0012). The largest pit is a bermed enclosure located north of Potrillo Road and is approximately 40 ft in diameter. Two smaller areas are located south of Potrillo Road. Debris was transported by truck from TA-36 firing sites to the pits, placed in the pits, and burned. The debris consisted of wood, nails, other metal fragments, plastics, and sand contaminated with barium, uranium, and HE.

1000.27.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
36-004(d)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.27.3 Control Measures

Installed control measures serve to control run-on sources from impervious areas surrounding this SMA.

Subsections to 1000.27.3 list all control measures used to control pollutant sources identified in Section 1000.27.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.27.4.

1000.27.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
I007 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
I007 02 02 0006	Established Vegetation - Forested/Needle Cast			•	
I007 04 04 0005	Channel/Swale - Culvert	•		•	
I007 04 06 0002	Channel/Swale - Rip Rap		•	•	
I007 04 06 0003	Channel/Swale - Rip Rap	•		•	
I007 06 01 0004	Check Dam - Rock	•			•

Established Vegetation (I007-02-01-0001, -02-0006)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Culvert (I007-04-04-0005)

The culvert is located under the paved access road near building 36-0012. It diverts run-on from the impervious areas to the south away from the Site. A transverse and

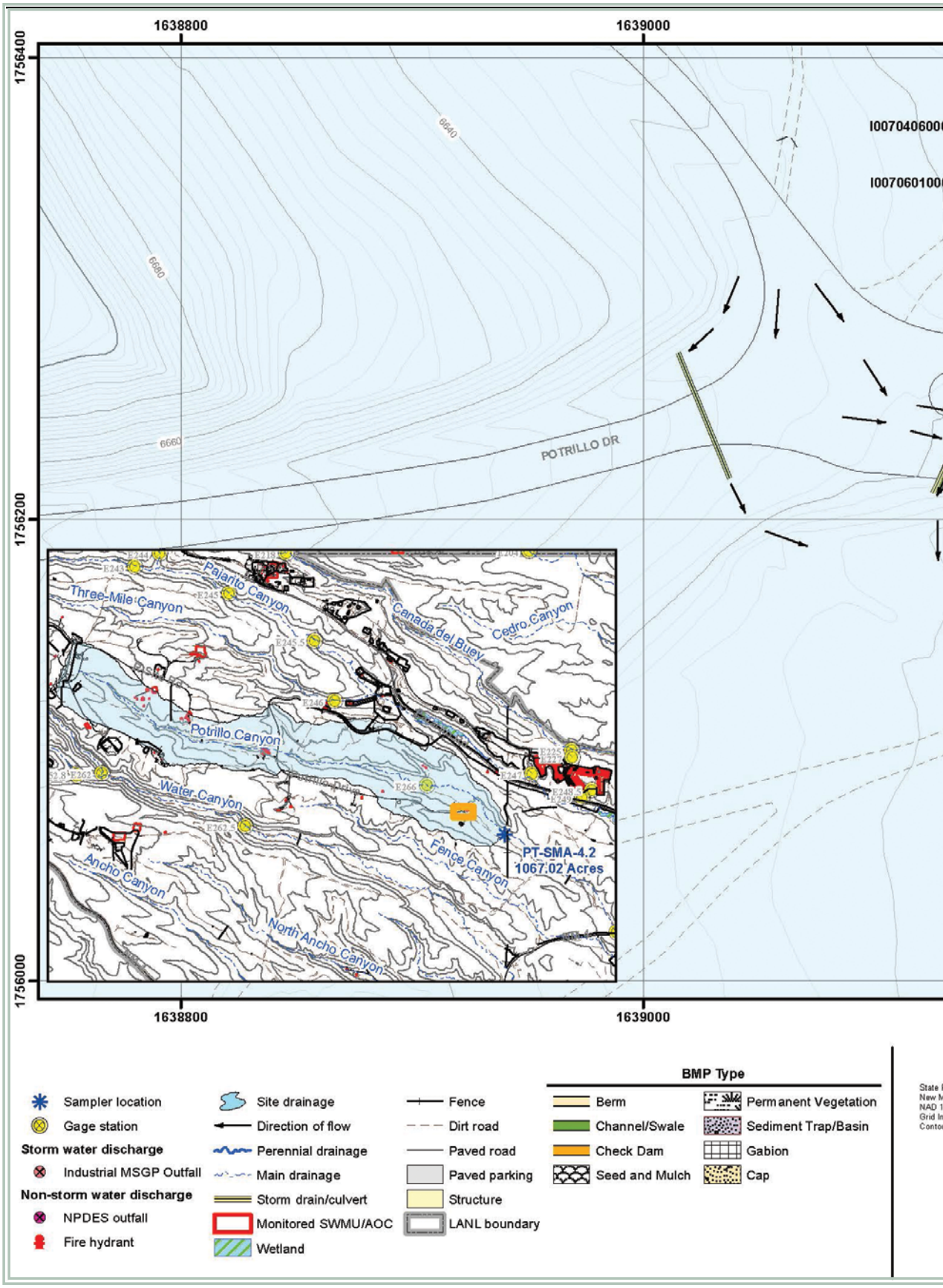
totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap
(I007-04-06-0002)
This rip rap is located near the pad east of the Site and is used to control run-off from the unpaved areas. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Northern Rip Rap
(I007-04-06-0003)
The rip rap is situated north of the paved area east of the rock check dam and is used to control run-on in the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Check Dam
(I007-06-01-0004)
The rock check dam is situated north of the paved area and is used to control run-on in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.27.4 Project Map



1639200
1639400
1756400
1756200
1756000
I00704060002
36-004(d)
36-0012
6620
I00704040005
6620
36-0086
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I007: PT-SMA-4.2
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, February 28, 2011,
Map #I007-10-0017-222-PT4.2-R2

1000.27.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.27.6 Corrective Action Status

The Site associated with PT-SMA-4.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.28 W-SMA-1

1000.28.1 Area Description

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

1000.28.3 Control Measures

1000.28.4 Project Map

1000.28.5 Storm Water Monitoring Plan and Schedule

1000.28.6 Corrective Action Status



1000.28 W-SMA-1

1000.28.1 Area Description

W-SMA-1 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by structures, roads, and paved areas within the developed portion of TA-16. The southern boundary of the SMA is undeveloped.. The eastern boundary of the SMA is largely undeveloped but may be influenced by paved and unpaved access roads. The western boundary of the SMA is influenced by structures, roads, and paved areas within the developed portion of TA-16.

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF W001, W-SMA-1, Sites 16-017(j)-99, 16-026(c2) and 16-026(v).

SWMU 16-017(j)-99 is a former magazine (structure 16-63) at TA-16. The magazine was a 24 ft x 26 ft x 9 ft wood-framed structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1998. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16. In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

SWMU 16-026(c2) consists of the two outfalls that served chemical storage building 16-462 at TA-16. The outfalls are located approximately 30 ft southeast of the building. Floor troughs within 16-462 drain to 6-in. diameter VCP drainlines that exit the south and southeast side of the building. Effluent flowed from the drainlines southeast to a drainage ditch. Building 16-462 was built in 1952 to store chemicals for use in the analytical chemistry laboratory (building 16-460). All drains at building 16-462 were plugged in 1991.

SWMU 16-026(v) is an outfall that served decommissioned analytical chemistry laboratory building 16-460 at TA-16. The outfall is located approximately 60 ft southeast of the building. The outfall was NPDES-permitted (05A072) and received effluent from a sump [SWMU 16-003(c)], building floor drains, steam-cup drains, sink drains, and a drinking fountain. The outfall has been plugged and no longer receives effluent. It was removed from the NPDES permit effective September 19, 1997.

1000.28.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-017(j)-99	Former storage magazine 16-63	Co-located, Overlapping	Shared	•		•	
16-026(c2)	Outfall from Building 16-462	Co-located, Overlapping	Shared	•		•	
16-026(v)	Outfall from Building 16-460	Outfall from Building 16-460		•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with historical activities at TA-16, in an area know as V-Site. These Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.28.3 Control Measures

Run-on contributions to this SMA may originate from the paved and unpaved access roads in proximity to the SMA. Buildings in the area may also provide additional contributions. Control measures function to manage and moderate storm water flow across this area.

Subsections to 1000.28.3 list all control measures used to control pollutant sources identified in Section 1000.28.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.28.4.

1000.28.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W001 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
W001 02 02 0004	Established Vegetation - Forested/ Needle Cast			•	
W001 04 06 0001	Channel/Swale - Rip Rap	•		•	

1000.28.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W001 04 06 0011	Channel/Swale - Rip Rap	•		•	
W001 06 01 0002	Check Dam - Rock		•		•
W001 06 01 0003	Check Dam - Rock		•		•
W001 06 01 0008	Check Dam - Rock		•		•
W001 06 01 0009	Check Dam - Rock		•		•
W001 06 01 0010	Check Dam - Rock		•		•

Established Vegetation (W001-02-01-0005, -02-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rip Rap East (W001-04-06-0001)

This rip rap is located on the slope near the fence line. It is in place to control run-on from the drainage channel above. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap (W001-04-06-0011)

This rip rap is located near the culvert outlet and is serving as an outlet protection device, preventing erosion of the drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Eastern Rock Check Dam (W001-06-01-0002)

This is a series of three rock check dams located at the eastern edge of the SMA in the channel above the sampler. They are in place to control run-off and reduce sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

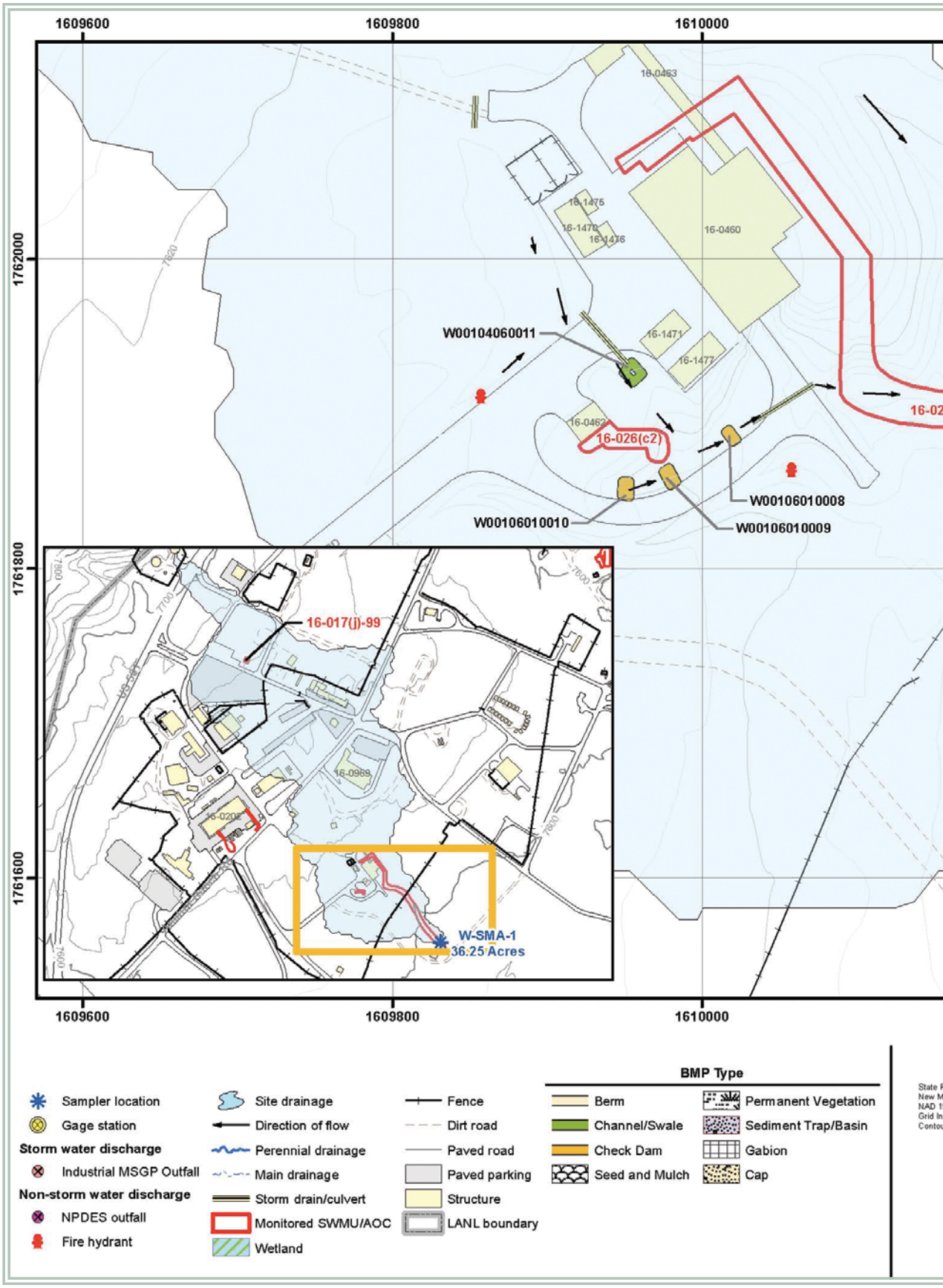
Central Rock Check Dam (W001-06-01-0003)

This check dam is located to the northwest of the Eastern Check Dams, in the same channel. It is used to control run-off and reduce sediment migration. Check dams

reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - West
(W001-06-01-0008, -0009, -0010)
This is a series of three rock check dams located near building 16-0460 in a small drainage drainage channel. They are used to control run-on from the paved access road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.28.4 Project Map



1610200
1610400
1610600
1762000
1761800
1761600
6(v)
W00104060001
W00106010003
W00106010002
W-SMA-1
36.25 Acres
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W001: W-SMA-1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 25, 2011, Map #W001-10-0017-234-W1-R4

1000.28.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.28.6 Corrective Action Status

The Sites associated with W-SMA-1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.29 W-SMA-1.5

1000.29.1 Area Description

1000.29.2 Potential Pollutant Sources

1000.29.2.1 Historical Industrial Activity Areas

1000.29.3 Control Measures

1000.29.4 Project Map

1000.29.5 Storm Water Monitoring Plan and Schedule

1000.29.6 Corrective Action Status



1000.29 W-SMA-1.5

1000.29.1 Area Description

The northern boundary of the W-SMA-1.5 is influenced by paved areas and structures associated with Building 16-0202. The southern boundary of the SMA is influenced by paved access roads. The receiving waters are in this boundary. The eastern boundary of the SMA is influenced by a paved access road. The western boundary of the SMA is influenced by a paved access road.

1000.29.2 Potential Pollutant Sources

1000.29.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W002, W-SMA-1.5, Sites 16-026(b2) and 16-028(d).

SWMU 16-026(b2) is an outfall that served decommissioned machine shop building 16-202 at TA-16. The outfall is located approximately 135 ft southeast of building 16-202 and daylights in the drainage ditch along Anchor Ranch Road. The outfall received discharge from an oil/water separator, which consisted of a 3 × 3 × 3 ft cement pit located below-floor-level. The separator was installed in 1952, when building 16-202 was built and remains in place. Use of the separator ceased after 1977.

SWMU 16-028(d) is a formerly NPDES-permitted outfall (04A083) located at TA-16 approximately 80 ft southeast of decommissioned building 16-202. The outfall formerly served decommissioned machine shop building 16-202 and connected to the building through an 8-in. diameter VCP. The outfall received noncontact cooling water and wash water from two floor drains, effluent from two non-HE sumps, discharge from two sink drains, and rainwater from 16 roof drains. In 1995, building 16-202 was converted to office space and the drainlines within the building were modified so that the outfall only receives stormwater from the building's roof drains. The outfall was removed from the NPDES permit effective September 19, 1997.

1000.29.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-026(b2)	Outfall from Building 16-202	Co-located, Overlapping	Shared	•		•	
16-028(d)	Outfall from former Building 16-202	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with historical discharges from building 16-0202. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.29.3 Control Measures

The majority of potential run-on at this SMA originates from the paved areas and roof drainage from building 16-0202. Control measures serve to mitigate influences from

these run-on sources. Run-off controls function to reduce the sediment loading and reduce the velocity of potential run-off from the area.

Subsections to 1000.29.3 list all control measures used to control pollutant sources identified in Section 1000.29.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.29.4.

1000.29.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W002 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W002 03 06 0004	Berms - Straw Wattles	•			•
W002 03 06 0005	Berms - Straw Wattles	•			•
W002 04 06 0007	Channel/Swale - Rip Rap		•	•	
W002 04 07 0002	Channel/Swale - Vegetated Swale		•	•	
W002 04 07 0003	Channel/Swale - Vegetated Swale		•	•	
W002 06 01 0008	Check Dam - Rock	•			•
W002 06 01 0009	Check Dam - Rock	•			•
W002 06 01 0010	Check Dam - Rock		•		•
W002 06 01 0011	Check Dam - Rock		•		•
W002 06 01 0012	Check Dam - Rock		•		•

Established Vegetation (W002-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (W002-03-06-0004, -0005)

This is a pair of wattles located west of building 16-00663 adjacent to the paved area. They are in place to help control run-on from the paved areas around the area buildings. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap
(W002-04-06-0007)

This rip rap is located in the natural drainage channel to the southwest of building 16-0663. It is used to mitigate run-off and prevent erosion of the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Vegetated Swale - West
(W002-04-07-0002)

The swale is located south of the rip rap and is being used to manage pavement run-off. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Vegetated Swale - East
(W002-04-07-0003)

The swale is located south of building 16-0203. Its purpose is to manage pavement run-off. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

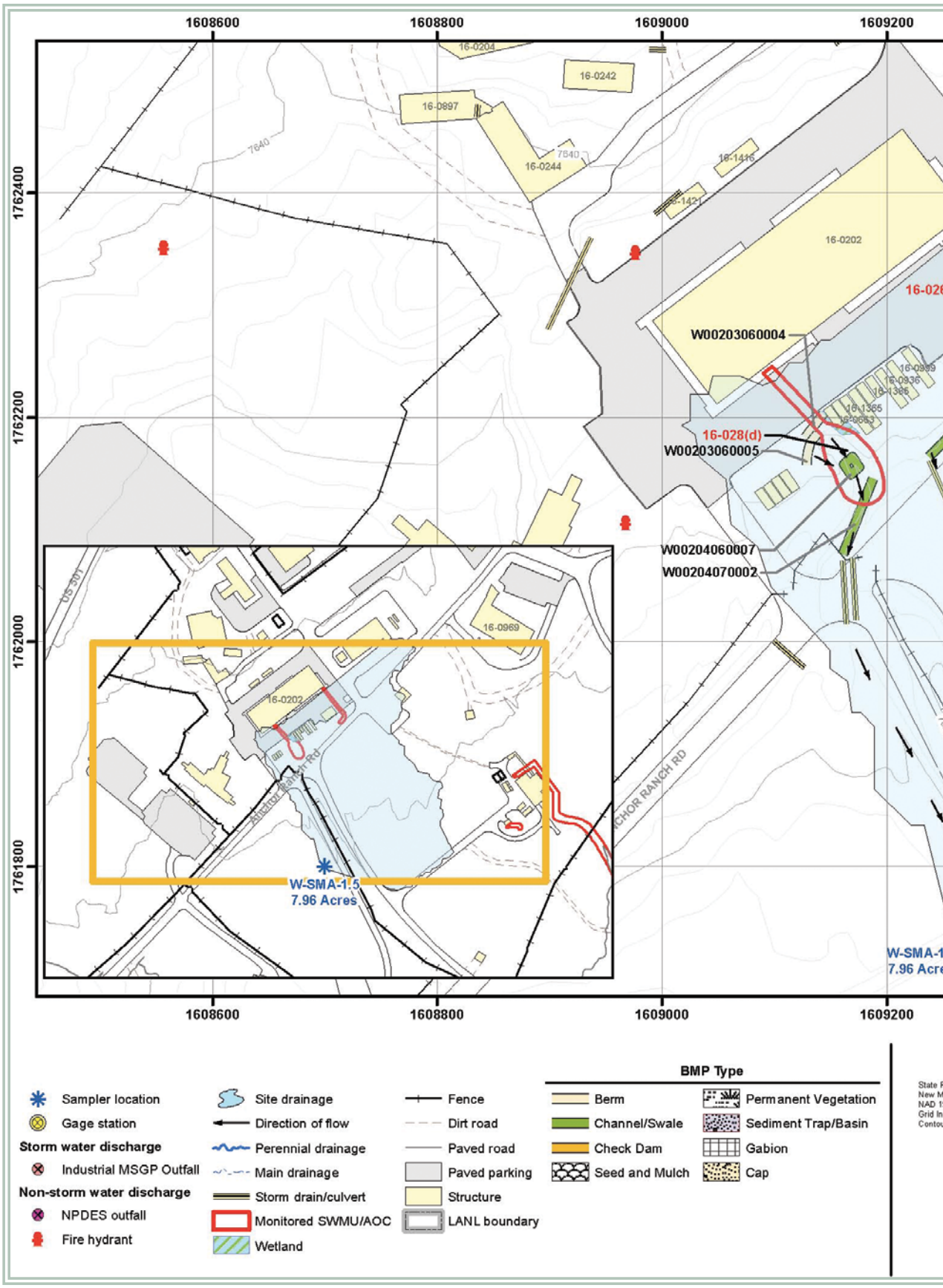
Rock Check Dams - North
(W002-06-01-0008, -0009)

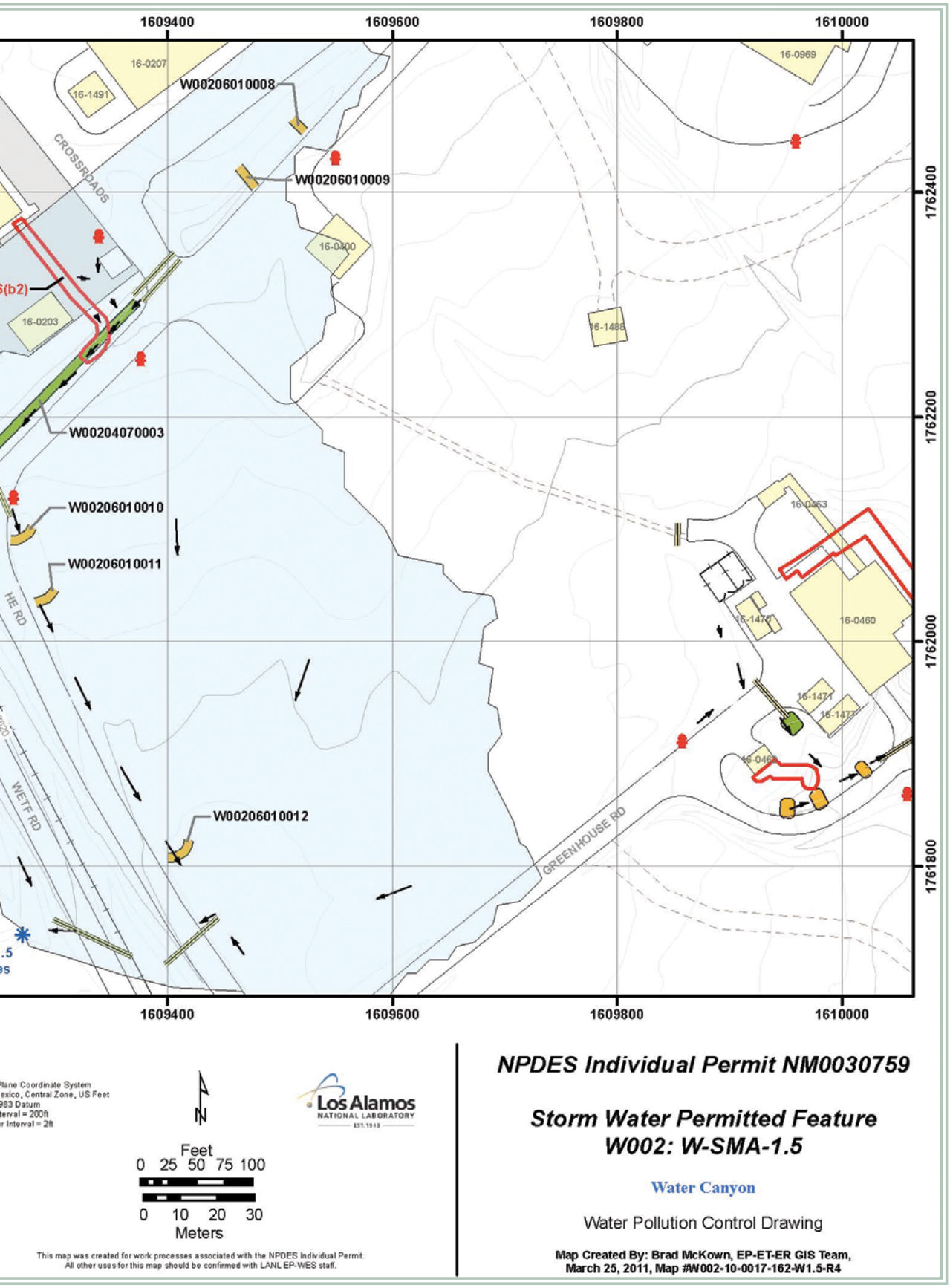
This pair of check dams controls run-on and sediment in the roadside channel east of 16-026(b2) on the northern part of Anchor Road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams
(W002-06-01-0010, -0011, -0012)

These three check dams control run-off and sediment in the channel east of HE road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.29.4 Project Map




1609400
1609600
1609800
1610000
1762400
1762200
1762000
1761800
16-0207
16-1491
16-0969
W00206010008
W00206010009
16-0400
16-0203
16-1485
W00204070003
W00206010010
W00206010011
16-0463
16-0460
16-1470
16-1471
16-1472
16-0462
W00206010012
CROSSROADS
HE RD
WETF RD
GREENHOUSE RD
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W002: W-SMA-1.5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 25, 2011, Map #W002-10-0017-162-W1.5-R4

1000.29.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.29.6 Corrective Action Status

The Sites associated with W-SMA-1.5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.30 W-SMA-2.05

1000.30.1 Area Description

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

1000.30.3 Control Measures

1000.30.4 Project Map

1000.30.5 Storm Water Monitoring Plan and Schedule

1000.30.6 Corrective Action Status



1000.30 W-SMA-2.05

1000.30.1 Area Description

W-SMA-2.05 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas. The southern boundary of the SMA is influenced by paved roads. The receiving waters are along this boundary. The eastern and western boundaries of the SMA are influenced by structures and paved areas.

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W003, W-SMA-2.05, Site 16-028(e).

SWMU 16-028(e) is a formerly NPDES-permitted outfall (04A091) that served materials testing laboratory building 16-450 at TA-16.The outfall was located southeast of building 16-450 and received discharges through a drainline from an HE sump [SWMU 16-029(g)]. The outfall discharged outside the security fence at the edge of Water Canyon. The sump was removed in 1997 and the outfall drainline was plugged, but left in place. The outfall was removed from the NPDES permit effective September 19, 1997.

1000.30.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-028(e)	Outfall associated with Building 16-450	Discrete Location, No overlap	Individual	•		•	

1000.30.3 Control Measures

There are run-on contributions from area parking lots, roof drains, and access roads, at this SMA. Existing controls serve to divert pavement run-on and to reduce sediment migration associated with Site run-off.

Subsections to 1000.30.3 list all control measures used to control pollutant sources identified in Section 1000.30.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.30.4.

1000.30.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W003 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W003 02 02 0002	Established Vegetation - Forested/ Needle Cast			•	
W003 03 06 0003	Berms - Straw Wattles	•			•
W003 06 01 0004	Check Dam - Rock		•		•
W003 06 01 0005	Check Dam - Rock		•		•

Established Vegetation (W003-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

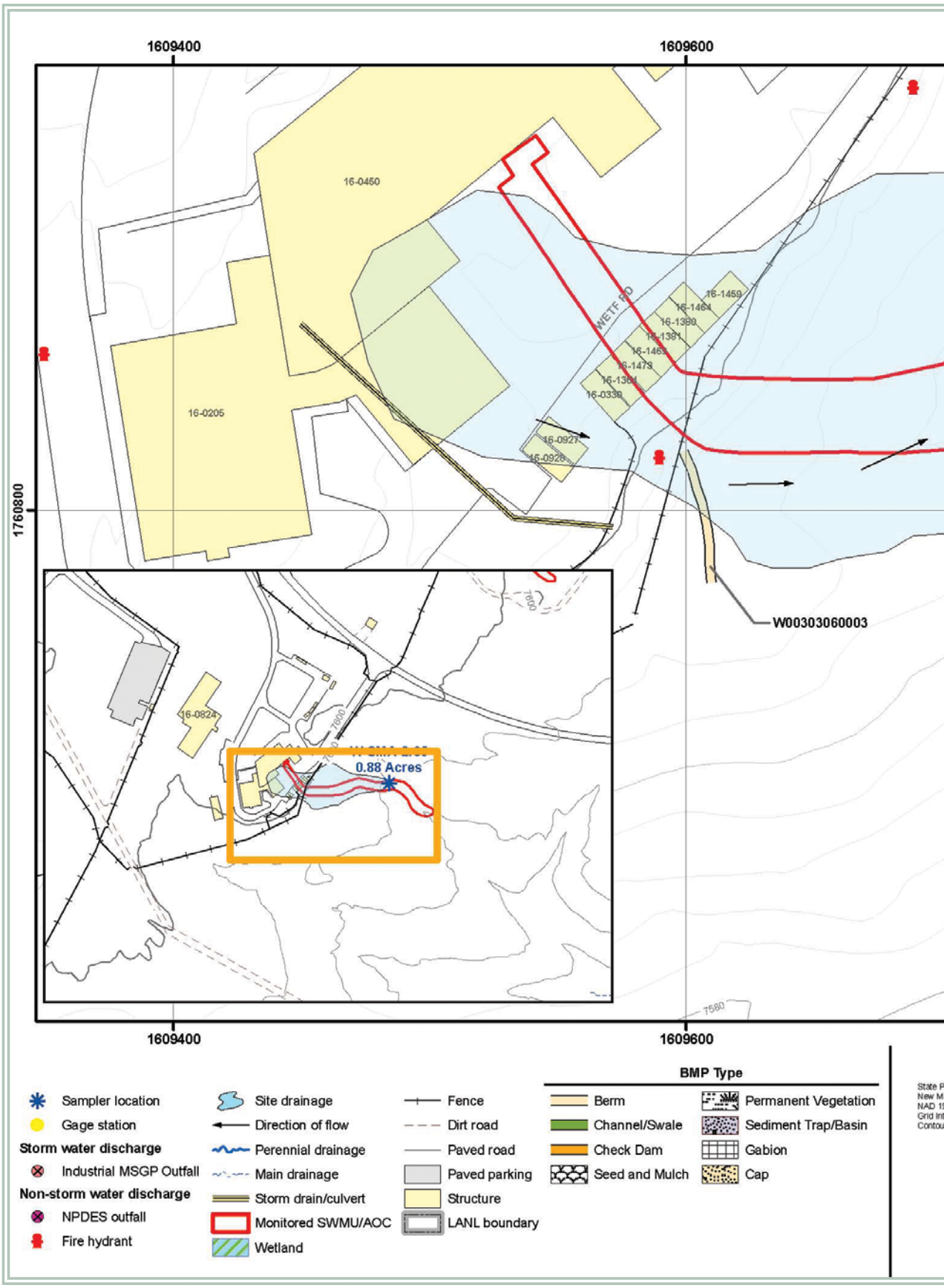
Berms- Wattles (W003-03-06-0003)

This pair of wattles, tracked as one control, sits east of the fence to divert run-on from parking lot and roof drains and control sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams (W003-06-01-0004, -0005)

This pair of check dams are located in the channel east of the sampler to control run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.30.4 Project Map



1609800
1610000
1760800
W-SMA-2.05
0.88 Acres
16-028(e)
W00306010004
W00306010005
7560
7580
1609800
1610000
lane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W003: W-SMA-2.05
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W003-10-0017-146-W2.05-R1

1000.30.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.30.6 Corrective Action Status

The Site associated with W-SMA-2.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.31 W-SMA-3.5

1000.31.1 Area Description

1000.31.2 Potential Pollutant Sources

1000.31.2.1 Historical Industrial Activity Areas

1000.31.3 Control Measures

1000.31.4 Project Map

1000.31.5 Storm Water Monitoring Plan and Schedule

1000.31.6 Corrective Action Status



1000.31 W-SMA-3.5

1000.31.1 Area Description

W-SMA-3.5 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved access roads. The southern boundary of the SMA is undeveloped and gently slopes towards the receiving waters further south. The eastern boundary of the SMA is influenced by structures and paved access roads. The western boundary of the SMA is largely undeveloped.

1000.31.2 Potential Pollutant Sources

1000.31.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W004, W-SMA-3.5, Site 16-026(y).

SWMU 16-026(y) is an outfall at TA-16 that serves building 16-411. The drainline to the outfall is a 4-in.-diameter VCP that exits building 16-411 on its west side and turns south to terminate at its discharge point on the hill slope of Water Canyon. The discharge point is located south of a double security fence at the edge of Water Canyon. Building 16-411 was built in 1951 and used for the assembly of finished HE components. The outfall received discharges from an equipment room floor drain, a sink, roof drains, a water fountain, and an eyewash station. In the 1990's, the roof drains were rerouted to a separate outfall and the other drains were either plugged or rerouted to a holding tank.

1000.31.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-026(y)	Outfall from Building 16-411	Discrete Location, No overlap	Individual	•		•	

1000.31.3 Control Measures

Potential run-on sources at this SMA include run-on from paved roads and possibly roof drainage associated with structure 16-0411.

Subsections to 1000.31.3 list all control measures used to control pollutant sources identified in Section 1000.31.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.31.4.

1000.31.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W004 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
W004 03 06 0004	Berms - Straw Wattles	•			•
W004 03 06 0005	Berms - Straw Wattles	•			•
W004 03 06 0006	Berms - Straw Wattles	•			•
W004 04 06 0003	Channel/Swale - Rip Rap		•	•	
W004 06 01 0007	Check Dam - Rock		•		•

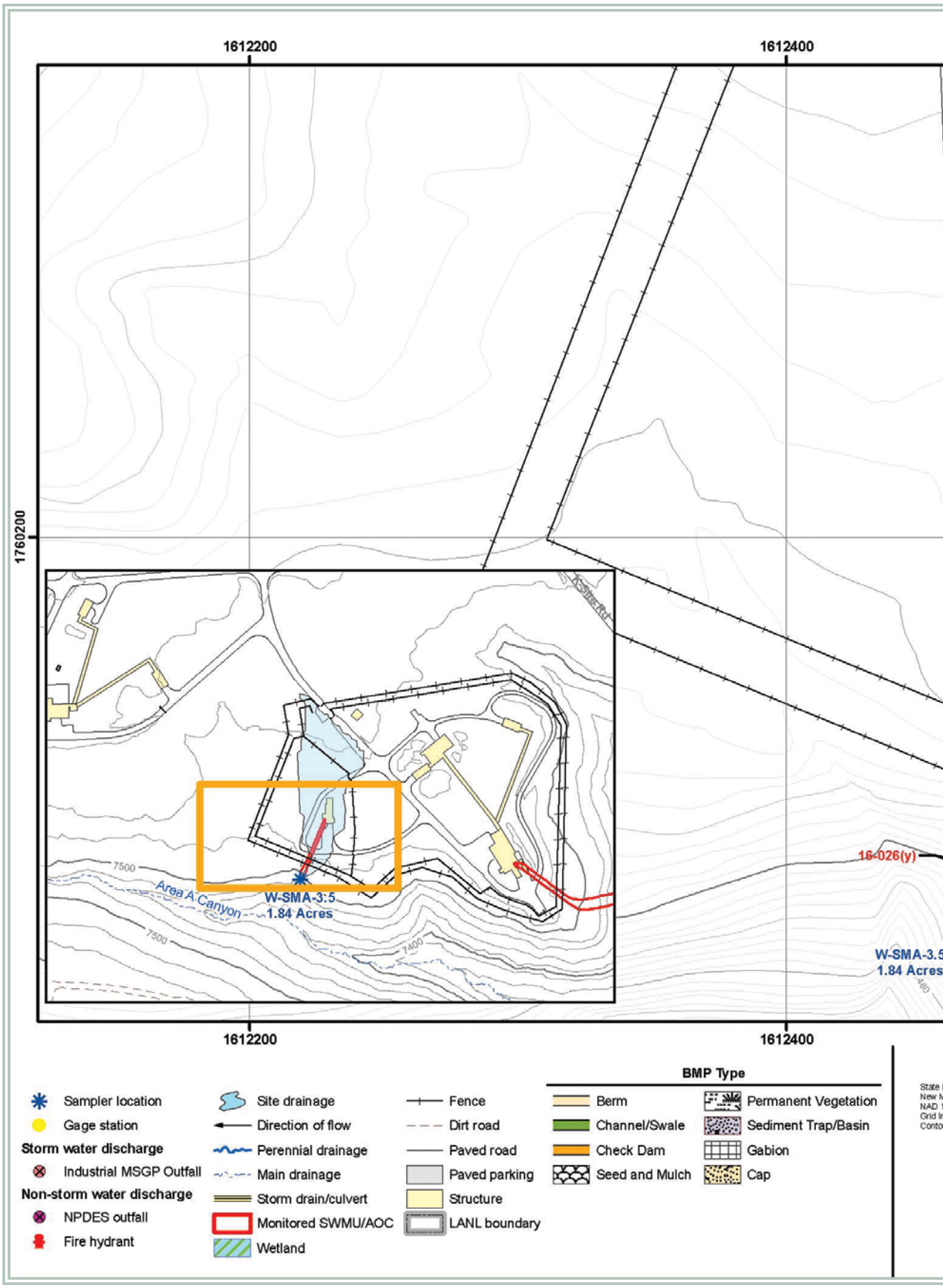
Established Vegetation (W004-02-01-0002)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

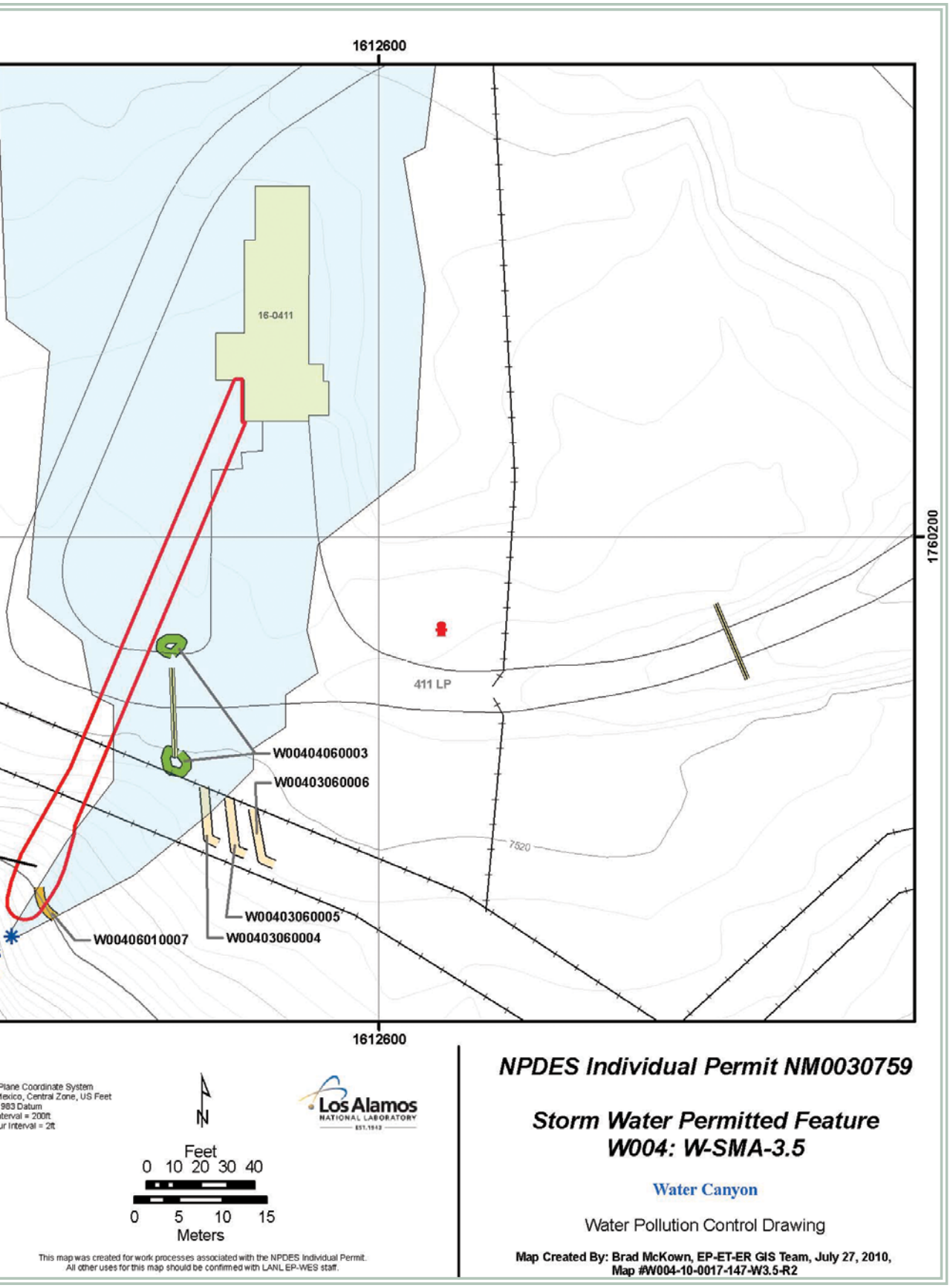
Straw Wattles (W004-03-06-0004, -0005, -0006)
These three wattles are between the fences in bare area south of road. They control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Channel/Swale - Rip Rap (W004-04-06-0003)
These areas of rip rap serve as inlet and outlet protection for the associated culvert. They control run-off and erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Check Dam - Rock (W004-06-01-0007)
This check dam is directly northeast of the sampler. It controls run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.31.4 Project Map




1612600
16-0411
411 LP
1760200
W00404060003
W00403060006
7520
W00403060005
W00406010007
W00403060004
1612600
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W004: W-SMA-3.5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W004-10-0017-147-W3.5-R2

1000.31.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.31.6 Corrective Action Status

The Site associated with W-SMA-3.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.32 W-SMA-4.1

1000.32.1 Area Description

1000.32.2 Potential Pollutant Sources

1000.32.2.1 Historical Industrial Activity Areas

1000.32.3 Control Measures

1000.32.4 Project Map

1000.32.5 Storm Water Monitoring Plan and Schedule

1000.32.6 Corrective Action Status



1000.32 W-SMA-4.1

1000.32.1 Area Description

W-SMA-4.1 is located within TA-16 and access to the area is controlled. The northern and southern boundaries of the SMA are largely undeveloped but may be influenced by paved areas associated with building 16-0410. The eastern boundary of the SMA is undeveloped and moderately sloping towards the receiving waters further east. The western boundary of the SMA is influenced by paved access roads and parking associated with building 16-0410.

1000.32.2 Potential Pollutant Sources

1000.32.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W005, W-SMA-4.1, Site 16-003(a).

SWMU 16-003(a) is an HE sump and outfall that served assembly building 16-410 at TA-16. The concrete sump is located on the exterior southeast wall of the building and is 12 ft long x 4 ft wide x 5 ft high. The sump served floor, roof, and equipment drains and removed suspended HE solids from process water before it was discharged to the outfall, which is located approximately 320 ft southeast of the building. The sump was installed in the early 1950s and modified in 1966 to improve its effectiveness and to reduce HE handling. The outfall was National Pollutant Discharge Elimination System- (NPDES) permitted (05A053) and was removed from the NPDES permit effective January 14, 1998.

1000.32.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-003(a)	Sump	Discrete Location, No overlap	Individual	•	•	•	HE

1000.32.3 Control Measures

The potential for run-on contributions to this SMA is minimal. The terrain is rolling and storm water discharge is greatly reduced by this topographical feature and the existing vegetation. The access road is graded away from the drainage channel diverting run-on from the paved area away from the SMA. Planned controls are to fortify sediment retention associated with potential run-off from this SMA.

Subsections to 1000.32.3 list all control measures used to control pollutant sources identified in Section 1000.32.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.32.4.

1000.32.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W005 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W005 03 06 0002	Berms - Straw Wattles		•		•
W005 03 06 0003	Berms - Straw Wattles	•			•
W005 03 06 0004	Berms - Straw Wattles	•			•
W005 03 06 0005	Berms - Straw Wattles	•			•

Established Vegetation (W005-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattle (W005-03-06-0002)

This wattle lies approximately 100 feet west of the sampler to control run-off and sediment, placed east of the other wattles. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

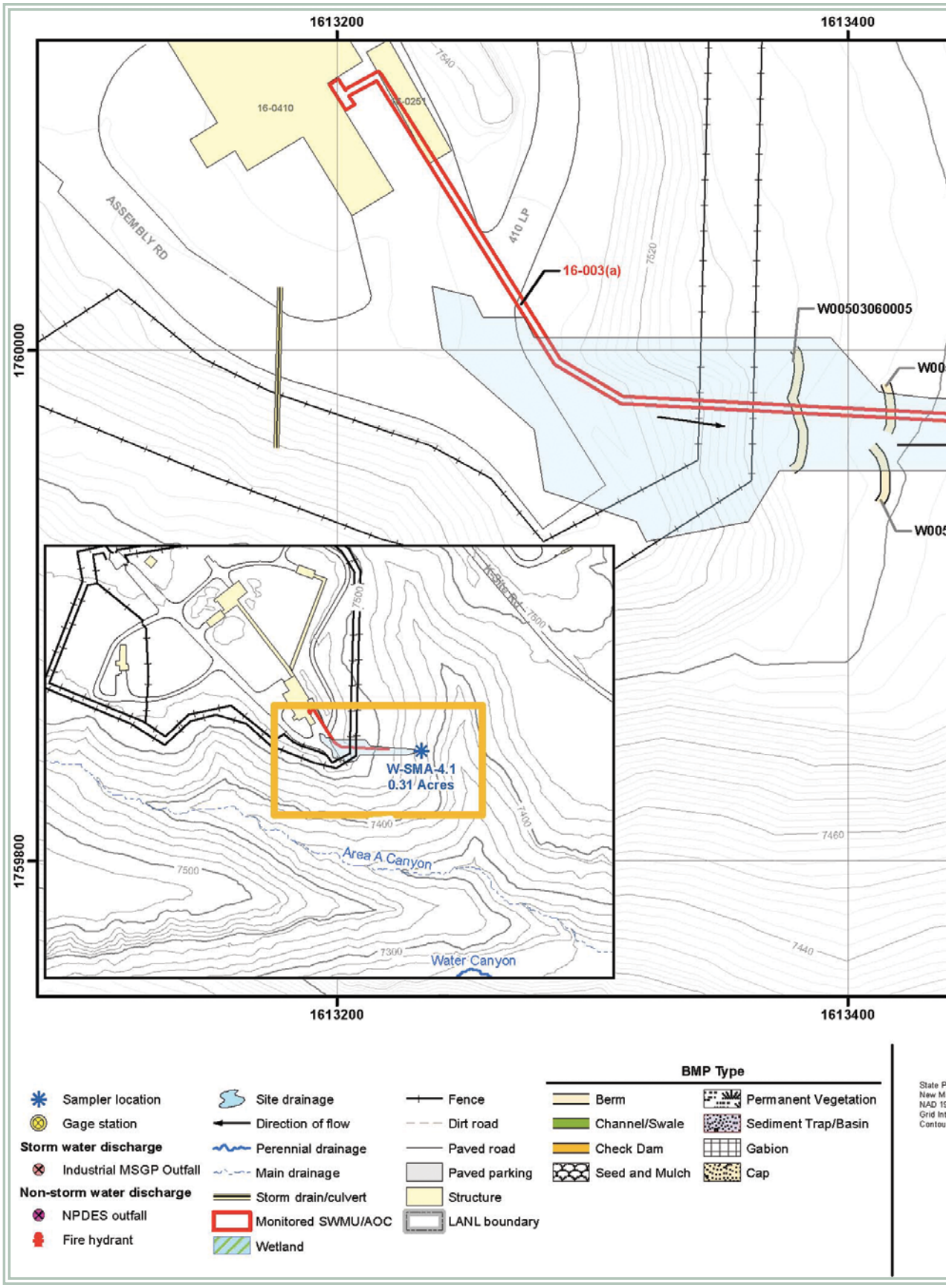
Straw Wattles (W005-03-06-0003, -0004)

These wattles are located east of the fence to manage run-on and capture sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West (W005-03-06-0005)

This group of two wattles as one BMP is west of the -0003 and -0004 pair to control run-on and sediment east of the fence. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.32.4 Project Map



1613600
1760000
1759800
1613600
503060003
W-SMA-4.1
0.31 Acres
W00503060002
503060004
7420
7380
7360
7340
lane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W005: W-SMA-4.1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 25, 2011,
Map #W005-10-0017-161-W4.1-R4

1000.32.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.32.6 Corrective Action Status

The Site associated with W-SMA-4.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.33 W-SMA-5

1000.33.1 Area Description

1000.33.2 Potential Pollutant Sources

1000.33.2.1 Historical Industrial Activity Areas

1000.33.3 Control Measures

1000.33.4 Project Map

1000.33.5 Storm Water Monitoring Plan and Schedule

1000.33.6 Corrective Action Status



1000.33 W-SMA-5

1000.33.1 Area Description

W-SMA-5 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by moderate development consisting of structures and paved access roads. The southern boundary of the SMA is influenced by moderate development and gently slopes to the east. The eastern boundary of the SMA is influenced by structures and associated paved areas. The receiving waters are further east along this boundary. The western boundary of the SMA is largely undeveloped and gently sloping eastward.

1000.33.2 Potential Pollutant Sources

1000.33.2.1 Historical Industrial Activity Areas

There are six historical industrial activity areas associated with PF W006, W-SMA-5, Sites 16-001(e), 16-003(f), 16-026(b), 16-026(c), 16-026(d) and 16-026(e).

SWMU 16-001(e) is an inactive dry well located at TA-16 approximately 170 ft east of HE processing building 16-306. Constructed in the 1980s, the dry well never functioned properly, because it drained to impermeable tuff (Qbt 4). Eventually, the dry well was filled with soil and capped with concrete.

SWMU 16-003(f) consists of two inactive HE sumps at TA-16 associated with building 16-304. The sumps are located on the exterior northeast side of the building. Constructed between 1951 and 1953, building 16-304 was used for developing and fabricating plastic components for the weapons program. Chemical solvents were used in the building.

SWMU 16-026(b) is an outfall located to the east of a rest house (building 16-307). The outfall formerly received from two HE sumps [SWMU 16-029(a)] located near the exterior southeast wall of the rest house. The outfall discharged to Water Canyon. The sumps were plugged in 1990–1991. Used to store molds and materials for plastics development, the rest house also previously housed a solvent disassembly tank used to remove HE from test devices.

SWMU 16-026(c) is an outfall located at TA-16 to the south of a rest house (building 16-305). The outfall formerly received discharge from two HE sumps [SWMU 16-029(b)] located near the exterior southwest wall of the rest house. The outfall discharged to Water Canyon. The sumps were plugged in 1990-1991. Used to store chemicals and solvents for plastics development and production, the rest house was also used for filament winding of developmental weapons components.

SWMU 16-026(d) is an outfall located to the southeast of a rest house (building 16-303). The outfall formerly received discharge from two HE sumps [SWMU 16-029(c)] located on the exterior southwest wall of the rest house. The outfall discharged to Martin Spring Canyon. The sumps were plugged in 1990-1991.

SWMU 16-026(e) is an outfall located to the south of building 16-301. The outfall formerly received discharge from two HE sumps [SWMU 16-029(d)] located on the exterior west side of building 16-301. The outfall discharged to Martin Spring Canyon. The sumps were plugged in 1990-1991. Building 16-301 originally housed mock-HE processing operations and stored raw materials that were used to prepare mock HE. Building 16-301 was later used as an environmental testing laboratory for research into the effects of temperature, pressure, and humidity on weapons and components.

1000.33.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-001(e)	Dry well	Co-located, Overlapping	Shared	•	•	•	SVC
16-003(f)	Sumps	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(b)	Outfall from Structure 16-307	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(c)	Outfall from Building 16-305 Drain	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(d)	Outfall from Building 16-303	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(e)	Outfall from Structure 16-301	Co-located, Overlapping	Shared	•	•	•	SVC

Substantially Identical Determination

Sites grouped within this SMA are associated with historical HE casting-activities conducted in facilities comprising the 300s Line at TA-16. These Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.33.3 Control Measures

There are multiple potential sources of run-on to the SMA. Run-on originating east of K-Site road feeds a culvert that discharges into the channel in Site 16-026(c). Additionally, run-on from the facilities and the paved areas that are in the western portion of the SMA contribute run-on to the area.

Subsections to 1000.33.3 list all control measures used to control pollutant sources identified in Section 1000.33.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.33.4.

1000.33.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W006 01 01 0002	Seed and Mulch - Seed and Wood Mulch	•		•	
W006 02 01 0009	Established Vegetation - Grasses and Shrubs			•	
W006 03 06 0001	Berms - Straw Wattles	•			•
W006 03 06 0018	Berms - Straw Wattles	•			•
W006 04 04 0011	Channel/Swale - Culvert	•		•	
W006 04 06 0006	Channel/Swale - Rip Rap	•		•	
W006 04 06 0007	Channel/Swale - Rip Rap	•		•	
W006 06 01 0003	Check Dam - Rock		•		•
W006 06 01 0012	Check Dam - Rock		•		•
W006 06 01 0013	Check Dam - Rock		•		•
W006 06 01 0014	Check Dam - Rock		•		•
W006 06 01 0015	Check Dam - Rock		•		•
W006 06 01 0016	Check Dam - Rock		•		•
W006 06 01 0017	Check Dam - Rock		•		•
W006 06 03 0005	Check Dam - Juniper Bales		•		•
W006 07 01 0004	Gabions - Gabions		•		•
W006 07 01 0010	Gabions - Gabions		•		•

Seed and Mulch (W006-01-01-0002)

This mulched area is located on the slope to the east of the paved access road, west of the sampler and is helping to control run-on from the road. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by

protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (W006-02-01-0009)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (W006-03-06-0001)

The straw wattles are located on the slope to the east of the paved access road. They are helping to control run-on to the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - South (W006-03-06-0018)

This wattle is located northwest of the sampler and south of 16-001(e). It is used to help managestorm water run-on from the paved areas and the slope above the sampler. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Culvert (W006-04-04-0011)

The culvert is located east of building 16-0306 across HE Road. It is used to mitigate run-on from the slope above. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap - East (W006-04-06-0006)

The rip rap is located to the east of the unpaved access road near the eastern boundary of the SMA. Its purpose is to control erosion below the culvert outlet. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Channel Rip Rap (W006-04-06-0007)

This rip rap is located in the channel northwest of the sampler and is in place to mitigate erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (W006-06-01-0003)

The check dam is located in the channel west of the sampler. It is controlling run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams (W006-06-01-0012, -0013, -0014, -0015, -0016, -0017)

This group of six check dams is installed in channels west of the buildings, east of K Site Road. They control run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Juniper Bales (W006-06-03-0005)

The juniper bales are located in the channel west of the sampler. They are controlling run-off from the area. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

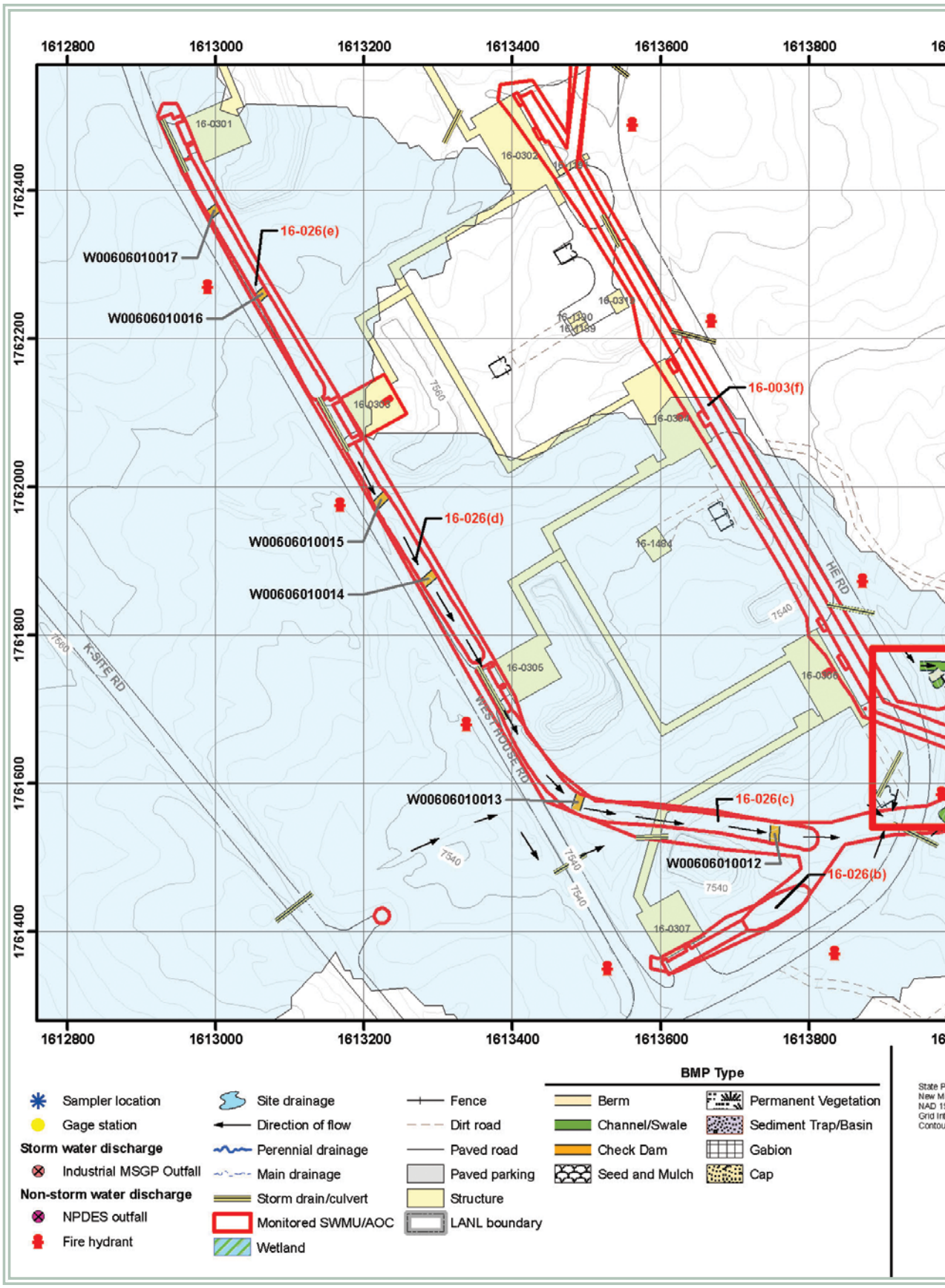
Gabions - West (W006-07-01-0004)

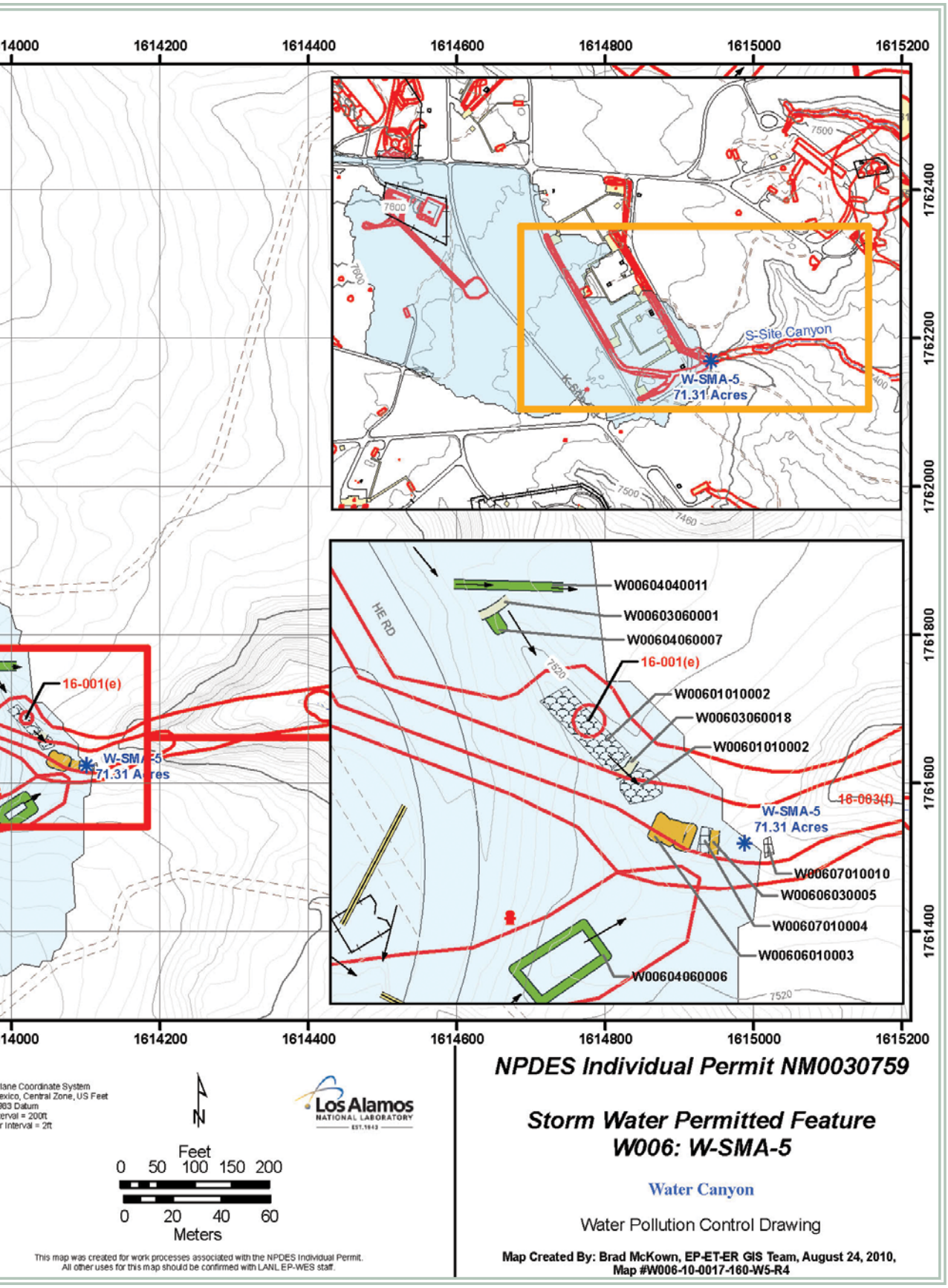
The gabion is located just to the west of the sampler. It is regulating run-off from the SMA. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

Gabions - East (W006-07-01-0010)

This gabion is located immediately to the east of the sampler. It functions as a run-off control for the monitored area. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.33.4 Project Map




1614000
1614200
1614400
1614600
1614800
1615000
1615200
1762400
1762200
1762000
1761800
1761600
1761400
S-Site Canyon
W-SMA-5
71.31 Acres
16-001(e)
W00604040011
W00603060001
W00604060007
W00601010002
W00603060018
W00601010002
16-003(f)
W00607010010
W00606030005
W00607010004
W00606010003
W00604060006
HE RD
7500
7600
7460
7520
Feet
0 50 100 150 200
0 20 40 60
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W006: W-SMA-5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 24, 2010,
Map #W006-10-0017-160-W5-R4
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.

1000.33.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.33.6 Corrective Action Status

The Sites associated with W-SMA-5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.34 W-SMA-6

1000.34.1 Area Description

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

1000.34.3 Control Measures

1000.34.4 Project Map

1000.34.5 Storm Water Monitoring Plan and Schedule

1000.34.6 Corrective Action Status



1000.34 W-SMA-6

1000.34.1 Area Description

W-SMA-6 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping southward towards the receiving waters. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are undeveloped.

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W007, W-SMA-6, Site 11-001(c).

SWMU 11-001(c) is a former firing pit located at TA-16, northwest of former building 16-370 near the edge of Water Canyon. According to the 1990 SWMU report, the firing pit was similar in construction to Firing Pit 11-0014, which was a 37-ft semicircular wall that was 12.5 ft high and 4.5 ft thick. The SWMU 11-001(c) firing pit was first used in 1944.

1000.34.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
11-001(c)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.34.3 Control Measures

There are no run-on sources at this SMA and run-off from the area is minimal. Existing controls serve to capture sediment and moderate run-off.

Subsections to 1000.34.3 list all control measures used to control pollutant sources identified in Section 1000.34.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.34.4.

1000.34.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W007 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W007 02 02 0002	Established Vegetation - Forested/Needle Cast			•	
W007 03 06 0003	Berms - Straw Wattles		•		•

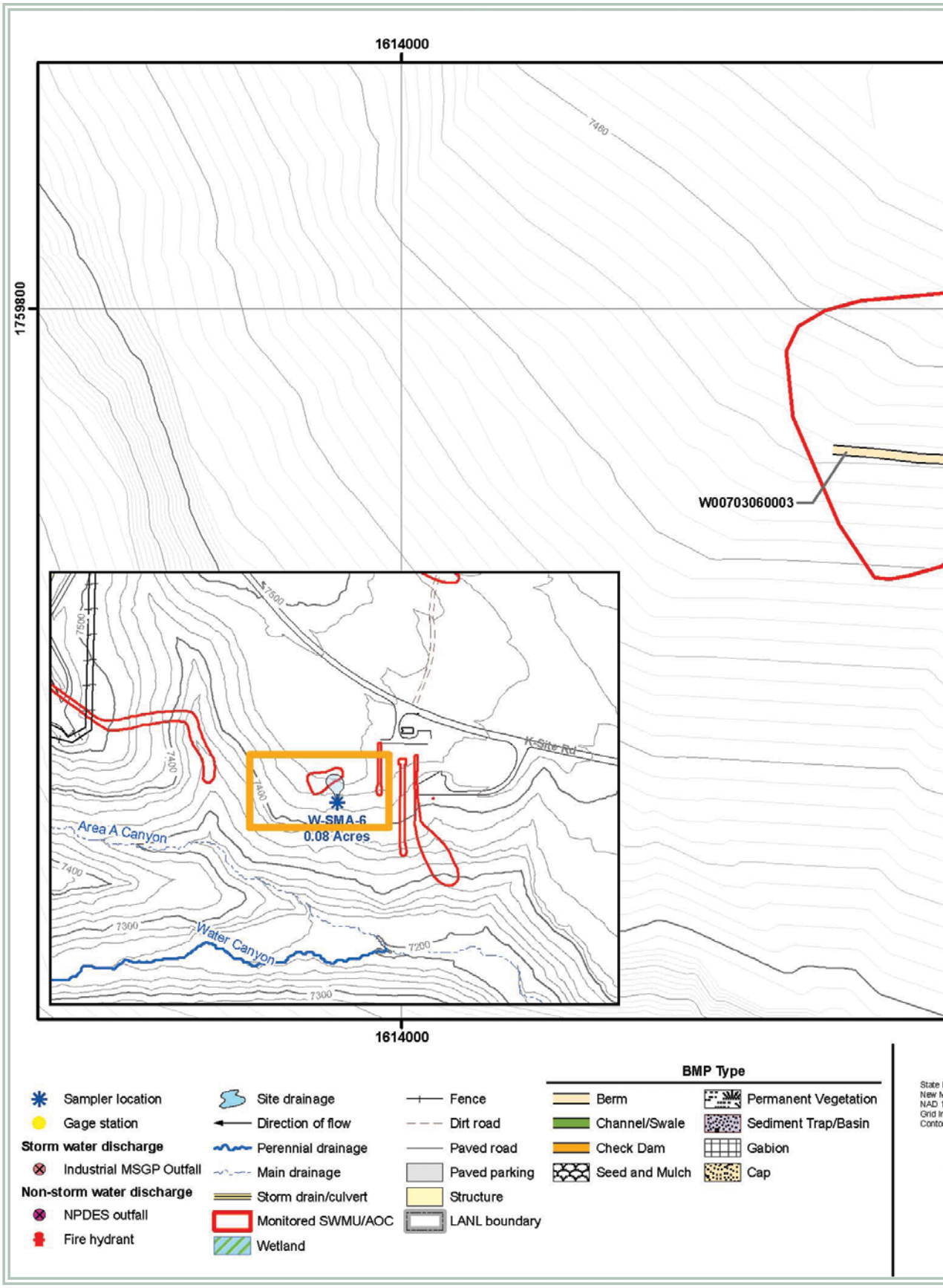
Established Vegetation (W007-02-01-001,-02-0002)

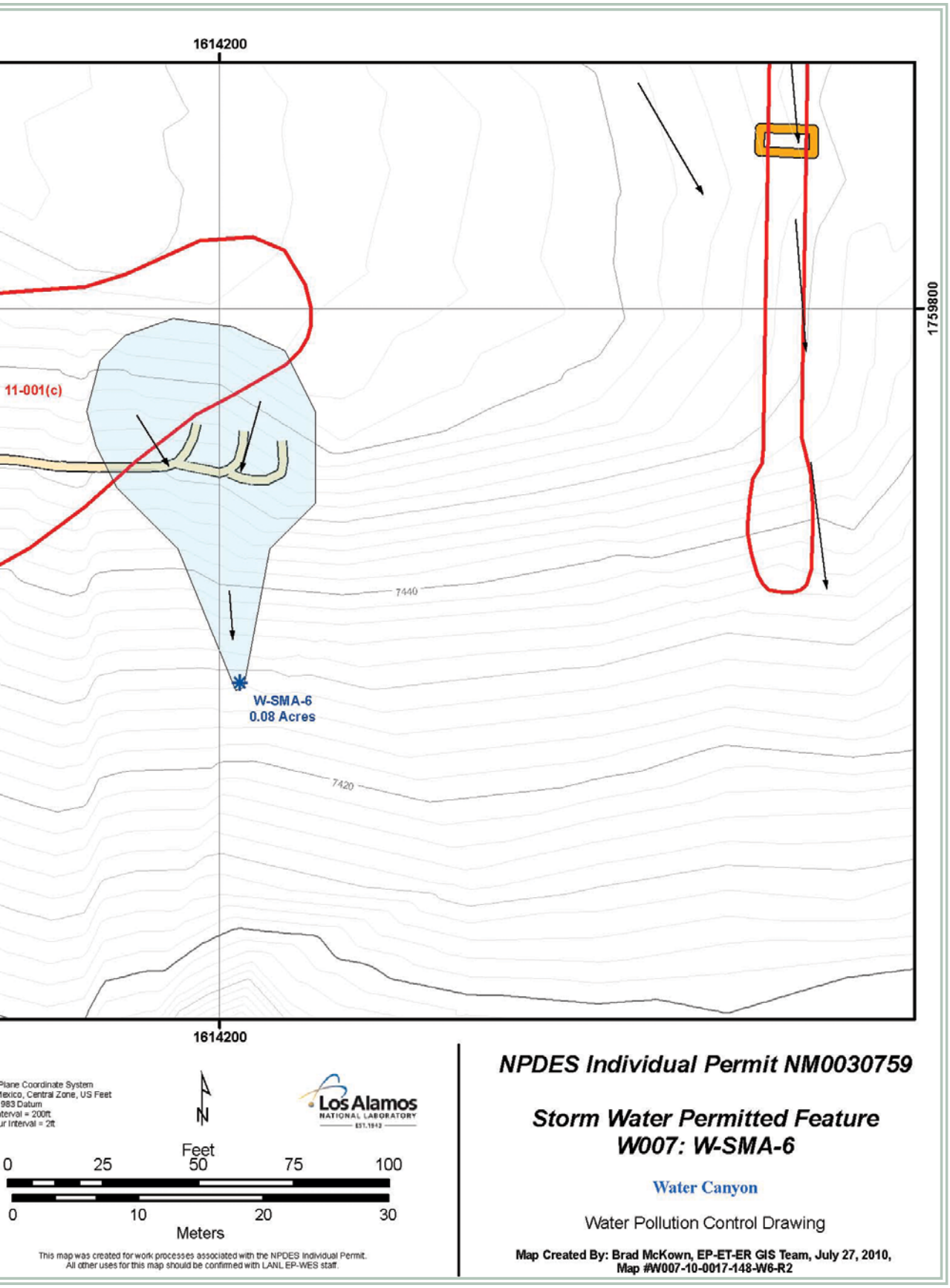
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Berms - Straw Wattles (W007-03-06-0003)

This is a group of six wattles serving as one BMP. They are installed to the north of the sampler to control run-off and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.34.4 Project Map




1614200
1759800
11-001(c)
7440
W-SMA-6
0.08 Acres
7420
1614200
Plane Coordinate System
Mexico, Central Zone, US Feet
983 Datum
terval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W007: W-SMA-6
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W007-10-0017-148-W6-R2

1000.34.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.34.6 Corrective Action Status

The Site associated with W-SMA-6 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.35 W-SMA-7

1000.35.1 Area Description

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

1000.35.3 Control Measures

1000.35.4 Project Map

1000.35.5 Storm Water Monitoring Plan and Schedule

1000.35.6 Corrective Action Status



1000.35 W-SMA-7

1000.35.1 Area Description

W-SMA-7 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped. The southern boundary is undeveloped and gently sloping towards the receiving waters. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is influenced by structures and paved areas associated with building 16-0360.

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W008, W-SMA-7, Site 16-026(h2).

SWMU 16-026(h2) consists of four outfalls at TA-16 that served HE equipment assembly building 16-360. The western outfall received discharge from a steam pit drain. The southern outfall received condensate from three floor drains. The remaining two outfalls are located to the east of the building and discharge stormwater from roof drains. In the 1990s, the steam pit drain and floor drains were rerouted to the sanitary sewer system.

1000.35.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-026(h2)	Outfall associated with Building 16-360	Discrete Location, No overlap	Individual	•		•	

1000.35.3 Control Measures

Run-on contributions from the developed areas do not greatly impact this SMA. Run-on from the southern side of building 16-0360 infiltrates into the soil south of the parking area. Run-on from the eastern side of the building roof drains to the north of the SMA.

Subsections to 1000.35.3 list all control measures used to control pollutant sources identified in Section 1000.35.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.35.4.

1000.35.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W008 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•	
W008 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
W008 02 02 0009	Established Vegetation - Forested/ Needle Cast			•	
W008 03 06 0010	Berms - Straw Wattles	•			•
W008 03 06 0011	Berms - Straw Wattles	•			•
W008 03 06 0012	Berms - Straw Wattles	•			•
W008 03 06 0013	Berms - Straw Wattles	•			•
W008 06 01 0001	Check Dam - Rock		•		•
W008 06 01 0003	Check Dam - Rock		•		•
W008 06 01 0004	Check Dam - Rock		•		•

Seed and Mulch (W008-01-01-0005)

Seed and wood mulch has been applied to bare areas between the two eastern check dams. It was applied to help control erosion in the channel area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (W008-02-01-0002, -02-0009)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

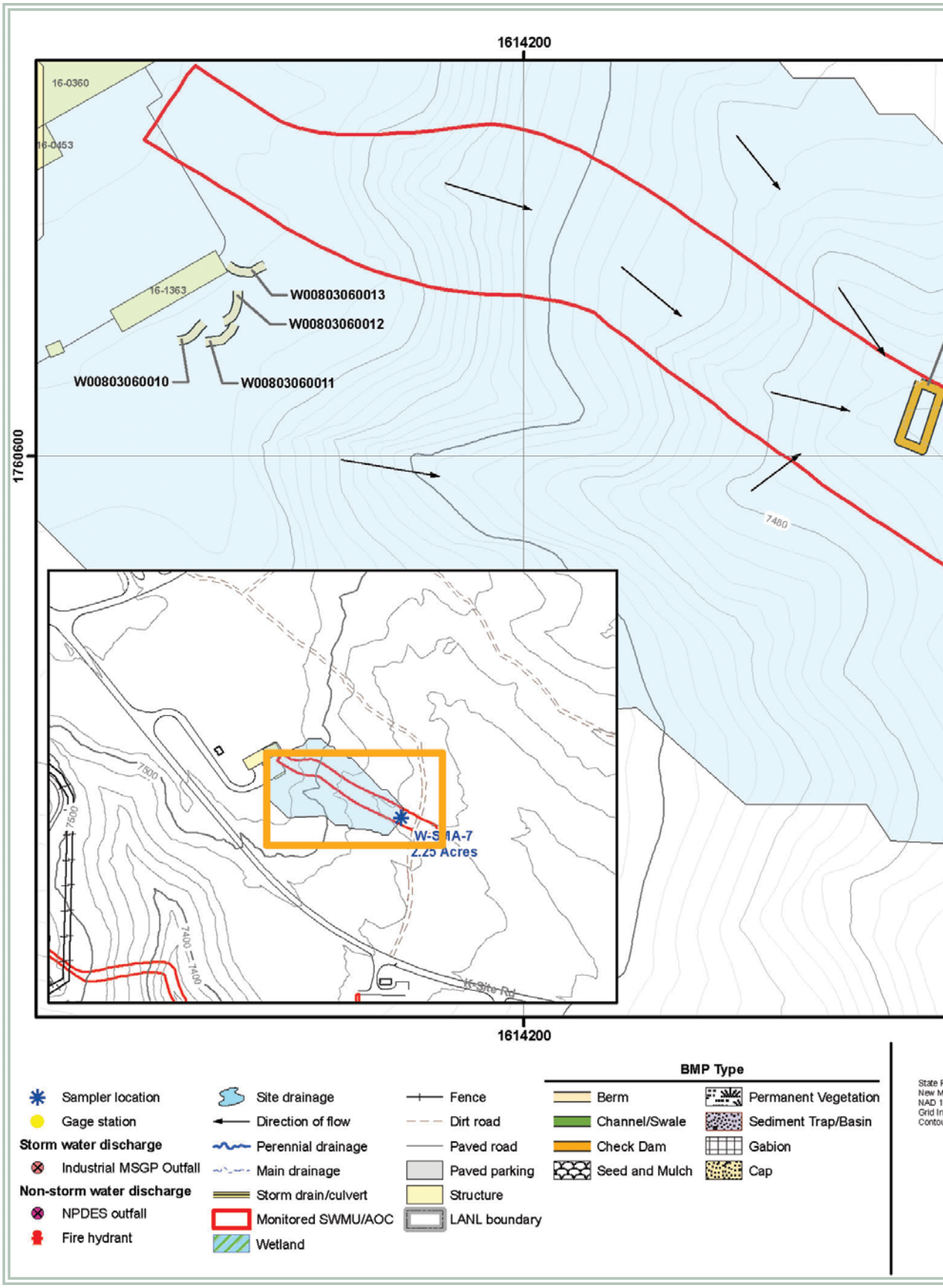
Straw Wattles
(W008-03-06-0010, -0011, -0012, -0013)

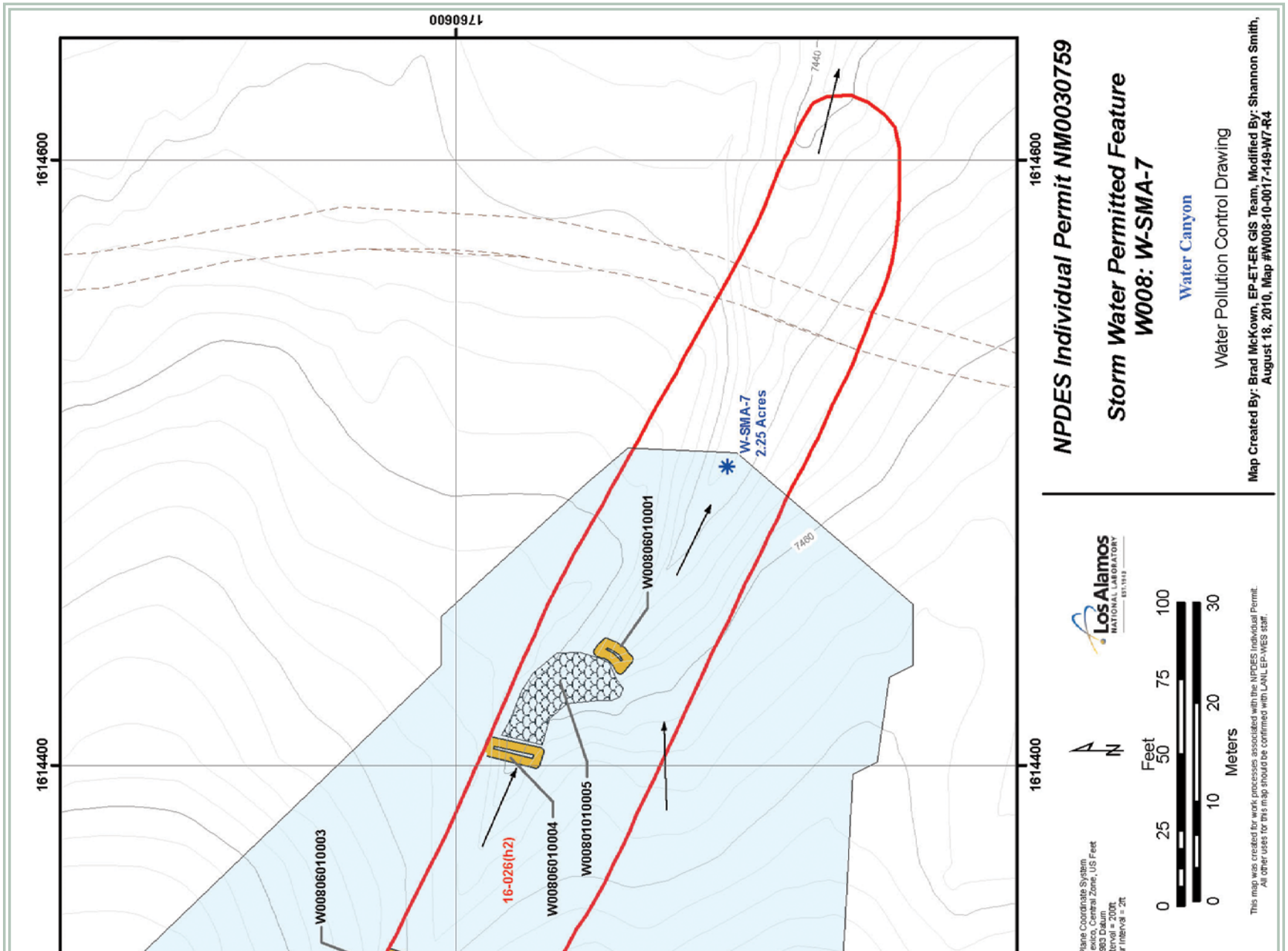
Located south of building 16-0360, these four wattles are in place to control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams
(W008-06-01-0001, -0003, -0004)

A series of three check dams are located in the drainage channel above the sampler and is controlling run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.35.4 Project Map




1760600
1614600
1614400
7440
7460
W-SMA-7
2.25 Acres
W00806010001
W00806010004
W00801010005
16-026(h2)
W00806010003
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W008: W-SMA-7
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, Modified By: Shannon Smith, August 18, 2010, Map #W008-10-0017-149-W7-R4
Los Alamos NATIONAL LABORATORY
N
Feet
0 25 50 75 100
Meters
0 10 20 30
This map was created for work processes associated with the NPDES Individual Permit. All other uses for this map should be confirmed with LANL EP-WES staff.

1000.35.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.35.6 Corrective Action Status

The Site associated with W-SMA-7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.36 W-SMA-7.8

1000.36.1 Area Description

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

1000.36.3 Control Measures

1000.36.4 Project Map

1000.36.5 Storm Water Monitoring Plan and Schedule

1000.36.6 Corrective Action Status



1000.36 W-SMA-7.8

1000.36.1 Area Description

W-SMA-7.8 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA borders a paved access road (K-Site road) and gently slopes towards the south. The southern boundary of the SMA is moderately sloped and contains the receiving waters further to the south. The eastern and western boundaries of the SMA are undeveloped.

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W009, W-SMA-7.8, Site 16-031(a).

SWMU 16-031(a) is an outfall that served a former cooling tower (building 16-372) at TA-16. The outfall discharged approximately 150 ft south of the cooling tower at the edge of Water Canyon. The outfall drainline was a 6-in.-diameter VCP that originated from a drain inside the southeast corner of the cooling tower. The cooling tower served building 16-370, a barium nitrate grinding facility and metal-forming shop. The cooling tower was built in 1953 and was burned during the Cerro Grande fire in 2000. The concrete foundation remains in place.

1000.36.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-031(a)	Outfall from cooling tower 16-372	Discrete Location, No overlap	Individual	•		•	

1000.36.3 Control Measures

There is a potential for run-on from the paved areas north of the SMA. Existing controls manage run-on and sediment migration.

Subsections to 1000.36.3 list all control measures used to control pollutant sources identified in Section 1000.36.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.36.4.

1000.36.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W009 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
W009 03 01 0004	Berms - Earthen	•			•
W009 04 06 0003	Channel/Swale - Rip Rap	•		•	
W009 06 01 0001	Check Dam - Rock	•			•
W009 06 01 0005	Check Dam - Rock	•			•
W009 06 01 0006	Check Dam - Rock	•			•
W009 06 01 0007	Check Dam - Rock		•		•

Established Vegetation (W009-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (W009-03-01-0004)

This berm is in the northern area of the site to manage run-on and sediment as water flows south to a series of check dams. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rip Rap (W009-04-06-0003)

This rip rap is located to the north of berm -0004, and is used to control run-on before it reaches the berm and check dams. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

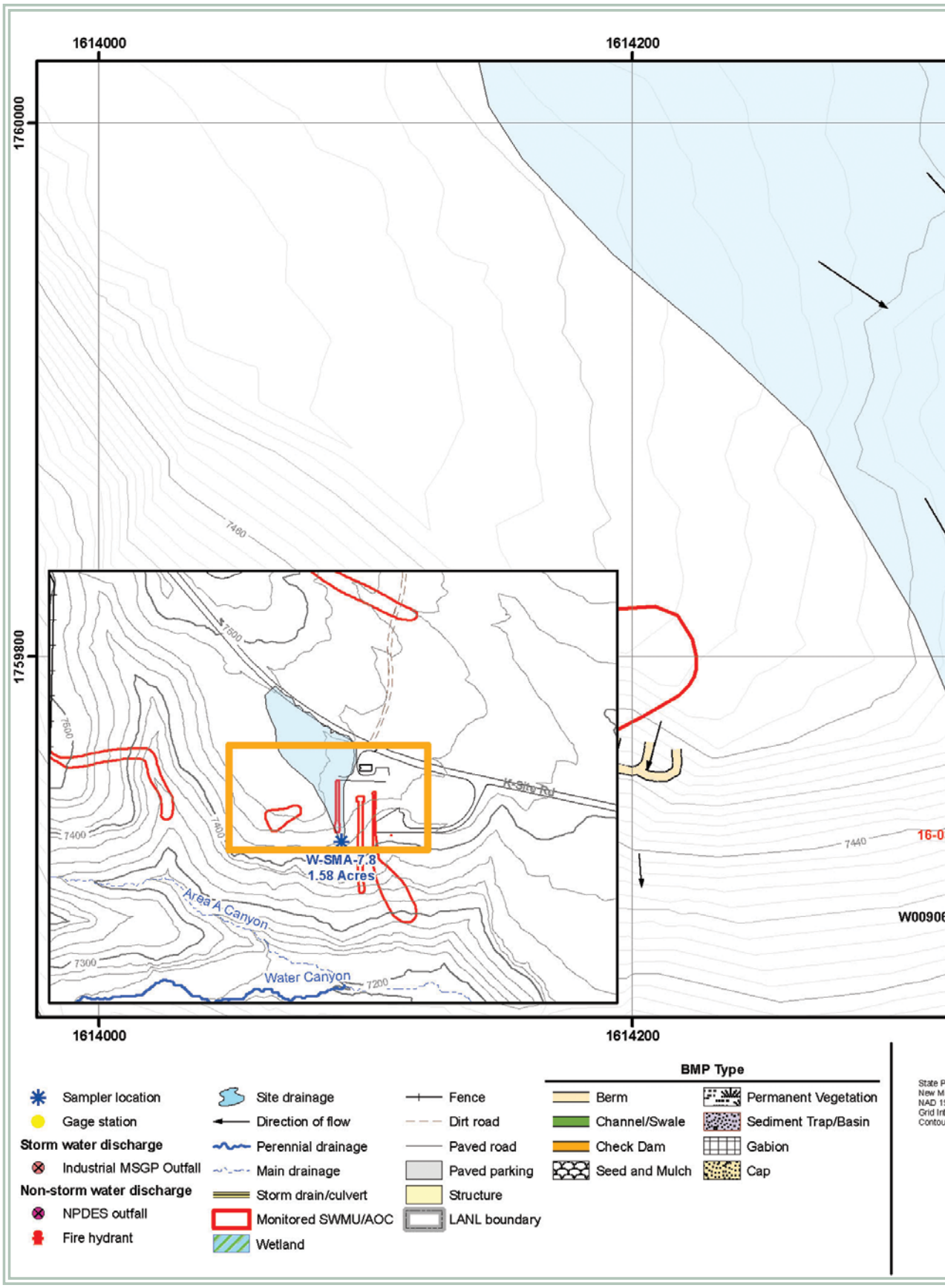
Rock Check Dam (W009-06-01-0001)

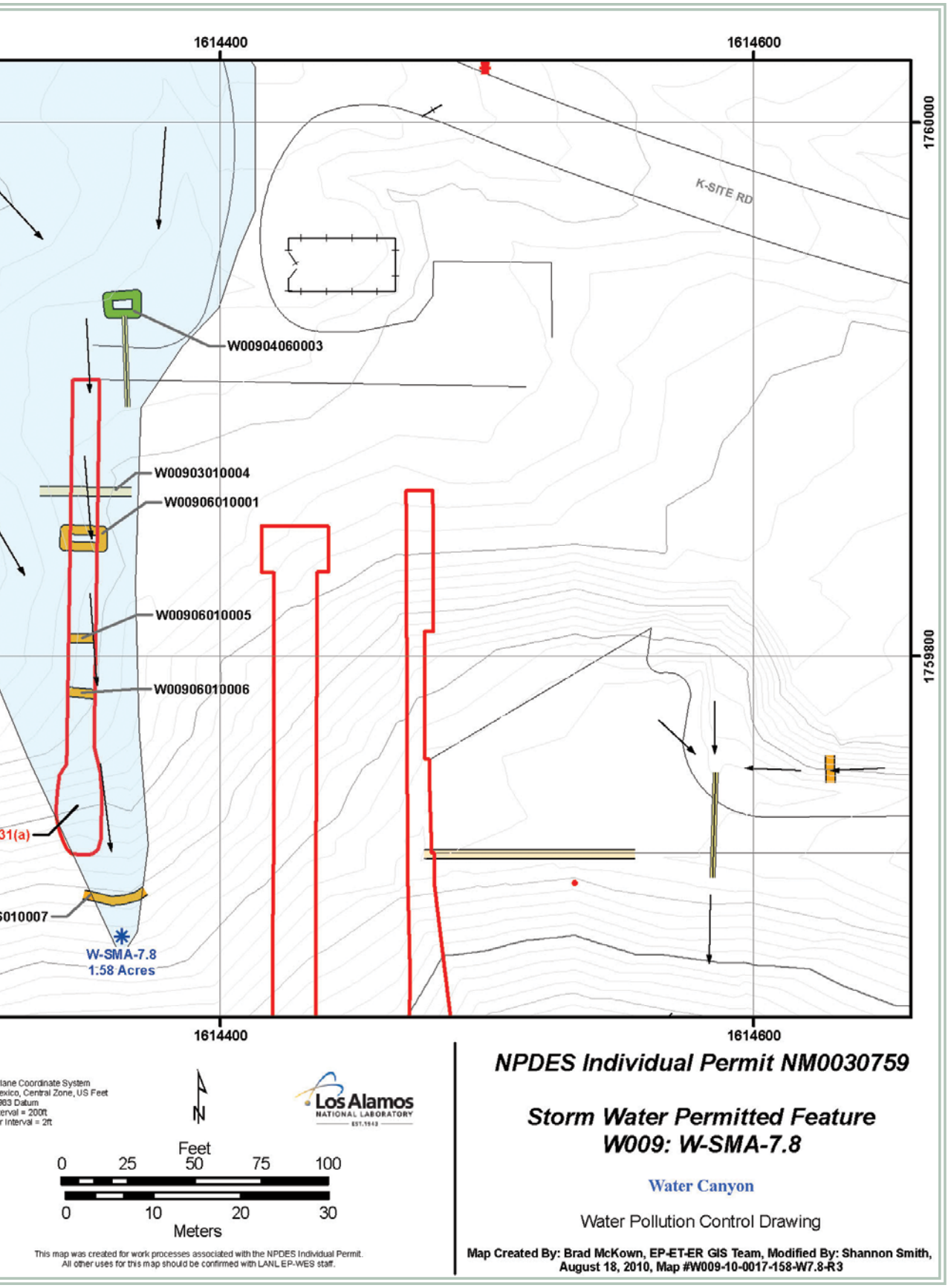
The check dam is located in the northern portion of the SMA in a natural channel. It is used to control run-on to Site 16-031(a). Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Check Dams- Rock
(W009-06-01-0005, -0006)
These two check dams are located north of the sampler to control run-on and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Check Dam (Rock)
(W009-06-01-0007)
This check dam is directly north of the sampler and controls run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.36.4 Project Map




1614400
1614600
1760000
1759800
K-SITE RD
W00904060003
W00903010004
W00906010001
W00906010005
W00906010006
31(a)
6010007
W-SMA-7.8
1.58 Acres
lane Coordinate System
exico, Central Zone, US Feet
983 Datum
erval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W009: W-SMA-7.8
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, Modified By: Shannon Smith,
August 18, 2010, Map #W009-10-0017-158-W7.8-R3

1000.36.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.36.6 Corrective Action Status

The Site associated with W-SMA-7.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.37 W-SMA-7.9

1000.37.1 Area Description

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

1000.37.3 Control Measures

1000.37.4 Project Map

1000.37.5 Storm Water Monitoring Plan and Schedule

1000.37.6 Corrective Action Status



1000.37 W-SMA-7.9

1000.37.1 Area Description

W-SMA-7.9 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped. The southern boundary of the SMA is undeveloped and steeply sloped. The receiving waters are further south on this boundary. The eastern and western boundaries of the SMA are undeveloped.

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W010, W-SMA-7.9, Site 16-006(c).

SWMU 16-006(c) is a septic system located at TA-16, just west of former building 16-370. The septic system served building 16-370 and consisted of a 1200-gal. concrete septic tank (structure 16-371) and outfall drainline. The 1990 SWMU Report states that the septic tank discharged to a drain field. However, engineering drawings do not verify the existence of a drain field. The tank was constructed in 1953 and served floor drains and bathrooms on the third floor of building 16-370. Associated drainlines connect to a manhole (structure 16-813) which drained to the septic tank. The outlet line drained to an outfall approximately 260 ft south of the septic tank. The outfall discharged at the edge of Water Canyon. After the drainline was plugged, the tank was pumped regularly during the time building 16-370 remained operational.

1000.37.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-006(c)	Septic Tank	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.37.3 Control Measures

There are no run-on sources at this SMA. Existing controls manage run-off and sediment migration.

Subsections to 1000.37.3 list all control measures used to control pollutant sources identified in Section 1000.37.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.37.4.

1000.37.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W010 02 02 0002	Established Vegetation - Forested/Needle Cast			•	
W010 06 01 0003	Check Dam - Rock		•		•

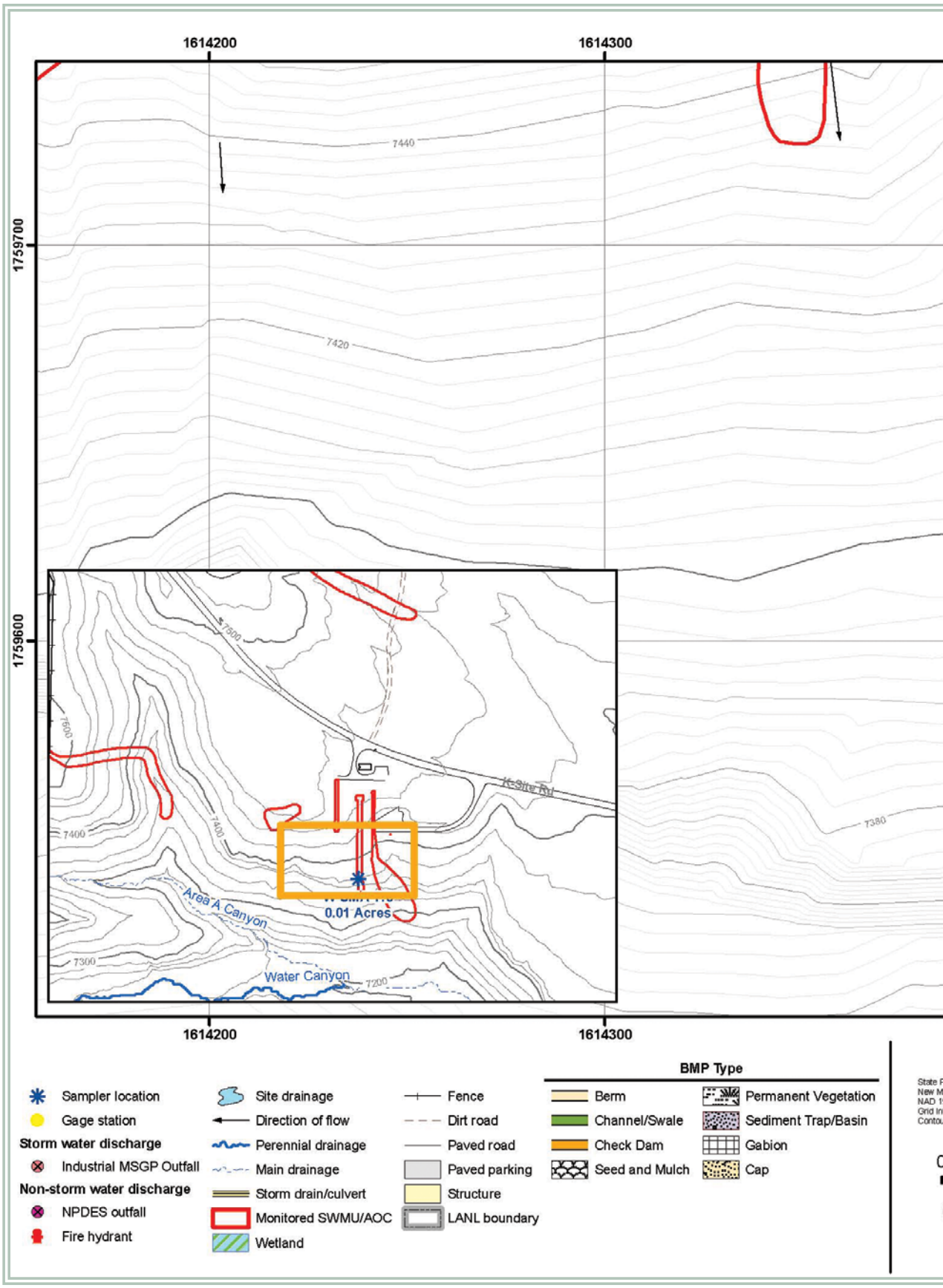
Established Vegetation (W010-02-02-0002)

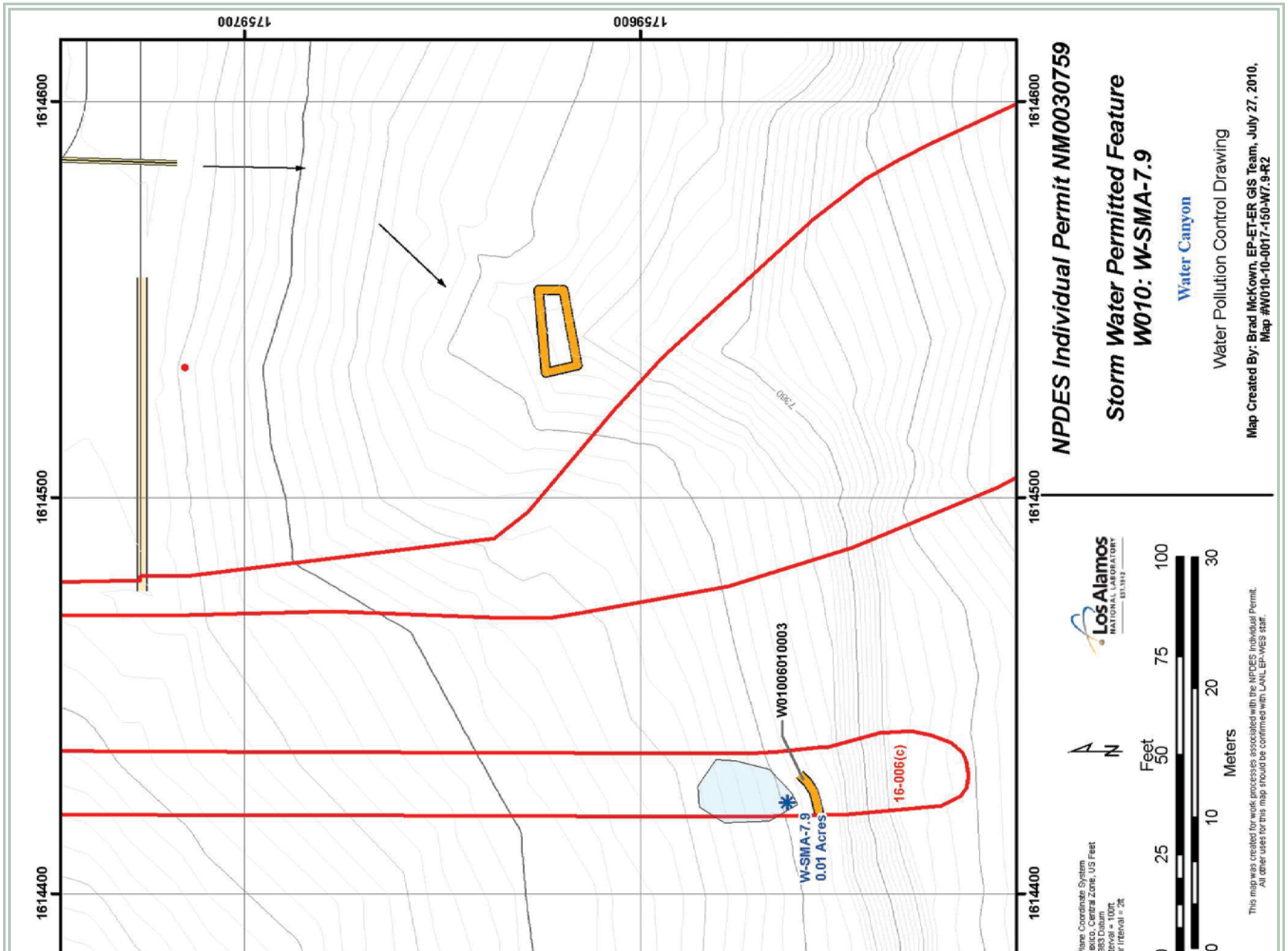
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Check Dam (W010-06-01-0003)

This check dam is installed directly south of the sampler and controls run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.37.4 Project Map




1759700
1759600
1614600
1614500
1614400
W01006010003
W-SMA-7.9
0.01 Acres
16-006(c)
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W010: W-SMA-7.9
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W010-10-0017-150-W7.9-R2
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
50
25
0
75
100
Meters
10
20
30
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.

1000.37.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.37.6 Corrective Action Status

The Site associated with W-SMA-7.9 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.38 W-SMA-8

1000.38.1 Area Description

1000.38.2 Potential Pollutant Sources

1000.38.2.1 Historical Industrial Activity Areas

1000.38.3 Control Measures

1000.38.4 Project Map

1000.38.5 Storm Water Monitoring Plan and Schedule

1000.38.6 Corrective Action Status



1000.38 W-SMA-8

1000.38.1 Area Description

W-SMA-8 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by paved surfaces and an access road. The southern boundary of the SMA is undeveloped and slopes towards the receiving waters further south. The eastern boundary of the SMA is influenced by a paved access road. The western boundary of the SMA is undeveloped.

1000.38.2 Potential Pollutant Sources

1000.38.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W011, W-SMA-8, Sites 16-016(g) and 16-028(b).

SWMU 16-016(g) is a surface disposal area at TA-16 associated with former building 16-370. Debris includes cans and pipes that were distributed over a 20-ft-diameter area and located in a drainage ditch approximately 60 ft south of the building.

SWMU 16-028(b) is a formerly NPDES-permitted outfall (04A092) at TA-16 that served former building 16-370. The outfall is located approximately 50 ft south of building 16-370. The outfall drainline consists of a 6-in. VCP that exits building 16-370 from its west side and daylights in Water Canyon. The outfall formerly received effluent from 29 floor drains, an eyewash station, a drinking fountain, and a sink. Building 16-370 was built in 1953 as a barium nitrate grinding facility. In the late 1950s, it was converted to a metal-forming shop for steel and aluminum. All drains that discharged to the outfall were plugged in the 1990s. The outfall was removed from the NPDES permit effective January 14, 1998.

1000.38.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-016(g)	Surface disposal site	Co-located, Overlapping	Shared	•	•	•	SVC
16-028(b)	Outfall from Building 16-370	Co-located, Overlapping	Shared	•	•	•	SVC

Substantially Identical Determination

Sites grouped within this SMA are associated with historical operations at building 16-370 in TA-16. The building was decommissioned and demolished in 2005. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.38.3 Control Measures

There is the potential for run-on from the facility pad and the paved access road east of former building footprint. Existing controls controls moderate run-on at this SMA.

Subsections to 1000.38.3 list all control measures used to control pollutant sources identified in Section 1000.38.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.38.4.

1000.38.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W011 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
W011 02 02 0004	Established Vegetation - Forested/ Needle Cast			•	
W011 03 02 0001	Berms - Base Course	•			•
W011 06 01 0002	Check Dam - Rock		•		•
W011 06 01 0005	Check Dam - Rock	•			•
W011 06 01 0006	Check Dam - Rock	•			•

Established Vegetation (W011-02-01-0003, -02-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (W011-03-02-0001)

This berm is located on the southern edge of the pad that was the former building. It is controlling run-on to the SMA. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Check Dam (W011-06-01-0002)

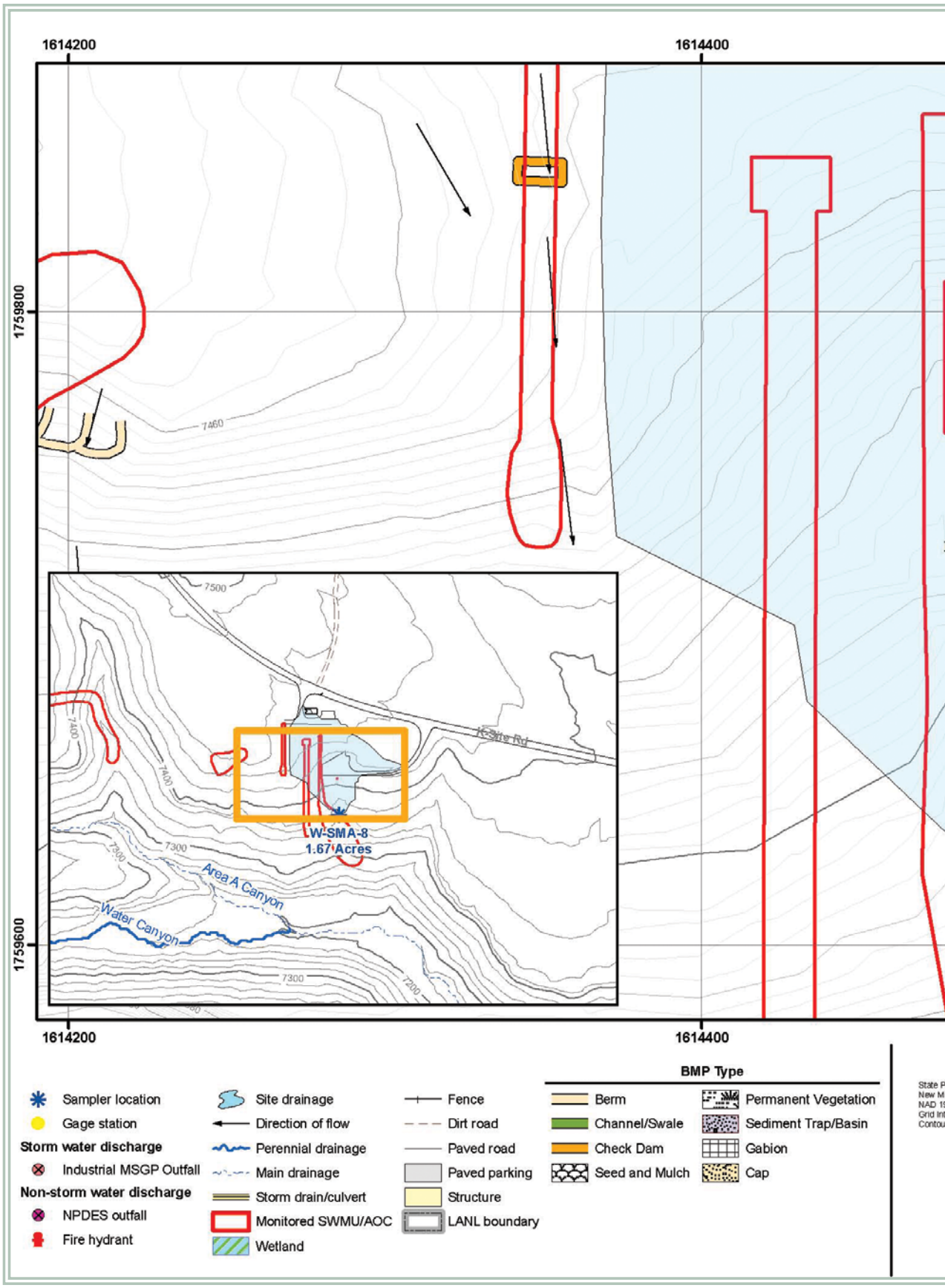
The check dam is located to the south of the pad, in a natural channel. It is in place to mitigate run-off from the pad. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

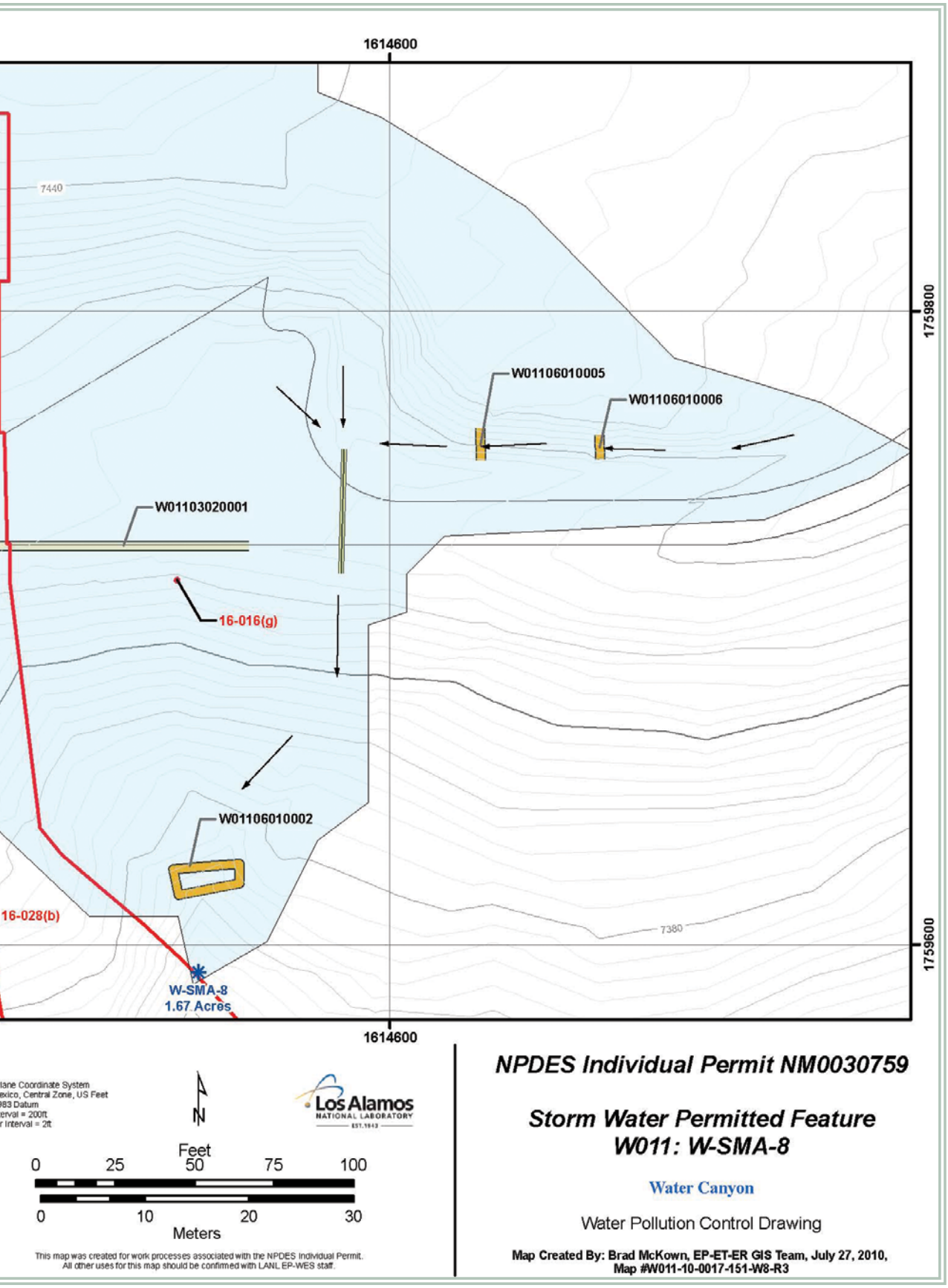
Rock Check Dams (W011-06-01-0005, -0006)

This pair of check dams sit at the eastern edge of the site drainage and interrupt

west-flowing run-on and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.38.4 Project Map




1614600
1759800
1759600
7440
7380
W01106010005
W01106010006
W01103020001
16-016(g)
W01106010002
16-028(b)
W-SMA-8
1.67 Acres
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W011: W-SMA-8
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W011-10-0017-151-W8-R3

1000.38.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.38.6 Corrective Action Status

The Sites associated with W-SMA-8 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.39 W-SMA-8.7

1000.39.1 Area Description

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

1000.39.3 Control Measures

1000.39.4 Project Map

1000.39.5 Storm Water Monitoring Plan and Schedule

1000.39.6 Corrective Action Status



1000.39 W-SMA-8.7

1000.39.1 Area Description

W-SMA-8.7 is located within TA-16 and access to the area is controlled. The northern and southern boundaries of the SMA are influenced by paved and unpaved access roads. Storm water flows south and east towards the receiving waters along the southeastern boundary. The eastern boundary of the SMA is influenced by unpaved access roads. The western boundary of the SMA is influenced by paved access roads.

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

There are six historical industrial activity areas associated with PF W012, W-SMA-8.7, Sites 13-001, 13-002, 16-004(a), 16-026(j2), 16-029(h) and 16-035.

SWMU 13-001 is an inactive firing site located east of former building 16-340. The firing site is associated with firing activities conducted at P-Site (former TA-13). The area contains shrapnel and debris, including firing cables, lead balls, and chunks of steel and copper.

SWMU 13-002 is a surface disposal area located east of former building 16-340. The disposal area contains debris and shrapnel associated with firing activities conducted at P-Site (former TA-13). A portion of the TA-16 WWTP [Consolidated Unit 16-004(a)-99] is located on top of the southern tip of the surface disposal area.

SWMU 16-004(a) is the inactive Imhoff tank (structure 16-530) that was used for sewage treatment at the TA-16 sanitary WWTP. Located southeast of the former TA-16-340 Complex and north of the communitor (a cutting device for sewage solids), the Imhoff tank received effluent that flowed over a weir into a dosing siphon. Any sludge that may have collected in the tank was digested before being discharged to drying beds [SWMUs 16-004(d) and 16-004(f)].

SWMU 16-026(j2) is the outfall from an HE sump [SWMU 16-029(f)] associated with a rest house (structure 16-345). The rest house is located on the 340 Line. The line was built in 1951 and 1952 and was used to prepare plastic-bonded explosive powders. In the 1980s to 1990s, solvents were containerized to prevent their reaching the sumps. Structure 16-345 serves as an HE storage facility for Building 16-340. It has a single sump and associated drain-lines. The sump received wash-down water generated during cleaning activities. HE is the only known material that was stored in the building. The outfall is located southeast of structure 16-345 and received effluent from the sump, but the exact discharge point is unknown. Rest house 16-345 is currently inactive.

This site was sampled in 1995. Six samples were collected from five locations and submitted to an analytical laboratory for inorganic and organic chemicals, and HE analyses. Sampling results indicate that organic chemicals were detected and inorganic chemicals were present at levels exceeding SALs. In 1997, an additional eight samples were collected from two locations and submitted to an analytical laboratory for similar analyses. The additional sampling conducted in 1997 did not provide a bounding on the contamination.

SWMU 16-029(h) consists of the outfall and two inactive drainlines (one known and one alleged) from the HE sump [AOC 16-003(p)] located on the south side of former building 16-478. The known drainline exits the southeast corner of the sump and extends 80 ft east of the sump to the rim of Cañon de Valle. This drainline discharged directly into Cañon de Valle before the drainline was plugged in 1987. A second drainline is alleged to be present. The second drainline is reportedly a French drain that extends south of the sump. Former building 16-478 was used as

a bunker, utility room, control room, and high-speed machining room for tests on experimental HE. When the building was removed in 2005, the sump was left in place. During the investigation activities conducted in 2009–2010, no evidence of the French drain was found.

It should be noted that SWMU 16-029(h) was identified as an HE sump in the 1990 SWMU Report. The SWMU Report identified this sump twice: once as an inactive HE sump designateas SWMU 16-029(h) and also as an active HE sump designated as AOC 16-003(p). Addendum 2 to the Operable Unit 1082 Work Plan redefined SWMU 16-029(h) to be the drainlines and outfall associated with the sump adjacent to former building 16-478.

SWMU 16-035 is an area of potential soil contamination located approximately 200 ft east of former building 16-340. The soil contamination is associated with a former control bunker (former structure 13-2 renumbered to 16-476). The control bunker was one of several buildings constructed at TA-13 in 1944 to support the Manhattan Project. The control bunker was removed during D&D activities in 2005.

1000.39.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
13-001	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
13-002	Landfill	Co-located, Overlapping	Shared	•		•	
16-004(a)	Wastewater treatment facility	Co-located, Overlapping	Shared	•		•	
16-026(j2)	Outfall from former Building 16-345	Co-located, Overlapping	Shared	•		•	
16-029(h)	Outfall from former Building 16-478	Co-located, Overlapping	Shared	•		•	
16-035	Soil contamination from former Control Bunker 16-2 (Renumbered to 16-476)	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are located on the mesa southeast of the TA-16-340 Complex and are associated historical operations of the P-Site (TA-13) Firing Site. They have similar contaminants, share a common drainage, and have been the subject of extensive remediation. Because of these characteristics, these Sites will discharge substantially identical effluent.

1000.39.3 Control Measures

There is potential run-on from the paved road located in the northwest portion of SMA that is discharged through the culvert. There is also the potential for run-on from the paved parking area located in the southern portion of the SMA, adjacent to structure 16-0531.

Subsections to 1000.39.3 list all control measures used to control pollutant sources identified in Section 1000.39.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.39.4.

1000.39.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W012 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
W012 02 02 0002	Established Vegetation - Forested/ Needle Cast			•	
W012 03 02 0009	Berms - Base Course	•			•
W012 03 06 0010	Berms - Straw Wattles		•		•
W012 06 01 0006	Check Dam - Rock		•		•
W012 06 01 0007	Check Dam - Rock		•		•
W012 06 01 0008	Check Dam - Rock	•			•

Established Vegetation (W012-02-01-0004, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (W012-03-02-0009)

Installed northwest of building 16-0532, this berm controls run-on and sediment. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized

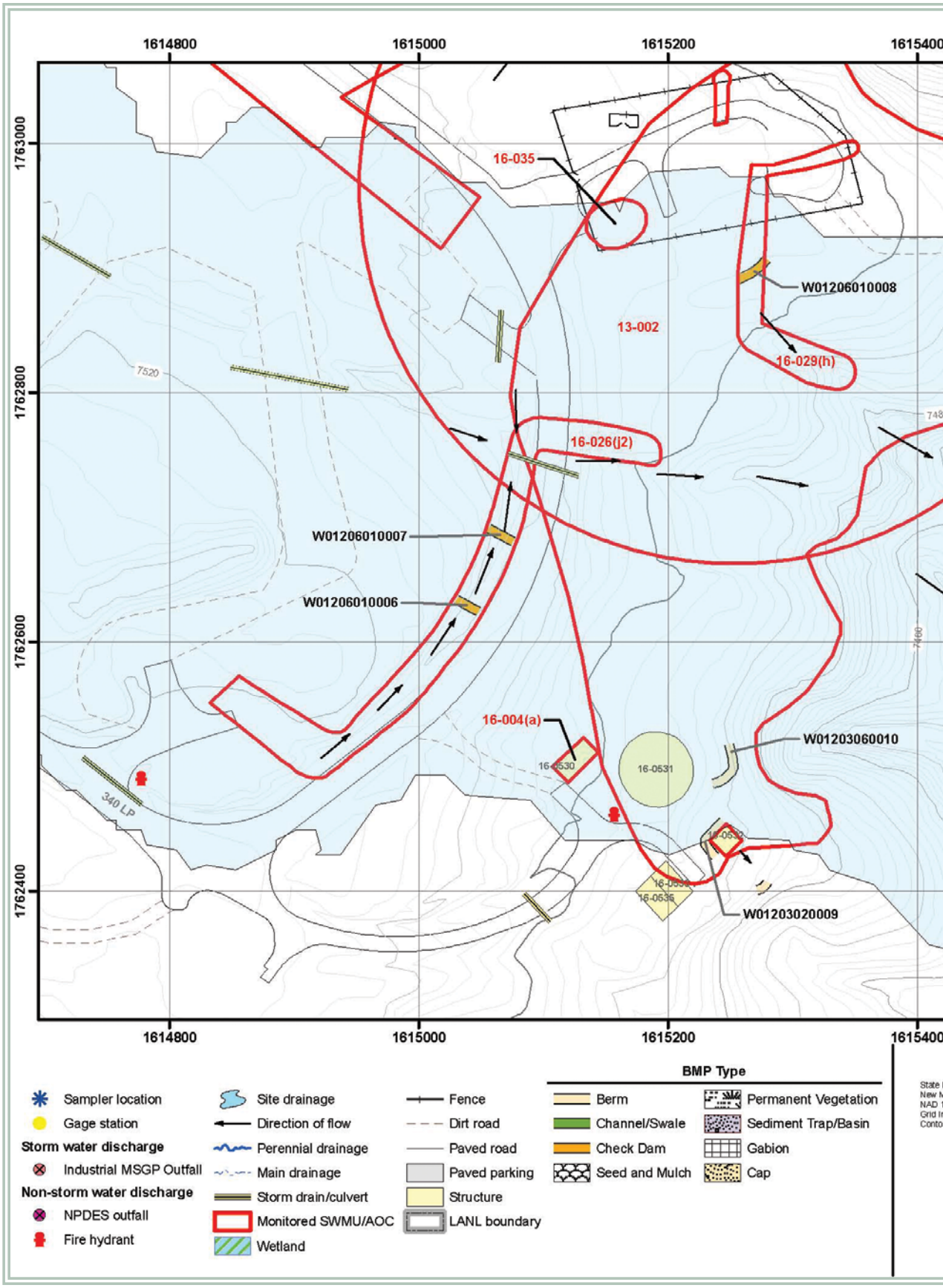
flow and are also used for sediment control and run-off control in low-flow applications.

Straw wattles
(W012-03-06-0010)
This wattle is located due east of structure 16-0531 near the edge of the mesa top. It is used to help control storm water run-off in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams - West
(W012-06-01-0006, -0007)
This is a pair of check dams located in the drainage channel west of the access road, 340 Loop. They are in place to help mitigate run-off from the paved areas and reduce sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam
(W012-06-01-0008)
This rock check dam is located across the northern channel close to the edge of the mesa top. It is in place to help control storm water run-on from the slope above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.39.4 Project Map



1615600
1615800
1616000
1763000
1762800
1762600
1762400
13-001
7480
7500
7400
7440
W-SMA-8.7
17.3 Acres
S-Site Canyon
W-SMA-8.7
17.3 Acres
Plane Coordinate System
Mexico, Central Zone, US Feet
983 Datum
terval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W012: W-SMA-8.7
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 13, 2010,
Map #W012-10-0017-157-W8.7-R3

1000.39.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.39.6 Corrective Action Status

The Sites associated with W-SMA-8.7 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.40 W-SMA-8.71

1000.40.1 Area Description

1000.40.2 Potential Pollutant Sources

1000.40.2.1 Historical Industrial Activity Areas

1000.40.3 Control Measures

1000.40.4 Project Map

1000.40.5 Storm Water Monitoring Plan and Schedule

1000.40.6 Corrective Action Status



1000.40 W-SMA-8.71

1000.40.1 Area Description

W-SMA-8.71 is located within TA-16 and access to the area is controlled. The northern and southern boundaries of the SMA are influenced by paved and unpaved access roads. Storm water flows south and east towards the receiving waters along the southeastern boundary. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is influenced by paved access roads.

1000.40.2 Potential Pollutant Sources

1000.40.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W012A, W-SMA-8.71, Site 16-004(c).

SWMU 16-004(c) is the inactive clarifier or final tank (structure 16-532) used for sewage treatment at the TA-16 sanitary WWTP. The clarifier was located southeast of the trickling filter. The clarifier received discharge from the trickling filter; water flowed through an outlet in the clarifier and discharged to formerly NPDES-permitted outfall EPA-SSS03S and eventually into a tributary of Water Canyon. At full capacity, structure 16-532 could manage 117,600 gal./d.

1000.40.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-004(c)	Tank	Co-located, Overlapping	Individual	•		•	

1000.40.3 Control Measures

There is the potential for run-on from the paved access road near the SWMU.

Subsections to 1000.40.3 list all control measures used to control pollutant sources identified in Section 1000.40.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.40.4.

1000.40.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W012A 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W012A 03 02 0003	Berms - Base Course	•			•
W012A 03 06 0002	Berms - Straw Wattles		•		•

Established Vegetation (W012A-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

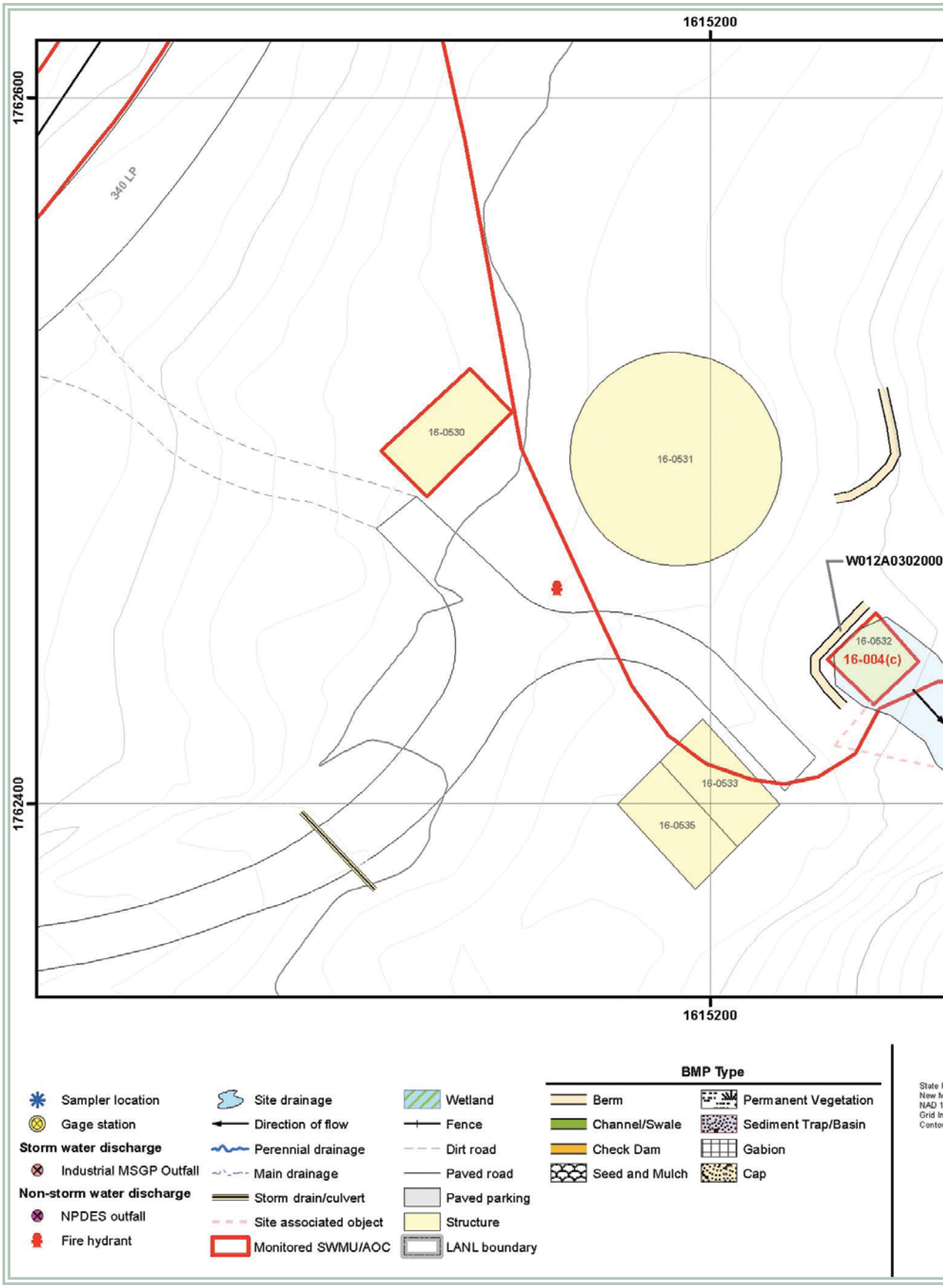
Base Course Berms (W012A-03-02-0003)

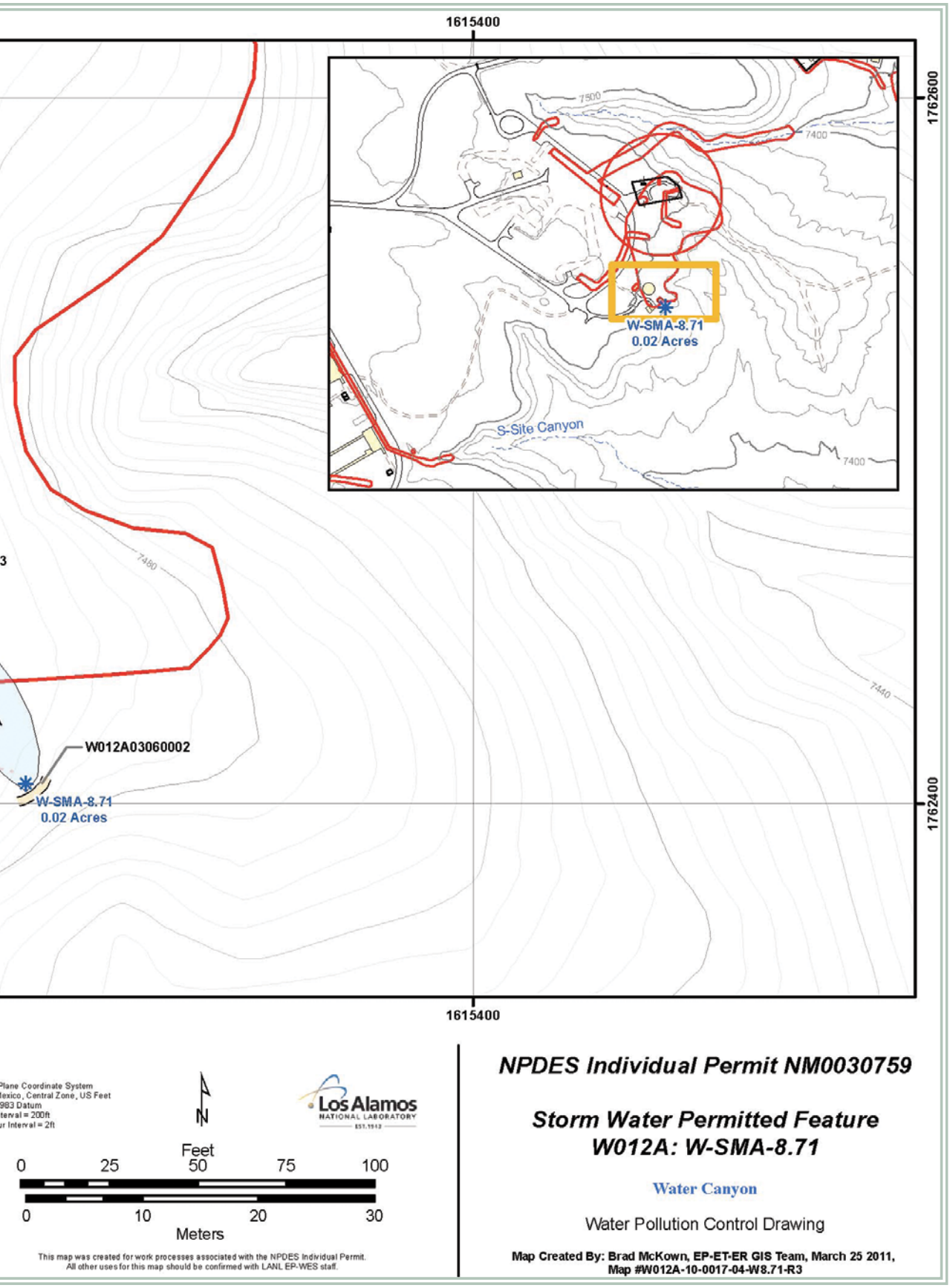
Installed west of structure 16-0532, this berm controls run-on and sediment. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (W012A-03-06-0002)

This wattle is southeast and adjacent to the sampler to control run-off and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.40.4 Project Map




1615400
1762600
1762400
1615400
W-SMA-8.71
0.02 Acres
S-Site Canyon
7500
7400
7460
7440
W012A03060002
W-SMA-8.71
0.02 Acres
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W012A: W-SMA-8.71
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 25 2011,
Map #W012A-10-0017-04-W8.71-R3

1000.40.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.40.6 Corrective Action Status

The Site associated with W-SMA-8.71 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.41 W-SMA-9.05

1000.41.1 Area Description

1000.41.2 Potential Pollutant Sources

1000.41.2.1 Historical Industrial Activity Areas

1000.41.3 Control Measures

1000.41.4 Project Map

1000.41.5 Storm Water Monitoring Plan and Schedule

1000.41.6 Corrective Action Status



1000.41 W-SMA-9.05

1000.41.1 Area Description

W-SMA-9.05 is located in TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by building 16-380 and associated paved parking. Storm water flows south through a moderately sloping and well-defined drainage to the receiving waters.

1000.41.2 Potential Pollutant Sources

1000.41.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W013, W-SMA-9.05, Site 16-030(g).

AOC 16-030(g) is an outfall located south of building 16-380 at TA-16. The outfall received effluent from a sump [SWMU 16-003(m)], two roof drains, a steam-heating system, and a drop inlet from a parking lot. The outfall was NPDES-permitted (05A052) and discharged to Water Canyon. It was removed from the NPDES permit in 1993. The sump and the steam-heating system discharge lines have been plugged, and the outfall currently receives only roof drain and parking lot run-off.

1000.41.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
16-030(g)	Outfall from Building 16-380	Discrete Location, No overlap	Individual	•	•	•	HE

1000.41.3 Control Measures

There is a small amount of paved parking that contributes run-on to the site. This run-on source is adequately handled by existing controls. A much larger run-on source from the access road is diverted around this SMA. These controls are critical to effectively managing run-off from the SMA.

Subsections to 1000.41.3 list all control measures used to control pollutant sources identified in Section 1000.41.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.41.4.

1000.41.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W013 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
W013 03 01 0003	Berms - Earthen	•			•
W013 03 06 0005	Berms - Straw Wattles		•		•
W013 03 06 0006	Berms - Straw Wattles		•		•
W013 03 06 0007	Berms - Straw Wattles		•		•
W013 03 06 0008	Berms - Straw Wattles		•		•
W013 04 01 0004	Channel/Swale - Earthen	•		•	
W013 06 01 0001	Check Dam - Rock		•		•

Established Vegetation (W013-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (W013-03-01-0003)

The earthen berm is one of several controls that serve to divert run-on from the paved access road, west and around the monitored area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (W013-03-06-0005, -0006, -0007, -0008)

This cluster of four wattles controls run-off and sediment. They are installed in series running north to south above the sampler. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Earthen Swale (W013-04-01-0004)

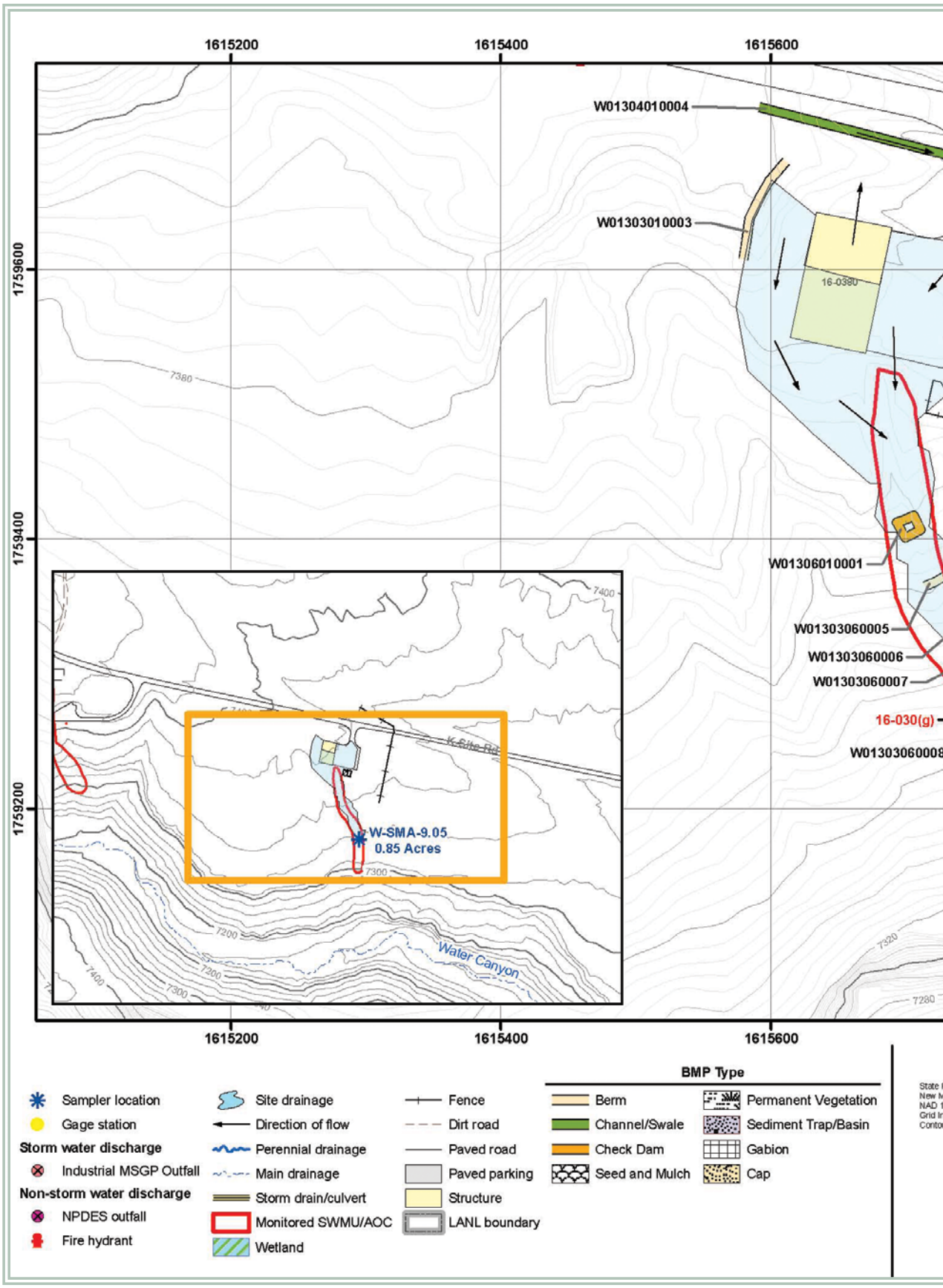
This swale serves to divert run-on from the paved road, west and around the Permitted Feature. Channels and swales are natural or constructed diversions that

collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rock Check Dam
(W013-06-01-0001)

A rock check dam is placed in the discharge channel to reduce any erosion associated with storm water run-off flowing through this well defined channel. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.41.4 Project Map



1615800
1616000
1616200
1616400
1759600
1759400
1759200
K-SITE RD
7340
7360
W-SMA-9.05
0.85 Acres
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W013: W-SMA-9.05
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W013-10-0017-30-W9.05-R1

1000.41.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.41.6 Corrective Action Status

The Site associated with W-SMA-9.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.42 W-SMA-9.5

1000.42.1 Area Description

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

1000.42.3 Control Measures

1000.42.4 Project Map

1000.42.5 Storm Water Monitoring Plan and Schedule

1000.42.6 Corrective Action Status



1000.42 W-SMA-9.5

1000.42.1 Area Description

W-SMA-9.5 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and sloping gently north towards the receiving waters. The southern boundary of the SMA is undeveloped. The eastern and western boundaries of the SMA are influenced by an unpaved access road that runs through the SMA.

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W014, W-SMA-9.5, Site 11-012(c).

AOC 11-012(c) is an area of potential surface-soil contamination at the top of a knoll about 500 ft west of a control building (Building 11-4). AOC 11-012(c) is located at the site of a former 16 square foot wood storage structure (structure 11-9). Former structure 11-9 was built in 1945. A 1956 survey showed the structure was free of radioactive contamination; a 1959 inspection showed the building was free of radioactivity but showed HE contamination. Structure 11-9 was destroyed in 1960 by intentional burning and the ashes were removed and disposed of at the TA-16, MDA P. Suspect contaminants at the site are HE, HE impurities, and HE degradation products.

The OU 1082 work plan proposed sampling at the site to determine if contaminants are present.

1000.42.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org		Other
11-012(c)	Soil contamination associated with former Structure 11-9	Discrete Location, No overlap	Individual	•		•	

1000.42.3 Control Measures

The unpaved access road bisecting the SMA is the highest point in the area. As a consequence, there is very little run-on contribution from this area. Run-off from the access road flows to the north.

Subsections to 1000.42.3 list all control measures used to control pollutant sources identified in Section 1000.42.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.42.4.

1000.42.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W014 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W014 03 06 0002	Berms - Straw Wattles		•		•
W014 03 06 0003	Berms - Straw Wattles		•		•
W014 03 06 0004	Berms - Straw Wattles	•			•
W014 03 06 0005	Berms - Straw Wattles	•			•

Established Vegetation (W014-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - North (W014-03-06-0002)

Wattles are installed north of the unpaved access road to improve sediment retention in storm water run-off discharges from this area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

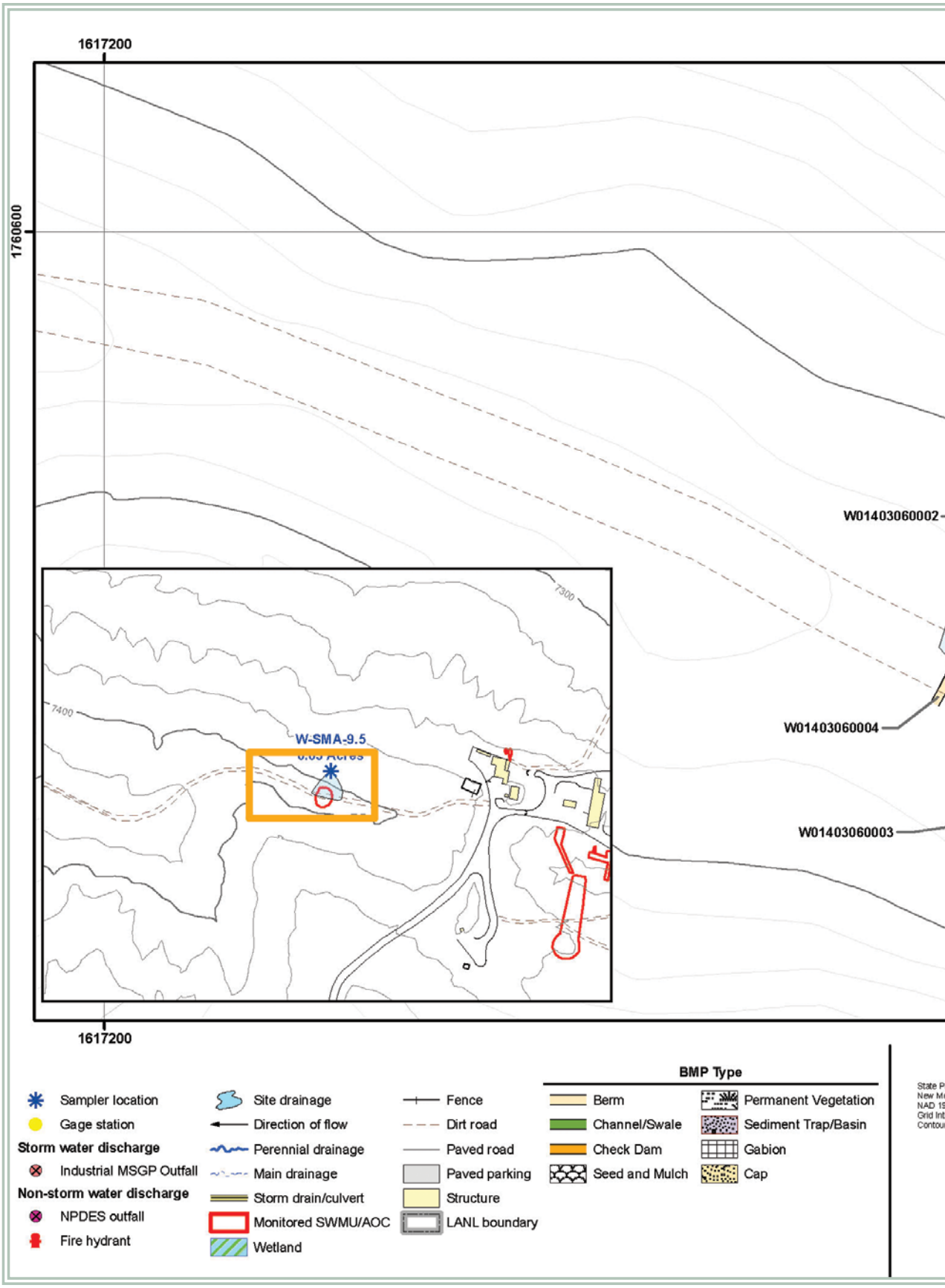
Straw Wattles - South (W014-03-06-0003)

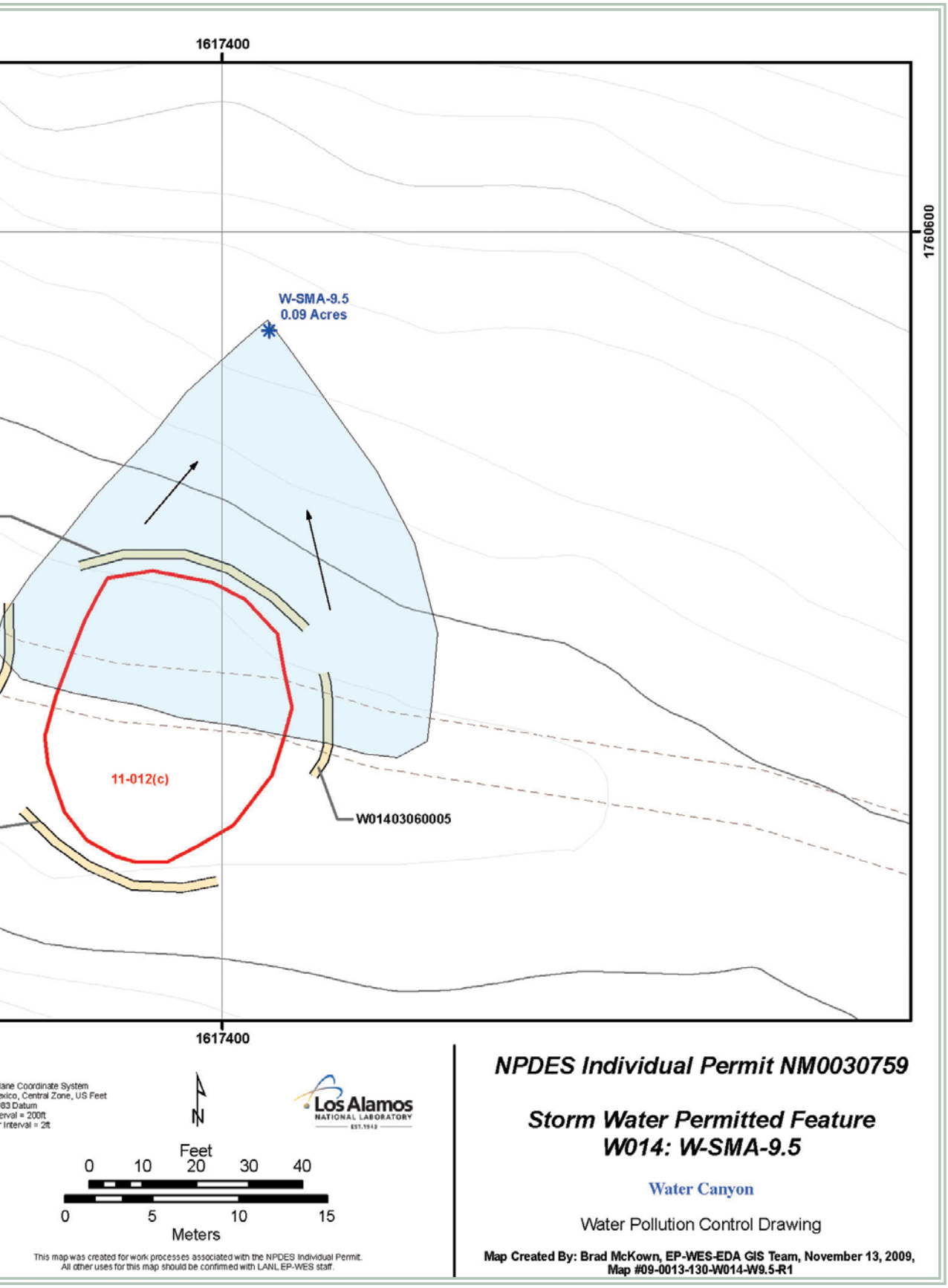
This wattle, located south of the SMA, serves to control run-off from overland flow on the monitored area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Road (W014-03-06-0004, -0005)

Two wattles are installed east and west on the unpaved access road to reduce the associated storm water run-on contributions from the road. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.42.4 Project Map




1617400
1760600
W-SMA-9.5
0.09 Acres
11-012(c)
W01403060005
1617400
ane Coordinate System
exico, Central Zone, US Feet
83 Datum
erval = 200ft
Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W014: W-SMA-9.5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, November 13, 2009,
Map #09-0013-130-W014-W9.5-R1

1000.42.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.42.6 Corrective Action Status

The Site associated with W-SMA-9.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.43 W-SMA-9.7

1000.43.1 Area Description

1000.43.2 Potential Pollutant Sources

1000.43.2.1 Historical Industrial Activity Areas

1000.43.3 Control Measures

1000.43.4 Project Map

1000.43.5 Storm Water Monitoring Plan and Schedule

1000.43.6 Corrective Action Status



1000.43 W-SMA-9.7

1000.43.1 Area Description

W-SMA-9.7 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further north. The southern boundary of the SMA is influenced by structures and paved areas within the developed area of TA-11. The eastern and western boundaries of the SMA are largely undeveloped.

1000.43.2 Potential Pollutant Sources

1000.43.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W015, W-SMA-9.7, Sites 11-011(a) and 11-011(b).

SWMU 11-011(a) is an active NPDES-permitted outfall (EPA-03A130) located at TA-11 north of the K-Site complex and approximately 6 ft northeast of the Electrodynamics Vibration Test Facility (building 11-30). The outfall consists of a 2-in. pipe that discharges to a drainage channel. The outfall receives untreated cooling tower blowdown and discharges from floor drains in building 11-30A (an adjunct of building 11-30).

SWMU 11-011(b) is an outfall located at TA-11 north of the Electrodynamics Vibration Test Facility (building 11-30). The outfall consists of a 3-in. pipe that extends about 10 in. beyond the side of a hill. The outfall receives discharge from floor drains in building 11-30. A sink drain that formerly discharged to the outfall has been removed.

1000.43.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
11-011(a)	Outfall from Building 11-30	Co-located, Overlapping	Shared	•		•	
11-011(b)	Outfall from Building 11-30A	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with the operation of building 11-0030. The Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.43.3 Control Measures

Run-on to the SMA primarily originates in the paved areas around building 11-0030 as well as from the building`s roof. Existing controls moderate this run-on source.

Subsections to 1000.43.3 list all control measures used to control pollutant sources identified in Section 1000.43.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.43.4.

1000.43.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W015 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W015 03 06 0002	Berms - Straw Wattles		•		•
W015 03 06 0003	Berms - Straw Wattles		•		•
W015 06 03 0004	Check Dam - Juniper Bales	•			•
W015 06 03 0005	Check Dam - Juniper Bales	•			•

Established Vegetation (W015-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - Central (W015-03-06-0002)

This wattle is located south of the sampler across the central portion of the SMA. It is used to control run-off from the paved areas above and restrict sediment migration. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

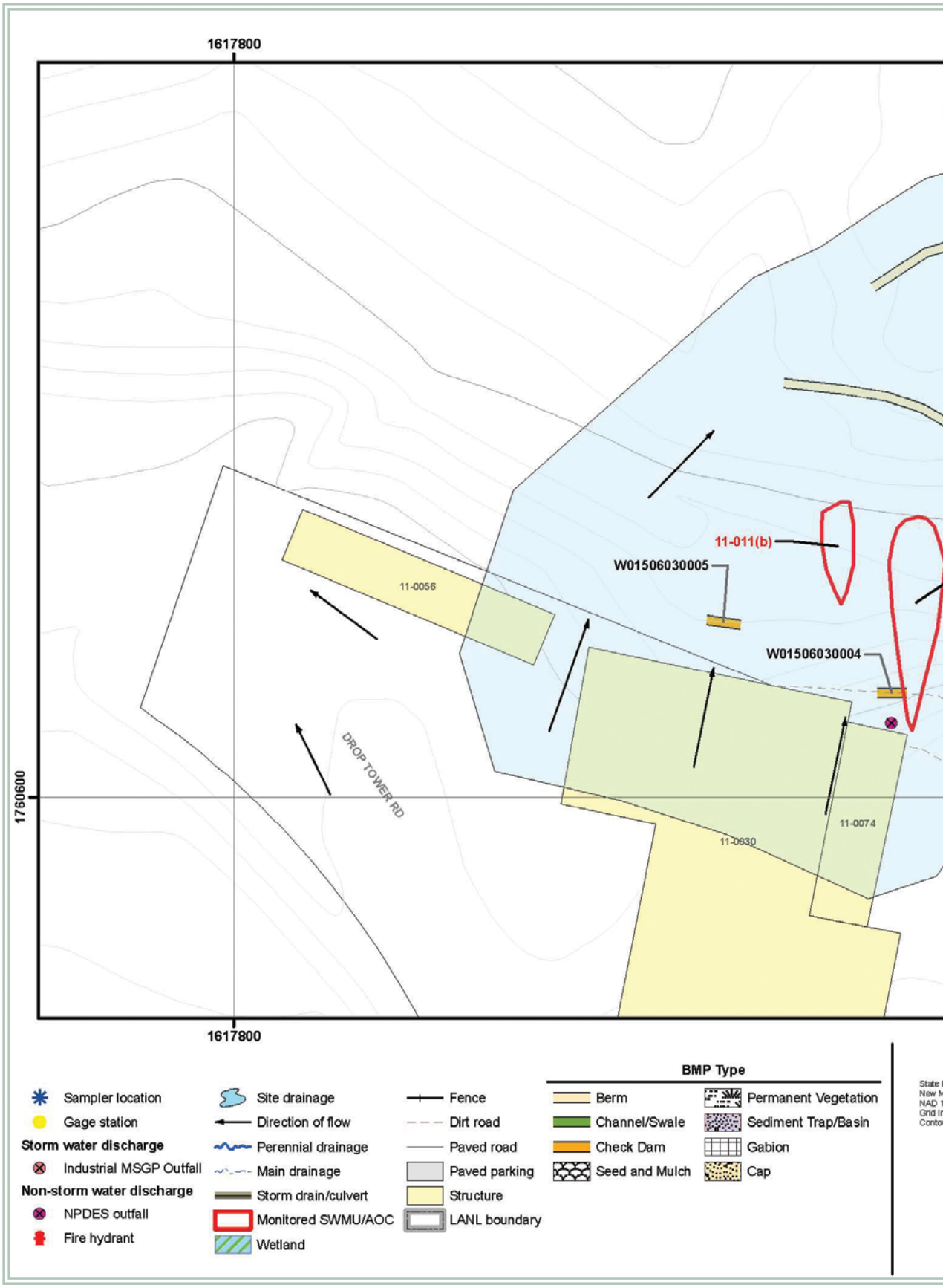
Straw Wattles (W015-03-06-0003)

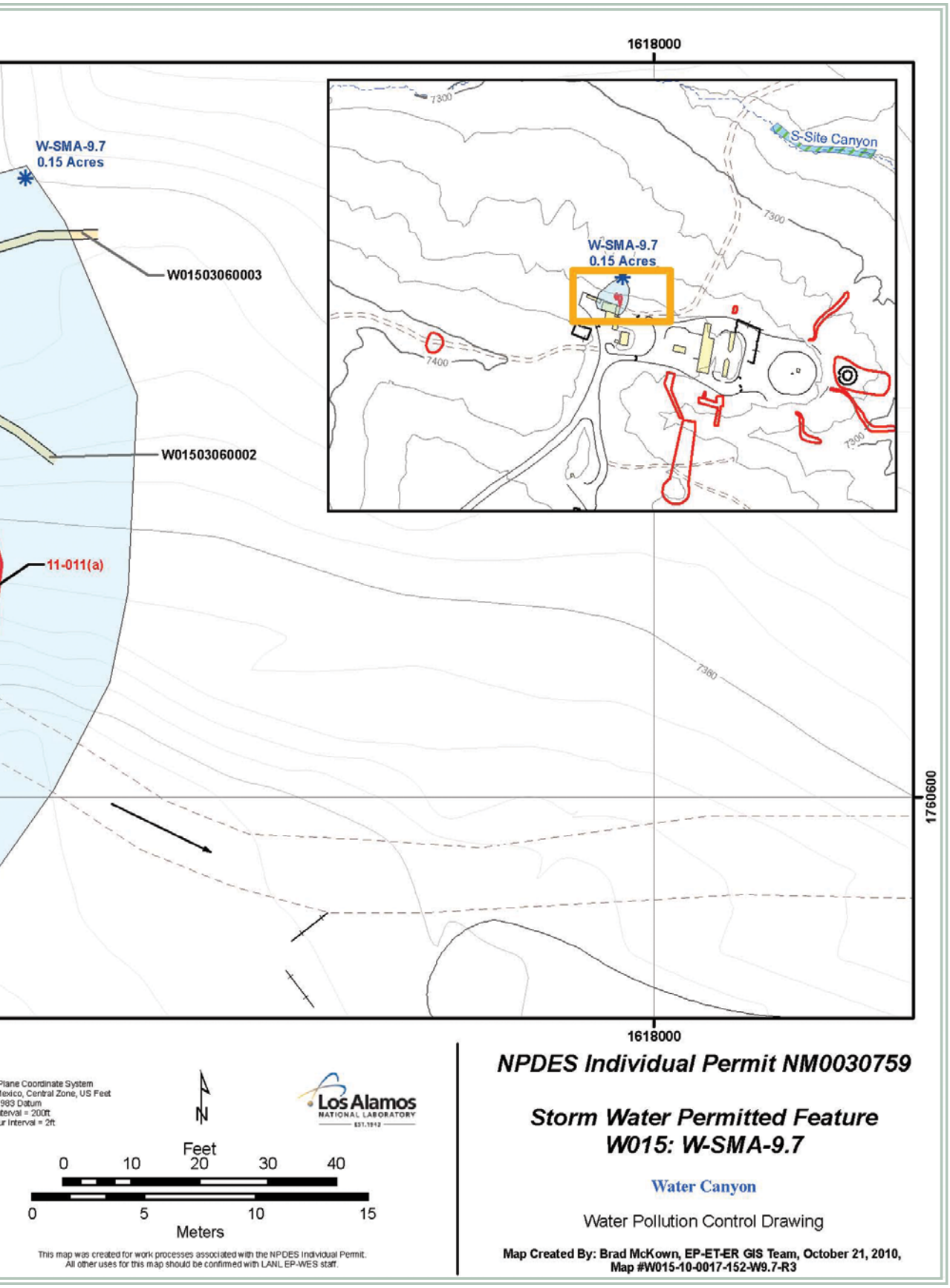
This wattle is located south of the sampler and serves to control run-off and capture sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Juniper Bales (W015-06-03-0004, -0005)

This pair of juniper bales control run-on and sediment. They are installed north of the buildings near the paved area. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.43.4 Project Map




1618000
W-SMA-9.7
0.15 Acres
W01503060003
W01503060002
11-011(a)
S-Site Canyon
7300
7400
7380
1760600
1618000
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W015: W-SMA-9.7
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 21, 2010,
Map #W015-10-0017-152-W9.7-R3

1000.43.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.43.6 Corrective Action Status

The Sites associated with W-SMA-9.7 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.44 W-SMA-9.8

1000.44.1 Area Description

1000.44.2 Potential Pollutant Sources

1000.44.2.1 Historical Industrial Activity Areas

1000.44.3 Control Measures

1000.44.4 Project Map

1000.44.5 Storm Water Monitoring Plan and Schedule

1000.44.6 Corrective Action Status



1000.44 W-SMA-9.8

1000.44.1 Area Description

W-SMA-9.8 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further north. The southern boundary of the SMA is influenced by paved areas and structures associated with the developed portion of TA-11.

1000.44.2 Potential Pollutant Sources

1000.44.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W016, W-SMA-9.8, Site 11-005(c).

SWMU 11-005(c) is an inactive outfall at TA-11 located approximately 50 ft north of former building 11-2, the Betatron Building. The outfall received discharge from a drain-line in building 11-2. The drainline was installed in 1944 and served a sink, water heater, and floor drain. During construction of the drop tower complex in 1956, the drainline was capped, making the outfall inactive.

1000.44.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
11-005(c)	Outfall from former Building 11-2	Discrete Location, No overlap	Individual	•		•	

1000.44.3 Control Measures

The primary source of run-on to this SMA is from the paved areas around building 11-0024 and possibly the building`s roof drains.

Subsections to 1000.44.3 list all control measures used to control pollutant sources identified in Section 1000.44.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.44.4.

1000.44.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W016 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
W016 03 02 0007	Berms - Base Course	•			•
W016 03 06 0009	Berms - Straw Wattles		•		•
W016 03 06 0010	Berms - Straw Wattles		•		•
W016 04 06 0003	Channel/Swale - Rip Rap	•		•	

Established Vegetation (W016-02-01-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (W016-03-02-0007)

This berm is located north of structure 11-0002, running towards the west from the corner of the fenced area. It is in place to mitigate area run-on, diverting it around the SMA. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattle - Central (W016-03-06-0009)

This wattle is located across the midsection of the SMA footprint. It is functioning as a run-off and sediment control. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

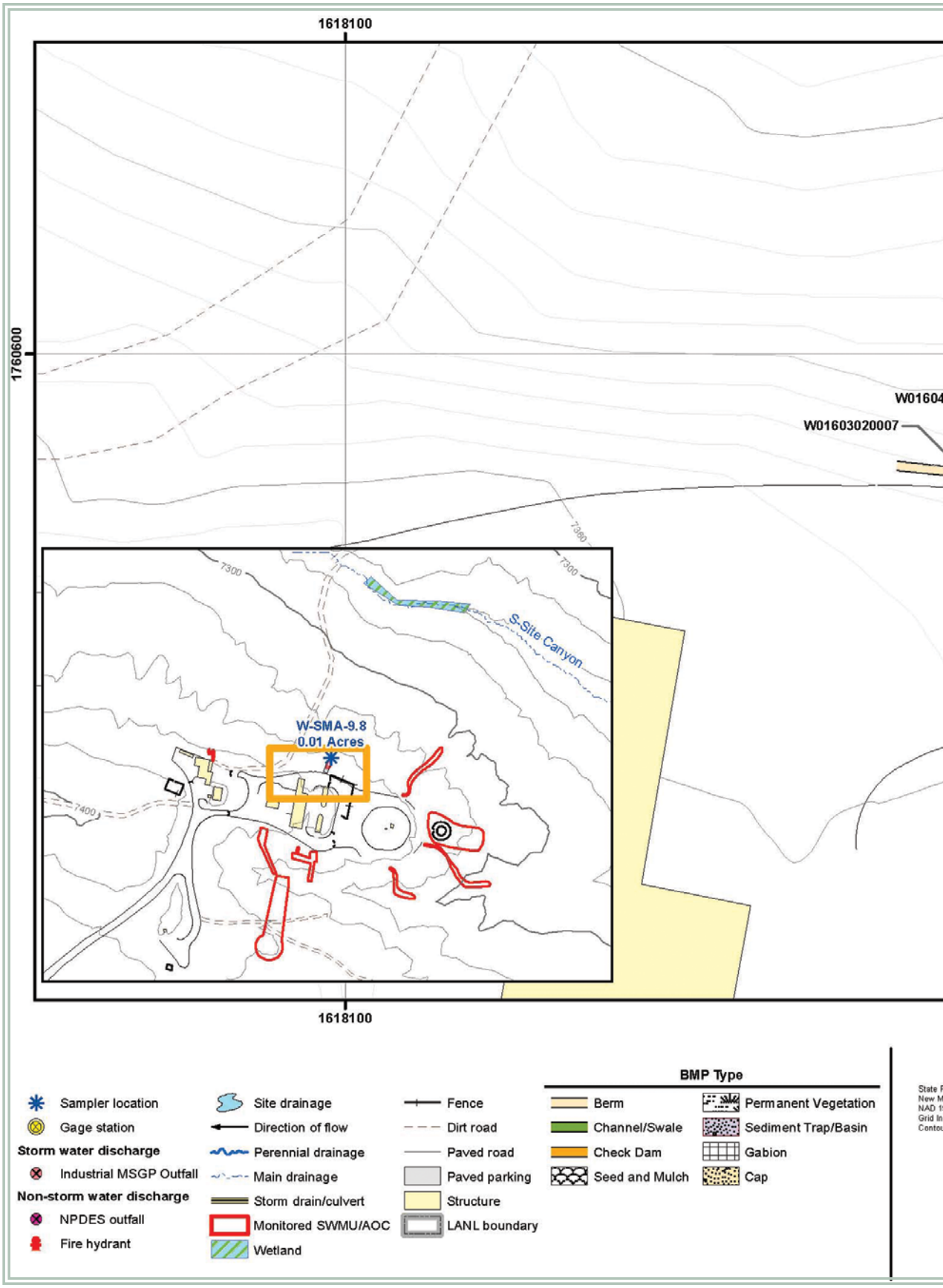
Straw Wattle - North (W016-03-06-0010)

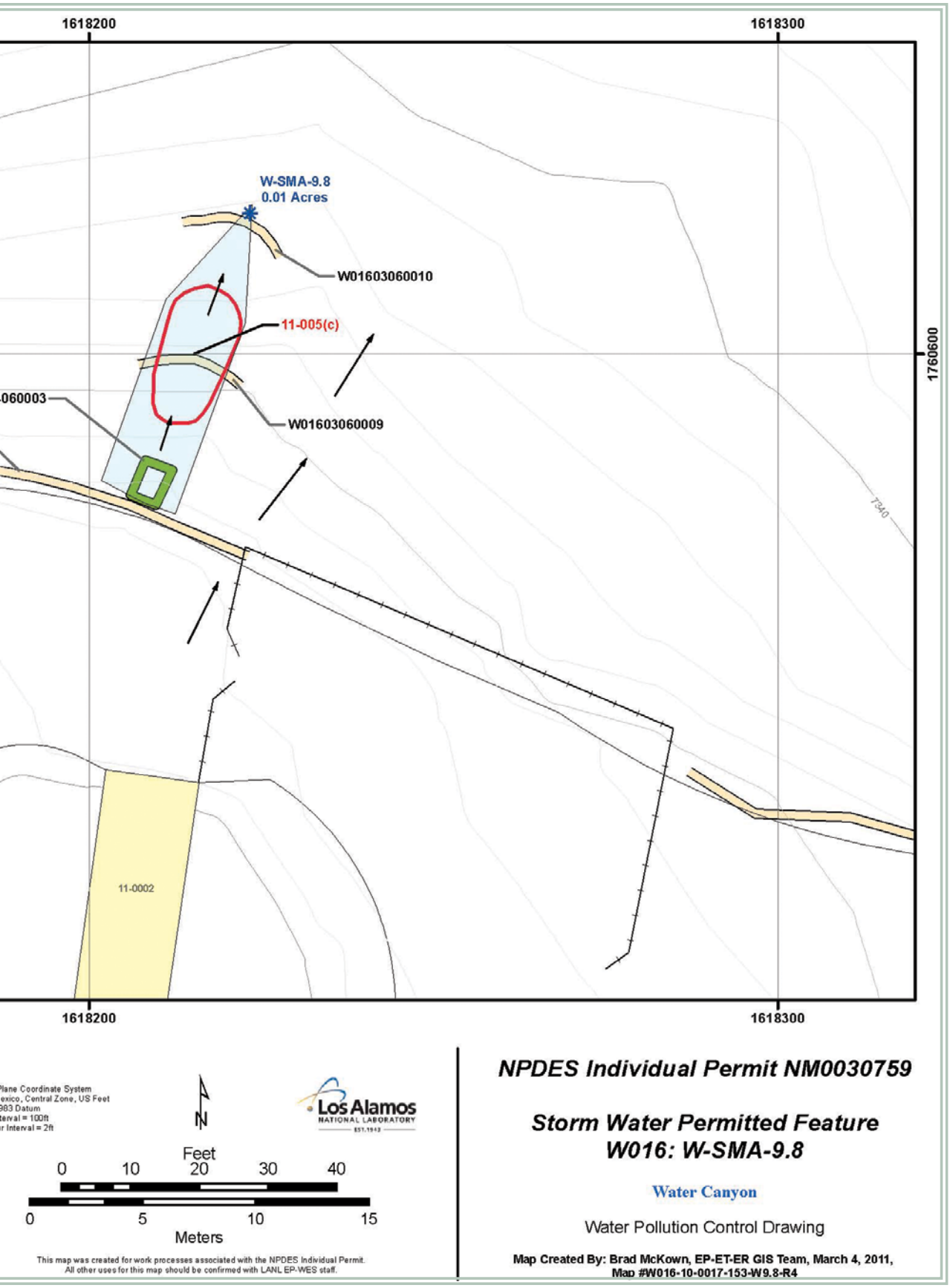
This wattle is located across the drainage channel immediately south of the sampler, extending outside the SMA footprint. It is used to help mitigate storm water run-off in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap (W016-04-06-0003)

The rip rap is located at the edge of the pavement near the edge of the slope and above the sampler. It is functioning as a run-on control and an erosion control in the drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.44.4 Project Map




1618200
1618300
1760600
W-SMA-9.8
0.01 Acres
W01603060010
11-005(c)
-060003
W01603060009
7340
11-0002
1618200
1618300
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 100ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W016: W-SMA-9.8
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 4, 2011,
Map #W016-10-0017-153-W9.8-R4

1000.44.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.44.6 Corrective Action Status

The Site associated with W-SMA-9.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.45 W-SMA-9.9

1000.45.1 Area Description

1000.45.2 Potential Pollutant Sources

1000.45.2.1 Historical Industrial Activity Areas

1000.45.3 Control Measures

1000.45.4 Project Map

1000.45.5 Storm Water Monitoring Plan and Schedule

1000.45.6 Corrective Action Status



1000.45 W-SMA-9.9

1000.45.1 Area Description

W-SMA-9.9 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently slopes northeast towards the receiving waters. The southern boundary of the SMA is influenced by paved surfaces. The eastern and western boundaries of the SMA are sparsely developed.

1000.45.2 Potential Pollutant Sources

1000.45.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W017, W-SMA-9.9, Site 11-006(b).

SWMU 11-006(b) is one of three catch basins and its associated outfall located at TA-11 near the drop tower complex. The SWMU 11-006(b) catch basin is located on the north side of the drop tower complex and consists of a concrete basin (structure 11-50) measuring 6 × 4 × 2 ft, an overflow drain, and a former National Pollutant Discharge Elimination System (NPDES)-permitted outfall (EPA 05A069) located to the northeast that drains into Water Canyon. Historically, SWMU 11-006(b) received wash-down water from the concrete pad and asphalt apron at the base of the drop tower via an HE sump [SWMU 11-006(a)]. Any HE particles remaining in the wash-down water after it exited the sump were further filtered out in the catch basin. After exiting the catch basin, the remaining wash water was channeled to a drainage and NPDES-permitted outfall on the northeast side of the catch basin. Waste collected from the catch basin was disposed of at the TA-16 burning ground. The outfall was removed from the NPDES permit in May 1998. Currently, the catch basin is capped and sealed; however, the outfall still receives storm water run-off. Due to the removal of EPA-05A069 from the NPDES permit, any run-off collected in the concrete pad and asphalt apron is now diverted to the other two catch basins associated with the former drop tower [SWMUs 11-006(c) and 11-006(d)].

1000.45.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
11-006(b)	Catch Basin System	Discrete Location, No overlap	Individual	•		•	

1000.45.3 Control Measures

The curbing located south of the SMA moderates run-on to the Site. Existing controls work to stabilize, promote vegetative growth,and manage sediment migration at the Site.

Subsections to 1000.45.3 list all control measures used to control pollutant sources identified in Section 1000.45.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.45.4.

1000.45.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W017 01 01 0006	Seed and Mulch - Seed and Wood Mulch			•	
W017 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
W017 03 06 0007	Berms - Straw Wattles	•			•
W017 03 06 0008	Berms - Straw Wattles	•			•
W017 03 06 0009	Berms - Straw Wattles	•			•
W017 03 06 0010	Berms - Straw Wattles	•			•
W017 03 06 0011	Berms - Straw Wattles	•			•
W017 03 06 0012	Berms - Straw Wattles	•			•
W017 03 06 0013	Berms - Straw Wattles	•			•
W017 03 06 0014	Berms - Straw Wattles	•			•
W017 03 06 0015	Berms - Straw Wattles	•			•
W017 03 06 0016	Berms - Straw Wattles	•			•
W017 03 09 0001	Berms - Curbing	•			•
W017 06 03 0004	Check Dam - Juniper Bales		•		•
W017 06 03 0005	Check Dam - Juniper Bales		•		•

Seed and Mulch (W017-01-01-0006)

This mulch is in place to control erosion around the large cluster of wattles in the center of the Site drainage. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

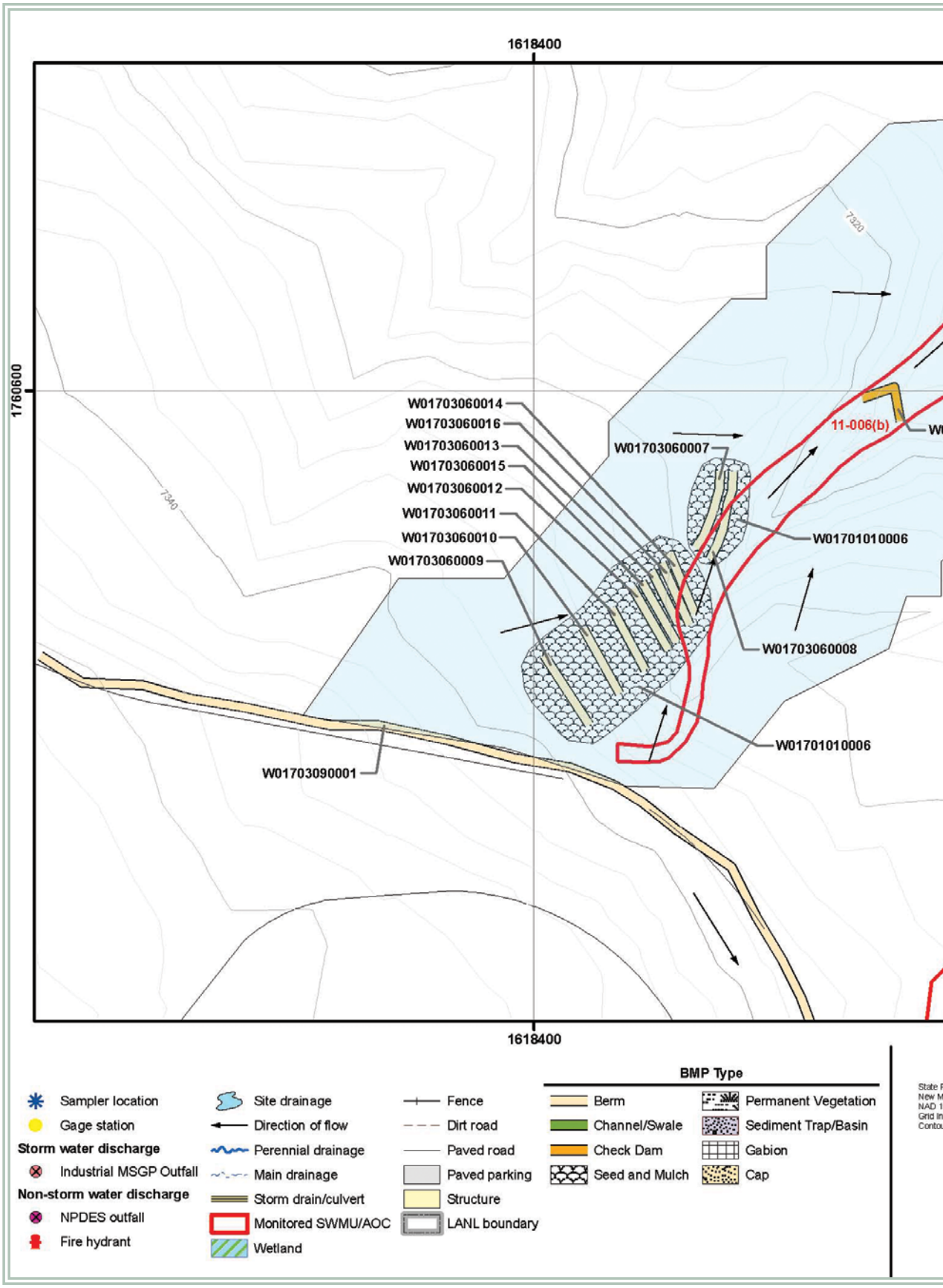
Established Vegetation
(W017-02-01-0002)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

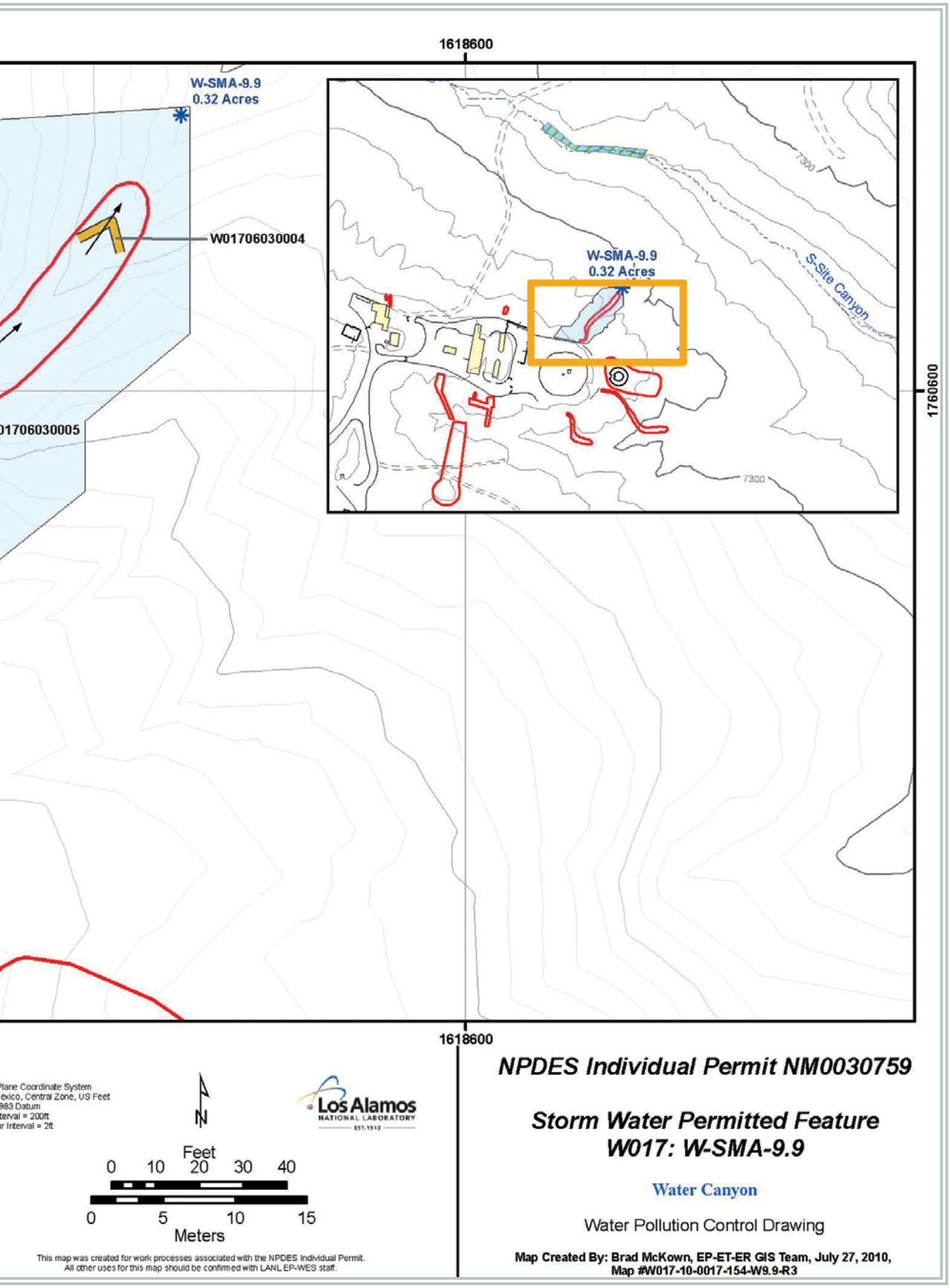
Straw Wattles
(W017-03-06-0007, -0008, -0009, -0010, -0011, -0012, -0013, -0014, -0015, -0016)
Located northeast of curbing -0001, this group of ten wattles controls run-on and sediment inside the Site drainage. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Curbing
(W017-03-09-0001)
The curbing is located along the edge of the paved parking area running along the SMA`s southern boundary. It is controlling run-on from the paved areas, diverting it away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Juniper Bales
(W017-06-03-0004, 0005)
This pair of juniper bales is installed in the channel along the northeast portion of the Site drainage to control run-off and sediment. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.45.4 Project Map




1618600
W-SMA-9.9
0.32 Acres
W01706030004
01706030005
W-SMA-9.9
0.32 Acres
S-Site Canyon
7300
7300
1760600
1618600
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W017: W-SMA-9.9
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W017-10-0017-154-W9.9-R3

1000.45.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.45.6 Corrective Action Status

The Site associated with W-SMA-9.9 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.46 W-SMA-10

1000.46.1 Area Description

1000.46.2 Potential Pollutant Sources

1000.46.2.1 Historical Industrial Activity Areas

1000.46.3 Control Measures

1000.46.4 Project Map

1000.46.5 Storm Water Monitoring Plan and Schedule

1000.46.6 Corrective Action Status



1000.46 W-SMA-10

1000.46.1 Area Description

W-SMA-10 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas associated with the developed area of TA-11. The southern boundary of the SMA is largely undeveloped and gently slopes eastward. The eastern boundary of the SMA is largely undeveloped and gently sloping towards the receiving waters further to the east. The western boundary of the SMA is largely undeveloped but may be influenced by paved and unpaved access roads.

1000.46.2 Potential Pollutant Sources

1000.46.2.1 Historical Industrial Activity Areas

There are seven historical industrial activity areas associated with PF W018, W-SMA-10, Sites 11-002, 11-003(b), 11-005(a), 11-005(b), 11-006(c), 11-006(d) and 11-011(d).

SWMU 11-002 is a 30 foot diameter active burning area located east of the drop tower at the edge of its asphalt apron. From 1948 to 1992 it was used as an experimental burning area for components on or in assembled configurations with HE, propellants, and jet fuel. HE and propellant burns were conducted directly on the sand pad, and jet fuel burns occurred within an open-topped steel containment tank. The SWMU remains an active experiment area.

AOC 11-003(b) is a former mortar impact area used as a target by the decommissioned air-gun facility (Building 11-24) at TA-11. This AOC is immediately adjacent to the active drop-tower complex at TA-11 (K-Site). The air-gun facility was completed in 1956. The gun was used to launch experimental packages into targets located south of Building 11-24. The targets, which were located 150 to 250 feet south of Building 11-24, were 12 feet square, 12 inch thick concrete slabs that were set in line with the gun bore. Firing into the targets tested various weapons packages designed to withstand extremes of acceleration and deceleration. On a single occasion in 1972, an impact test involved a 12 inch diameter, hollow-steel sphere filled with steel or lead ball bearings suspended in a graphite matrix. The sphere fractured upon impact, potentially leaving behind half inch diameter lead balls.

SWMU 11-005(a) is an active septic system located at TA-11 approximately 70 ft southwest of building 11-24. This septic system consists of a septic tank (structure 11-20), associated drainlines from buildings 11-1 and 11-4, and a tile drain field that extends to an outfall on a sloped area to the south of the septic tank. The septic system began operation in 1944. The drainline from building 11-1 has been plugged. Currently, discharge to the septic system comes only from a restroom in building 11-4. Building 11-1 is currently a storage area for electrical equipment but was originally used as a control building for the Betatron Facility (building 11-2) and the Cloud Chamber (building 11-3). Building 11-4 is currently the control building for the Vibration-Test Facility (building 11-30), though it was historically used as a machine shop and photo-processing facility. A memorandum from 1950 indicated a mercury spill occurred in building 11-4; however, the location, source, and extent of the spill are unknown. The outflow line from SWMU 11-005(a) (structure 11-20) is now plugged and the septic tank is pumped on a regular basis.

SWMU 11-005(b) is an active septic system located at TA-11, approximately 70 ft south of building 11-3. This septic system consists of a septic tank (structure 11-43), an outlet drainline to an outfall to the south of the septic tank, and a drain field west of the drainline. The septic system serves the restroom added to the exterior of building 11-3 and possibly may have served building 11-24, a former air gun facility that now houses a machine shop.

SWMU 11-006(c) is one of three catch basins and its associated outfall located at TA-11 near the drop tower complex. The SWMU 11-006(c) catch basin is located on the southeast side of the drop tower complex and consists of a concrete basin (structure 11-51) measuring 6 × 4 × 2 ft and a former NPDES-permitted outfall (EPA05A096) located to the southeast that drains into Water Canyon. Historically, SWMU 11-006(c) received wash-down water from the concrete pad and asphalt apron at the base of the drop tower via an HE sump [SWMU 11-006(a)]. Any HE particles remaining in the wash-down water after it exited the sump were further filtered out in the catch basin. After exiting the catch basin, the remaining wash-down water flowed through an asphalt-lined drainage to a natural drainage and the NPDES-permitted outfall. The outfall is located on the southeast side of the catch basin and flows east into Water Canyon. Waste collected from the catch basin was disposed of at the TA-16 burning ground. The outfall was removed from the NPDES permit in May 1998. Currently, this catch basin collects storm water run-off that is pumped to SWMU 11-006(d).

SWMU 11-006(d) is one of three catch basins and its associated outfall located at TA-11 near the drop tower complex. The SWMU 11-006(d) catch basin is located on the south side of the drop tower complex and consists of a concrete basin (structure 11-52) measuring 6 × 4 × 2 ft and a former NPDES-permitted outfall (EPA05A097) located to the southeast of the catch basin. Historically, SWMU 11-006(d) received wash-down water from the concrete pad and asphalt apron at the base of the drop tower via an HE sump [SWMU 11-006(a)]. Any HE particles remaining in the wash-down water after it exited the sump were further filtered out in the catch basin. After exiting the catch basin, the remaining wash-down water flowed through an asphalt-lined drainage to a natural drainage and then east into Water Canyon. Waste collected from the catch basin was disposed of at the burning grounds at TA-16. Currently, this catch basin collects storm water run-off that drains to the outfall.

SWMU 11-011(d) is an outfall located at TA-11 south of building 11-24, the air gun facility. The outfall consisted of a 4-in. steel pipe and serviced the air gun facility. Originally, operations at building 11-24 consisted of acceleration and impact tests on full-scale warhead mockups. After World War II, building 11-24 was converted to an office and light machine shop.

1000.46.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
11-002	Burn site	Co-located, Overlapping	Shared	•		•	
11-003(b)	Air gun	Co-located, Overlapping	Shared	•		•	
11-005(a)	Septic system	Co-located, Overlapping	Shared	•		•	
11-005(b)	Septic system	Co-located, Overlapping	Shared	•		•	
11-006(c)	Catch Basin System	Co-located, Overlapping	Shared	•		•	
11-006(d)	Catch Basin System	Co-located, Overlapping	Shared	•		•	
11-011(d)	Outfall from Building 11-24	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with the operation of facilities at TA-16 known as K-Site. The Sites are within the influence of an inactive drop tower, share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.46.3 Control Measures

There is the potential for run-on to the SMA from the paved road west of the drop tower. There is also the potential for run-on from roofs of area buildings and the drop tower structure itself.

Subsections to 1000.46.3 list all control measures used to control pollutant sources identified in Section 1000.46.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.46.4.

1000.46.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W018 01 01 0015	Seed and Mulch - Seed and Wood Mulch			•	
W018 01 01 0017	Established Vegetation - Grasses and Shrubs			•	
W018 02 01 0009	Established Vegetation - Grasses and Shrubs			•	
W018 03 04 0010	Berms - Asphalt	•			•
W018 03 04 0016	Berms - Asphalt	•			•
W018 03 06 0014	Berms - Straw Wattles		•		•
W018 03 06 0018	Berms - Straw Wattles		•		•
W018 03 06 0019	Berms - Straw Wattles		•		•
W018 03 06 0020	Berms - Straw Wattles		•		•
W018 03 06 0021	Berms - Straw Wattles		•		•
W018 03 09 0002	Berms - Curbing	•			•
W018 04 06 0004	Channel/Swale - Rip Rap			•	
W018 04 06 0006	Channel/Swale - Rip Rap	•		•	
W018 04 06 0013	Channel/Swale - Rip Rap	•		•	

Seed and Mulch (W018-01-01-0015)

The mulched area is located to the east of the burn pad and controls erosion on the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Seed and Mulch - South (W018-01-01-0017)

Seed and mulch was applied in and around the straw wattles south to help control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost.

The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (W018-02-01-0009)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Asphalt Berm - West (W018-03-04-0010)

This berm is located along the edge of the mesa top south of structure 11-0003. It is being used to help control storm water run-on from the paved areas. An asphalt berm is a temporary containment control constructed of asphalt.

Asphalt Berm (W018-03-04-0016)

The berm is located south of building 11-0003. It is used to manage run-on from the paved access road. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (W018-03-06-0014)

The wattles are located to the northeast of the burn pad and mitigate run-off from the Site. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - South (W018-03-06-0018, -0019, -0020, -0021)

This series of four wattles is located on the slope west of the sampler. They are in place to help control storm water run-off from the mesa top above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Curbing (W018-03-09-0002)

The curbing is located along the southern edge of the circular paved area. It is managing run-on from the paved areas. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Rip Rap - West (W018-04-06-0004)

This rip rap is located south of structure 11-0003. It is preventing the erosion of the slope adjacent to the paved area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

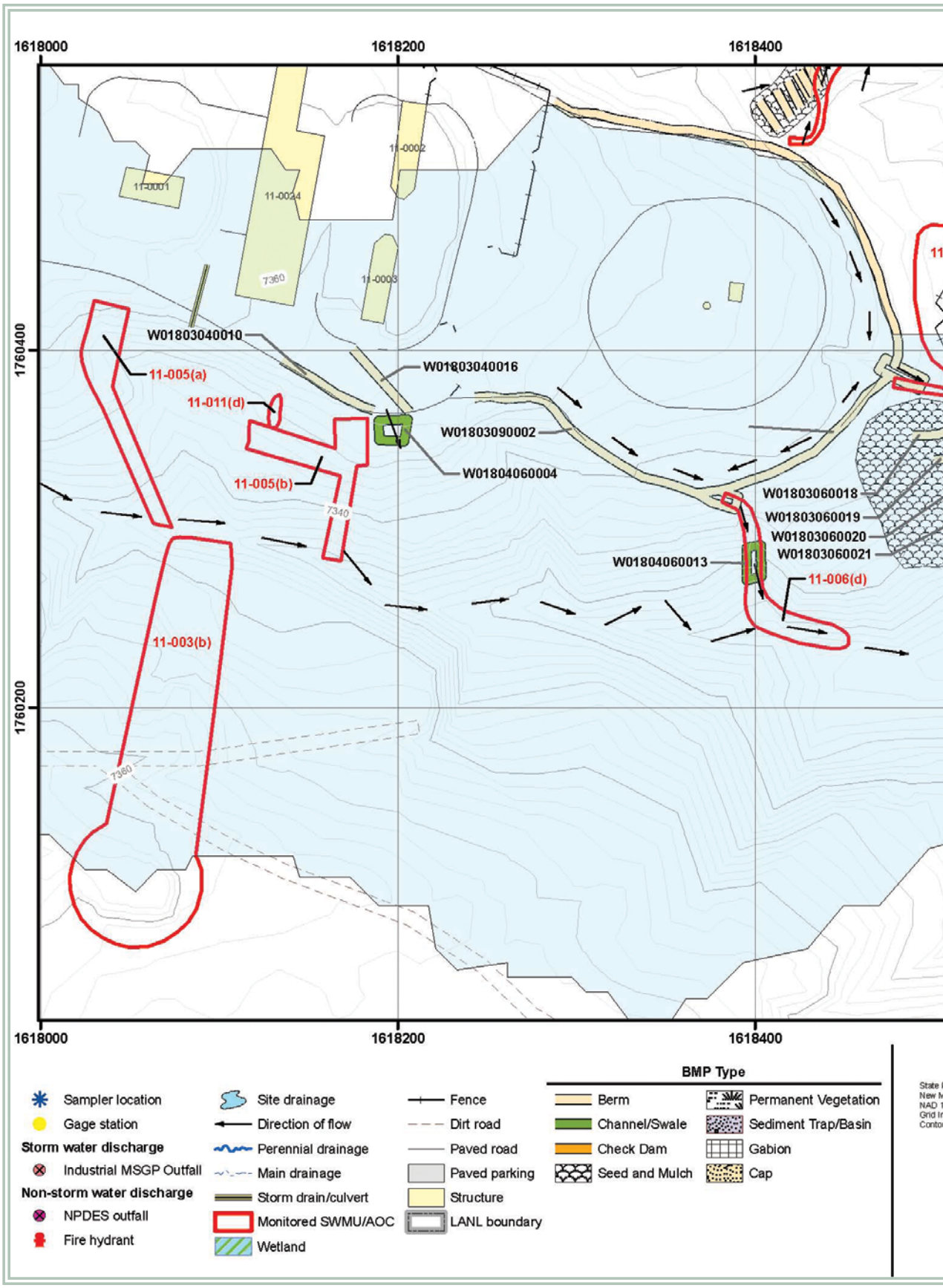
Rip Rap - East (W018-04-06-0006)

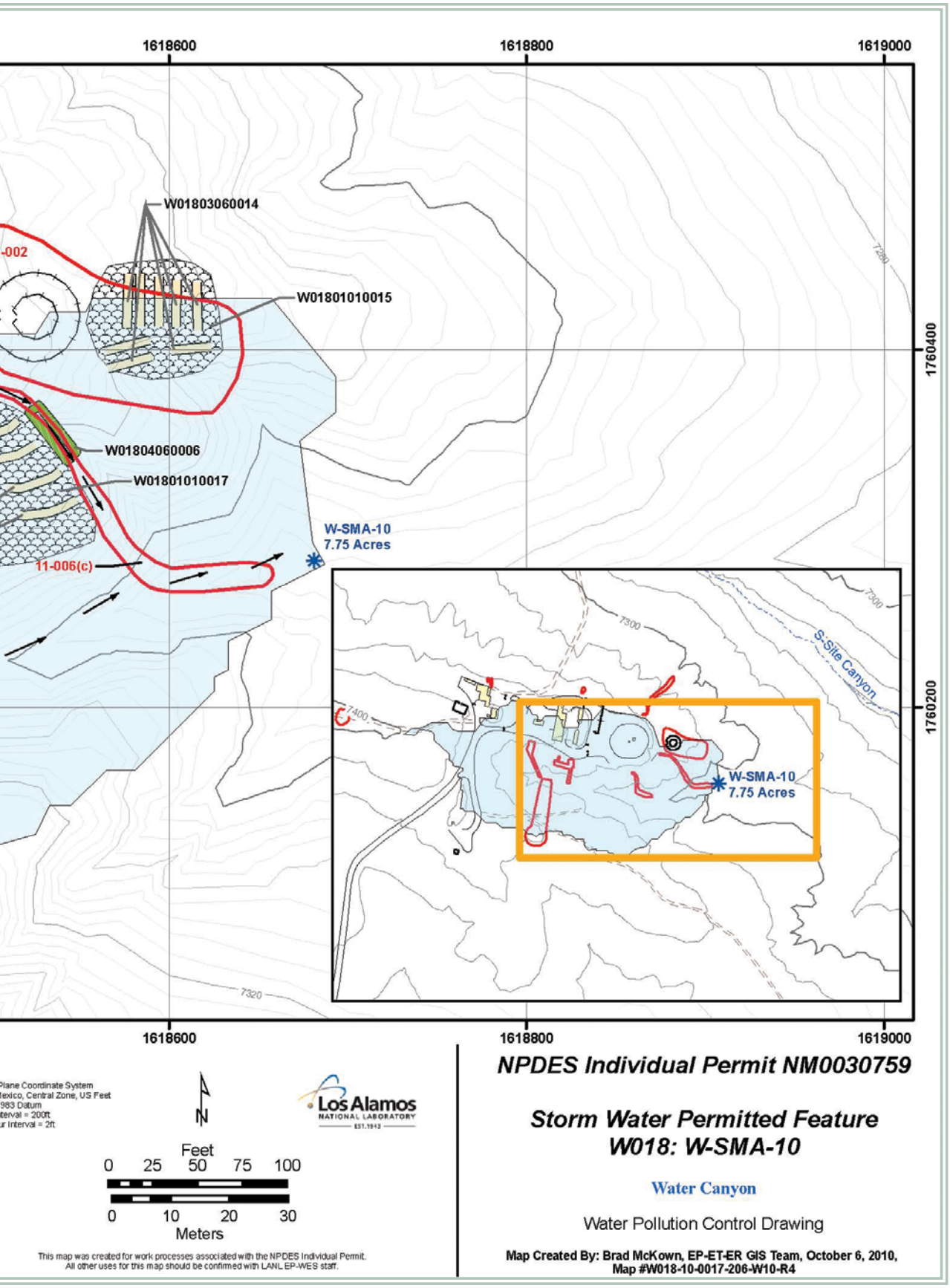
This rip rap is located in the channel east of the drop tower pad. It functions as a run-on control and prevents erosion in the channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap - Central (W018-04-06-0013)

The rip rap is located directly south of the drop tower pad. It is in place to control run-on and prevent erosion of the slope. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.46.4 Project Map




1618600
1618800
1619000
1760400
1760200
W01803060014
W01801010015
W01804060006
W01801010017
11-006(c)
W-SMA-10
7.75 Acres
S-Site Canyon
7300
7400
7320
7280
Plane Coordinate System
lexico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W018: W-SMA-10
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 6, 2010,
Map #W018-10-0017-206-W10-R4

1000.46.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.46.6 Corrective Action Status

The Sites associated with W-SMA-10 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.47 W-SMA-11.7

1000.47.1 Area Description

1000.47.2 Potential Pollutant Sources

1000.47.2.1 Historical Industrial Activity Areas

1000.47.3 Control Measures

1000.47.4 Project Map

1000.47.5 Storm Water Monitoring Plan and Schedule

1000.47.6 Corrective Action Status



1000.47 W-SMA-11.7

1000.47.1 Area Description

W-SMA-11.7 is located within TA-49 and access to the area is controlled. The northern boundary of the SMA is influenced by an unpaved access road running the length of this boundary. The southern boundary of the SMA is undeveloped and slopes gently towards the east. The eastern boundary of the SMA is gently sloping and contains the receiving waters. The western boundary of the SMA is undeveloped and gently sloping eastward.

1000.47.2 Potential Pollutant Sources

1000.47.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W019, W-SMA-11.7, Site 49-008(c).

AOC 49-008(c) consists of contaminated soil in Area 11 of TA-49. Area 11 is an approximately 220 x 300 ft area 700 feet west of MDA AB [SWMU 49-001(a)-00]. Activities conducted at Area 11 from 1959 to 1961 supported hydronuclear experiments conducted elsewhere at TA-49. Principal support activities consisted of radiochemistry operations and small-scale containment experiments. The radiochemistry operations were conducted in a former laboratory and change house (Building 49-15) that was the main structure at Area 11. Other structures included a small storage building, latrines, and butane and propane tanks. The Building 49-15 laboratory was used to analyze samples collected during experiments in the experimental shafts at Areas 2, 2A, 2B, and 4 [SWMU 49-001(a)-00]. Laboratory processes included sample dissolution in acids (nitric, hydrochloric, hydrofluoric, sulfuric, and perchloric) and solvent extraction using methyl isobutyl ketone, ammonium hydroxide, and sodium hydroxide. Principle radionuclides present in samples included plutonium, americium, uranium, and cesium-137. Waste generated during radiochemical operations were typically collected in containers and taken to radioactive waste disposal facilities elsewhere at LANL. Interim waste storage boxes were reportedly stored south of Building 49-15. Some liquid wastes reportedly discharged to a leach field (SWMU 49-003). Small-scale containment experiments were conducted in 13 underground shafts located on the west side of Area 11. These shafts were drilled to a depth of 12 feet and lined with ten inch diameter steel casing. HE was placed in the shafts, which were backfilled to contain the explosions. Small amounts of irradiated uranium-238 tracer were used in some experiments. The total amount of uranium used was 10.5 g. The structures in Area 11 were decontaminated, demolished, and removed in 1970 and 1971. Contamination was detected in sinks, ducts, and blowers in Building 49-15. Contaminated debris was removed and disposed of at TA-54 and uncontaminated debris (approximately 2160 cubic ft) was taken to the open burning/landfill area at Area 6 (SWMU 49-004). Investigations at this site include a 1987 environmental survey known as the A411 survey, which included collection and analysis of soil and vegetation samples from Area 11. Results showed elevated levels of plutonium, americium, and uranium east of the former Building 49-15, where the leach field was located. Vegetation samples did not reveal elevated radioactivity.

1000.47.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
49-008(c)	Soil contamination (Area 11)	Discrete Location, No overlap	Individual	•		•	

1000.47.3 Control Measures

There are no significant run-on concerns at this SMA. The access road is banked away from the SMA and the surrounding area is undeveloped. Existing controls manage sediment migration associated with any storm water discharge from this SMA.

Subsections to 1000.47.3 list all control measures used to control pollutant sources identified in Section 1000.47.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.47.4.

1000.47.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W019 01 01 0039	Seed and Mulch - Seed and Wood Mulch			•	
W019 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W019 03 06 0009	Berms - Straw Wattles		•		•
W019 03 06 0010	Berms - Straw Wattles		•		•
W019 03 06 0011	Berms - Straw Wattles		•		•
W019 03 06 0012	Berms - Straw Wattles		•		•
W019 03 06 0015	Berms - Straw Wattles		•		•
W019 03 06 0016	Berms - Straw Wattles		•		•
W019 03 06 0017	Berms - Straw Wattles		•		•
W019 03 06 0018	Berms - Straw Wattles		•		•
W019 03 06 0019	Berms - Straw Wattles		•		•
W019 03 06 0020	Berms - Straw Wattles		•		•

1000.47.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W019 03 06 0021	Berms - Straw Wattles		•		•
W019 03 06 0022	Berms - Straw Wattles		•		•
W019 03 06 0025	Berms - Straw Wattles	•			•
W019 03 06 0026	Berms - Straw Wattles	•			•
W019 03 06 0027	Berms - Straw Wattles	•			•
W019 03 06 0028	Berms - Straw Wattles	•			•
W019 03 06 0029	Berms - Straw Wattles	•			•
W019 03 06 0030	Berms - Straw Wattles	•			•
W019 03 06 0031	Berms - Straw Wattles	•			•
W019 03 06 0032	Berms - Straw Wattles	•			•
W019 03 06 0033	Berms - Straw Wattles	•			•
W019 03 06 0034	Berms - Straw Wattles	•			•
W019 03 06 0035	Berms - Straw Wattles	•			•
W019 03 06 0036	Berms - Straw Wattles	•			•
W019 03 06 0037	Berms - Straw Wattles	•			•
W019 03 06 0038	Berms - Straw Wattles	•			•
W019 04 06 0002	Channel/Swale - Rip Rap		•	•	
W019 06 01 0003	Check Dam - Rock		•		•
W019 06 01 0004	Check Dam - Rock		•		•
W019 06 01 0005	Check Dam - Rock		•		•
W019 06 01 0006	Check Dam - Rock		•		•
W019 06 01 0007	Check Dam - Rock		•		•
W019 06 01 0008	Check Dam - Rock		•		•

Seed and Wood Mulch (W019-01-01-0039)
Seed and mulch was applied to three different areas at this SMA. Two of the areas are within the Site footprint, near the western end and the third area is just west of the Site footprint. In all cases the seed and mulch was applied in order to prevent erosion of the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (W019-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - East (W019-03-06-0009, -0010, -0011, -0012)
This is a group of four wattles located at the eastern end of 49-008(c). They are in place to help manage storm water run-off from the area to the west. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Central (W019-03-06-0015, -0016, -0017, -0018)
This is a group of four wattles located in the central portion of the SMA near the southern boundary. They are in place to help control storm water run-off in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattle (W019-03-06-0019)
This wattle is located near the western culvert outlet. It is in place to help mitigate run-off at the culvert outlet. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West (W019-03-06-0020, -0021, -0022)
This is a grouping of 3 straw wattles that are located west of the 49-008(c) Site footprint. They are in place to help mitigate storm water run-off originating west of the Site. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West (W019-03-06 -0025, -0026, -0027, -0028, -0029, -0030, -0031, -0032, -0033, -0034, -0035, -0036, -0037, -0038)
This grouping of wattles serve to moderate run-on to the area. Straw

wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

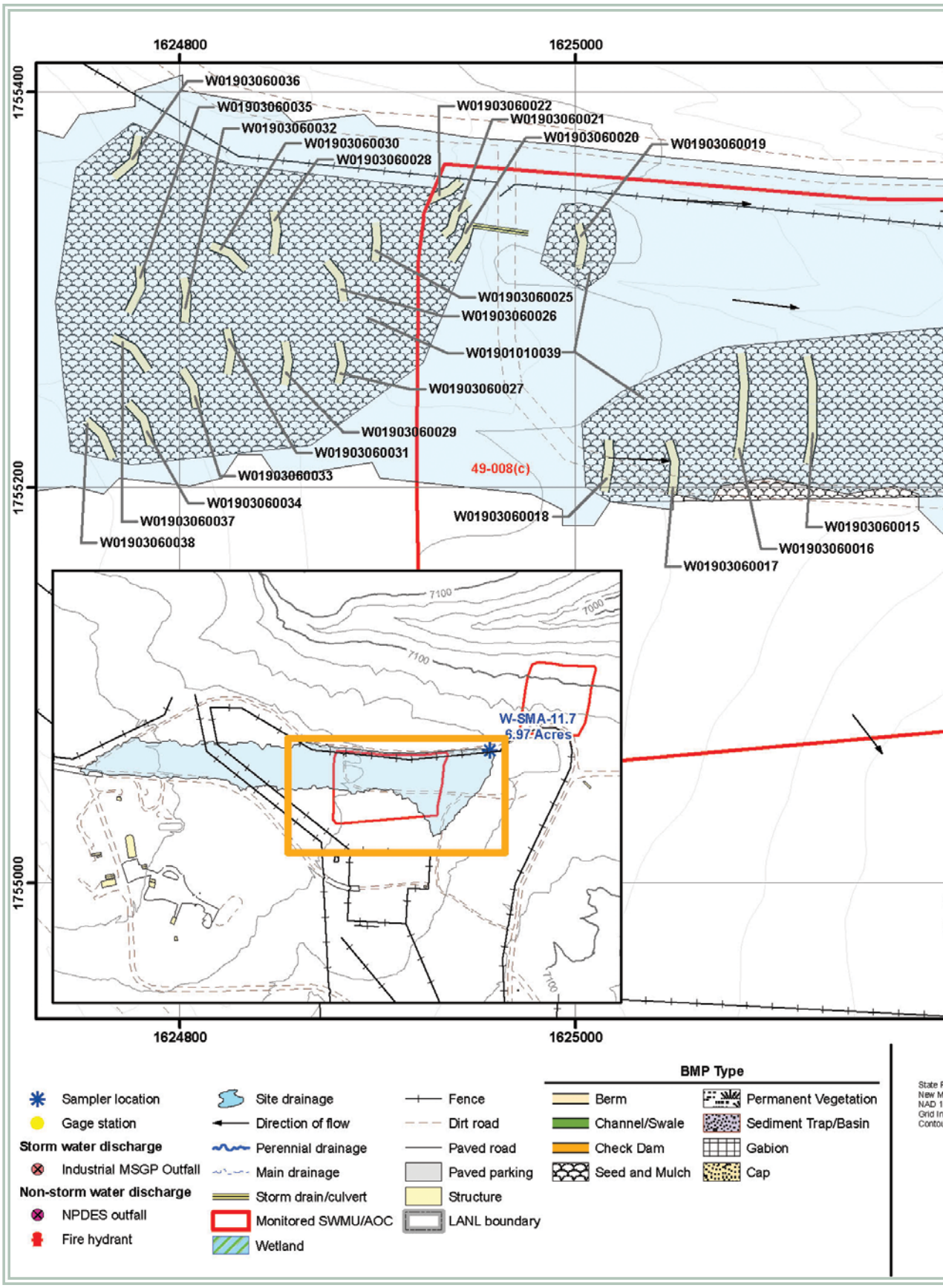
Rip Rap (W019-04-06-0002)

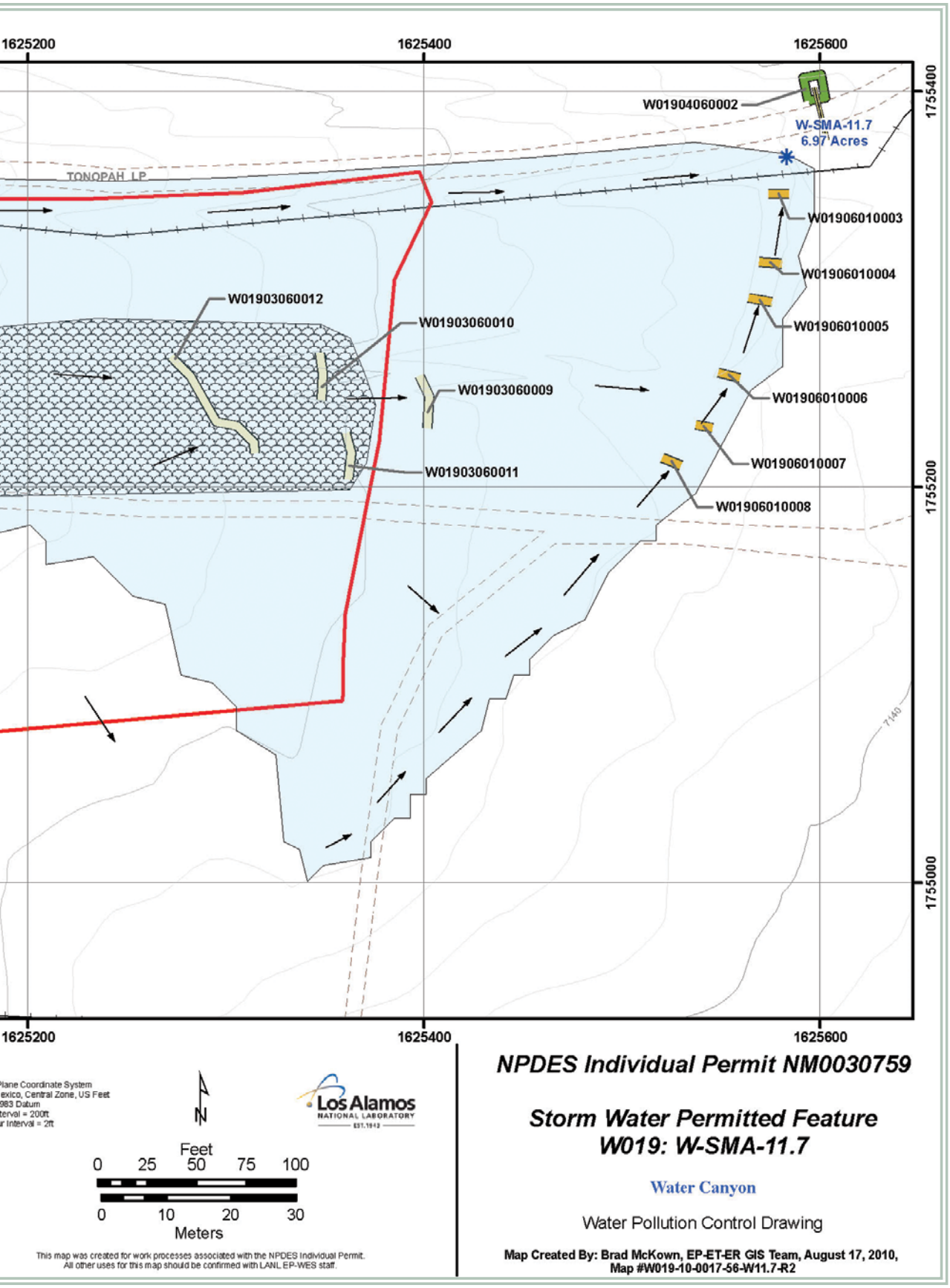
The rip rap is located north of the sampler at the culvert outlet. Its primary function is to help prevent erosion at the outlet. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams - East (W019-06-01-0003, -0004, -0005, -0006, -0007, -0008)

This is a series of six rock check dams located in the drainage channel on the east side of the SMA. They are in place to help mitigate storm water run-off and reduce sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.47.4 Project Map




1625200
1625400
1625600
1755400
1755200
1755000
W01904060002
W-SMA-11.7
6.97 Acres
TONOPAH LP
W01906010003
W01906010004
W01906010005
W01906010006
W01906010007
W01906010008
W01903060012
W01903060010
W01903060009
W01903060011
7140
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W019: W-SMA-11.7
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 17, 2010,
Map #W019-10-0017-56-W11.7-R2

1000.47.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.47.6 Corrective Action Status

The Site associated with W-SMA-11.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.48 W-SMA-12.05

1000.48.1 Area Description

1000.48.2 Potential Pollutant Sources

1000.48.2.1 Historical Industrial Activity Areas

1000.48.3 Control Measures

1000.48.4 Project Map

1000.48.5 Storm Water Monitoring Plan and Schedule

1000.48.6 Corrective Action Status



1000.48 W-SMA-12.05

1000.48.1 Area Description

W-SMA-12.05 is located in TA-49 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further north along this boundary. The southern boundary of the SMA is influenced by a paved access road. The eastern and western boundaries of the SMA are undeveloped.

1000.48.2 Potential Pollutant Sources

1000.48.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W020, W-SMA-12.05, Site 49-001(g).

SWMU 49-001(g) is an area of contaminated surface soil at TA-49 north and east of MDA AB. One incident during construction of a new shaft and three incidents during test experiments resulted in releases of radioactivity to the surface soils comprising this SWMU. The most significant of these releases occurred during construction of shaft 2-M in Area 2. This incident occurred in December 1960, when radioactive contamination was encountered during the drilling of shaft 2-M. Alpha contamination was detected in the shaft, at the surface of the shaft, and on clothing, tools, and vehicles. The contamination encountered at shaft 2-M had been emplaced into the tuff by an experiment previously conducted in adjacent shaft 2-L. Contaminated surface soil was removed and placed in shaft 2-M, along with equipment that was expendable or could not be decontaminated. In January 1961, all open shafts in Area 2 were filled with sand and crushed tuff and the surface of Area 2 was capped with up to six feet of compacted clay and gravel. The cap was extended 12.5 feet beyond the outermost shafts. In September 1961, the cap was paved with four to six inches of asphalt. Since the time of the release, the asphalt cap has been repaired and repaved. In addition, three smaller releases occurred at MDA AB when sampling boxes were opened and surface soil around the shaft and the sampling box became contaminated. Two of the sampling box releases occurred in January and March of 1960 at Area 2 and the third in March of 1961 at Area. Response actions for these releases involved covering the affected soils with concrete. In addition, the two releases at Area 2 subsequently have been covered by the asphalt cap installed in response to the drilling release at shaft 2-M. The release at Area 2B is covered by a 30 x 40 ft concrete slab. Another potential source of soil contamination was the burning of several structures, in 1969, that were contaminated with low levels of radioactivity. In 1999, the ER Project implemented a stabilization plan at SWMUs 49-001(b,c,d and g) that involved IMs and BMPs. These activities were designed to stabilize contamination beneath the asphalt cap and prevent any further moisture infiltration or biological intrusion. These activities included plugging and abandoning borehole CH 2, removing the existing asphalt cap, regrading the site with crushed tuff, placing topsoil over the site, installing biological intrusion barriers, installing erosion controls and, and replacing the security fence around the site. Erosion-control BMPs and the cover are routinely inspected and remain in good condition.

1000.48.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
49-001(g)	Soil contamination (MDA AB)	Discrete Location, No overlap	Individual	•	•	•	HE

1000.48.3 Control Measures

Run-on enters the SMA from the unpaved access road on the southern border of the SMA. Existing controls are to mitigate impacts from this run-on source.

Subsections to 1000.48.3 list all control measures used to control pollutant sources identified in Section 1000.48.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.48.4.

1000.48.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W020 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
W020 03 06 0004	Berms - Straw Wattles		•		•
W020 03 06 0005	Berms - Straw Wattles		•		•
W020 03 06 0006	Berms - Straw Wattles		•		•
W020 03 06 0007	Berms - Straw Wattles		•		•
W020 03 06 0008	Berms - Straw Wattles		•		•
W020 03 06 0009	Berms - Straw Wattles		•		•
W020 03 06 0010	Berms - Straw Wattles		•		•
W020 03 06 0011	Berms - Straw Wattles		•		•
W020 03 06 0012	Berms - Straw Wattles		•		•
W020 03 06 0013	Berms - Straw Wattles		•		•
W020 04 06 0002	Channel/Swale - Rip Rap	•		•	
W020 06 01 0001	Check Dam - Rock		•		•

Established Vegetation (W020-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - West (W020-03-06-0004, -0005, -0006, -0007)

This is a series of four wattles that are located west of the SMA. They are used to help control storm water run-off from the natural area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - North (W020-03-06-0008, -0009, -0010)

This is a series of three wattles located across the drainage channel, just south of the sampler. They are in place to manage storm water run-off from the slope above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - East (W020-03-06-0011, -0012, -0013)

This is a series of three wattles located east of the SMA. They are used to mitigate storm water run-off from the natural areas above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

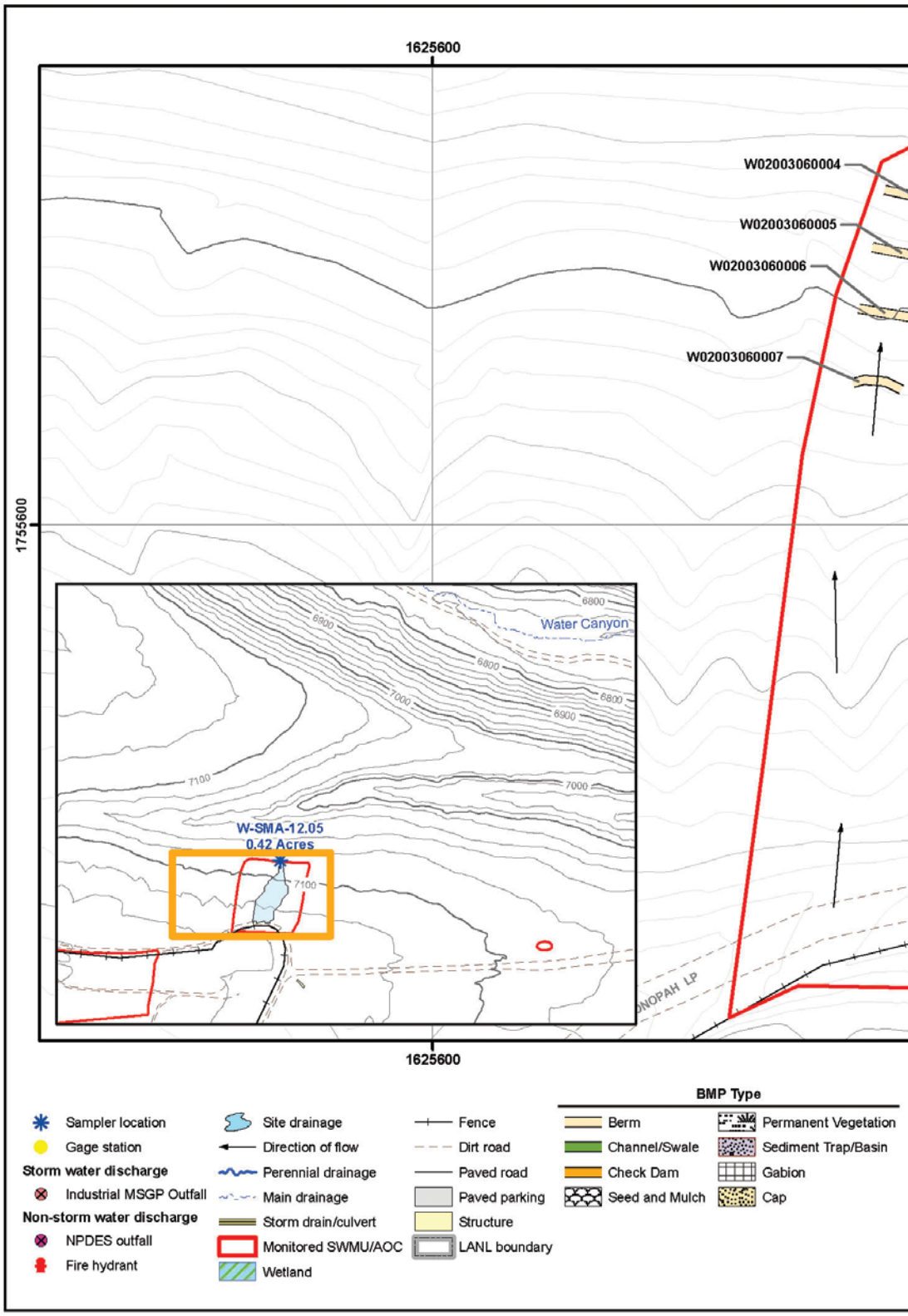
Rip Rap (W020-04-06-0002)

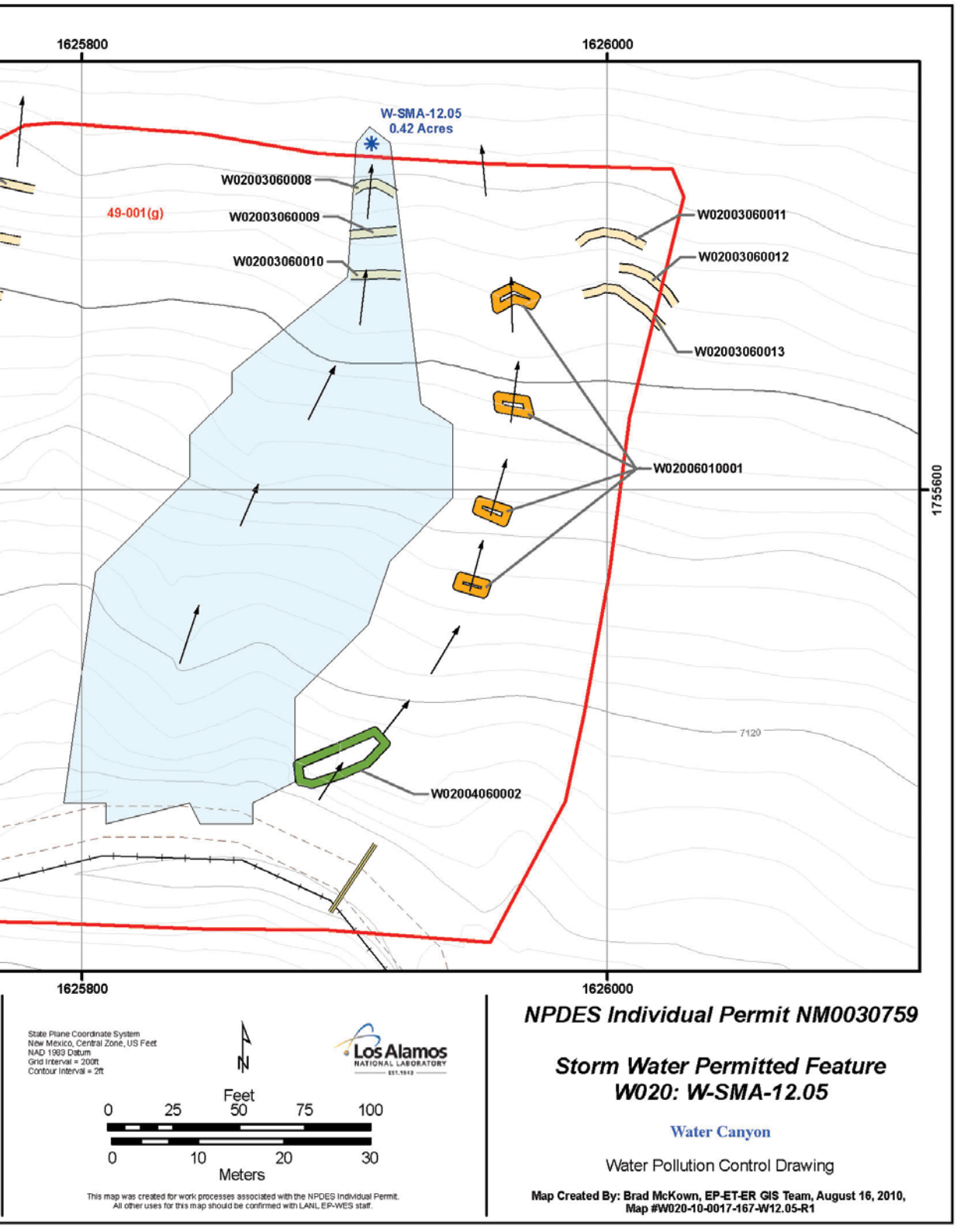
The rip rap is located in the natural drainage channel on the north side of the unpaved access road, near the southeast corner of the SMA. It controls erosion at the head of the natural drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (W020-06-01-0001)

This is a series of check dams located in the natural drainage channel flowing to the north on the eastern side of the SMA. Their purpose if to mitigate run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.48.4 Project Map




1625800
1626000
W-SMA-12.05
0.42 Acres
49-001(g)
W02003060008
W02003060009
W02003060010
W02003060011
W02003060012
W02003060013
W02006010001
W02004060002
1755600
7120
1625800
1626000
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W020: W-SMA-12.05
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 16, 2010,
Map #W020-10-0017-167-W12.05-R1

1000.48.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.48.6 Corrective Action Status

The Site associated with W-SMA-12.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.49 W-SMA-14.1

1000.49.1 Area Description

1000.49.2 Potential Pollutant Sources

1000.49.2.1 Historical Industrial Activity Areas

1000.49.3 Control Measures

1000.49.4 Project Map

1000.49.5 Storm Water Monitoring Plan and Schedule

1000.49.6 Corrective Action Status



1000.49 W-SMA-14.1

1000.49.1 Area Description

W-SMA-14.1 is located in TA-15 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved access roads. The southern boundary of the SMA is influenced by structures and paved areas associated with the operation of the Phermex facility. The receiving waters are along this boundary. The eastern boundary of the SMA is influenced by structures and paved areas associated with the operation of the Phermex facility. The western boundary of the SMA is influenced by paved and unpaved access roads.

1000.49.2 Potential Pollutant Sources

1000.49.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W021, W-SMA-14.1, Sites 15-004(h) and 15-014(l).

AOC 15-004(h) consists of inactive Firing Site H (structure 15-17). This firing site was built in 1948 and operated until 1953. It was used for tests involving larger amounts of explosives than those conducted at Firing Site A. Firing Site H is at the location of the active PHERMEX facility in the southeast corner of TA-15. The old firing point is located approximately 100 feet north of the power control building for PHERMEX (structure 15-185). Of the structures associated with the inactive firing site, only the camera chamber (structure 15-92) remains. The surface of the site was reportedly regraded in 1992. The exact nature of the materials used during tests at this site is unknown, but materials are believed to include depleted uranium, beryllium, lead, and HE. Previous investigations have included an aerial radiological survey in 1982. This survey identified elevated levels of radiation, but these were believed to be associated with activities at PHERMEX, rather than those of the inactive firing site.

The RFI work plan proposed collection of one surface and one subsurface sample from each of nine random sample grid locations around the former firing site and nine biased locations at the former firing point. These samples would be screened for radioactivity, inorganic chemicals, and HE, and selected samples would be submitted for laboratory analysis for uranium and inorganic chemicals. The RFI report indicated that because of its close proximity to PHERMEX, actions at this AOC were being deferred until decommissioning of PHERMEX.

SWMU 15-014(l) is a drain-line and outfall associated with a cooling tower (structure 15-202) located near the PHERMEX facility in the southeast corner of TA-15. This active drain-line and outfall are used to discharge blowdown from structure 15-202, and these discharges flow to Water Canyon. According to ESH-18, the outfall also receives de minimus amounts of heating-system water, deionized water, air-compressor drainage, pump bearing cooling water, floor washings (soap), boiler drainage, and dehalogenation wastewater from the PHERMEX power control building (Building 15-185). This drain-line and outfall currently are in use, but the date that they were first used is unknown. Operations at PHERMEX began in the early 1960s. The outfall currently is included in the NPDES permit as Outfall EPA 03A 028. The permit covers both cooling tower blowdown from structure 15-202 and de minimus discharges from Building 15-185. The only chemicals added to the cooling water used in structure 15-202 are antiscalants and corrosion inhibitors. Two such products have been used at this cooling tower. Both use 2-phosphono-1,2,4-butane-tricarboxylic acid and benzotriazole as active ingredients and one also contains sodium molybdate. None of these constituents meets the definition of a RCRA hazardous waste or constituent.

Hexavalent chromium has never been added to the water at this cooling tower. No previous investigations have been conducted at this SWMU.

Because no documentation suggests that hazardous materials were ever discharged from this outfall, the ER Project recommended NFA for this SWMU. SWMU 15-014(l) was recommended for NFA in the June 2001 permit modification request. The basis for the NFA recommendation was that this site is regulated in accordance with another state and/or federal authority and is not known to release or is suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment.

1000.49.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-004(h)	Firing site H	Co-located, Overlapping	Shared	•	•	•	HE
15-014(l)	Outfalls from former Building 15-202 (renumbered from 15012(e))	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are located within the administrative area of Phermex. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.49.3 Control Measures

There is the potential for significant run-on from paved access roads, parking areas, and roof drainage at this SMA. Existing controls manage sediment migration from the Sites within the SMA.

Subsections to 1000.49.3 list all control measures used to control pollutant sources identified in Section 1000.49.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.49.4.

1000.49.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W021-01-01-0015	Seed and Mulch - Seed and Wood Mulch			•	
W021 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
W021 03 06 0002	Berms - Straw Wattles	•			•
W021 03 06 0003	Berms - Straw Wattles	•			•
W021 03 06 0004	Berms - Straw Wattles	•			•
W021 03 06 0005	Berms - Straw Wattles	•			•
W021 03 06 0006	Berms - Straw Wattles	•			•
W021 03 06 0007	Berms - Straw Wattles	•			•
W021 04 06 0014	Channel/Swale - Rip Rap	•		•	
W021 06 01 0008	Check Dam - Rock	•			•
W021 06 01 0009	Check Dam - Rock	•			•
W021 06 01 0010	Check Dam - Rock	•			•
W021 06 01 0011	Check Dam - Rock	•			•
W021 06 01 0012	Check Dam - Rock		•		•
W021 06 01 0013	Check Dam - Rock		•		•

Seed and Wood Mulch (W021-01-01-0015)

Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (W021-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides

erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (W021-03-06-0002, -0003, -0004, -0005, -0006, -0007)

This is a group of six straw wattles that are located at the southeast corner of structure 15-0185 near the edge of the mesa top. They are in place to help mitigate storm water run-on and stabilize the slope. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap (W021-04-06-0014)

This rip rap is located in the natural area enclosed by the Phermex Road loop near the culvert outlet. It is used primarily to help prevent erosion at the culvert outlet. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

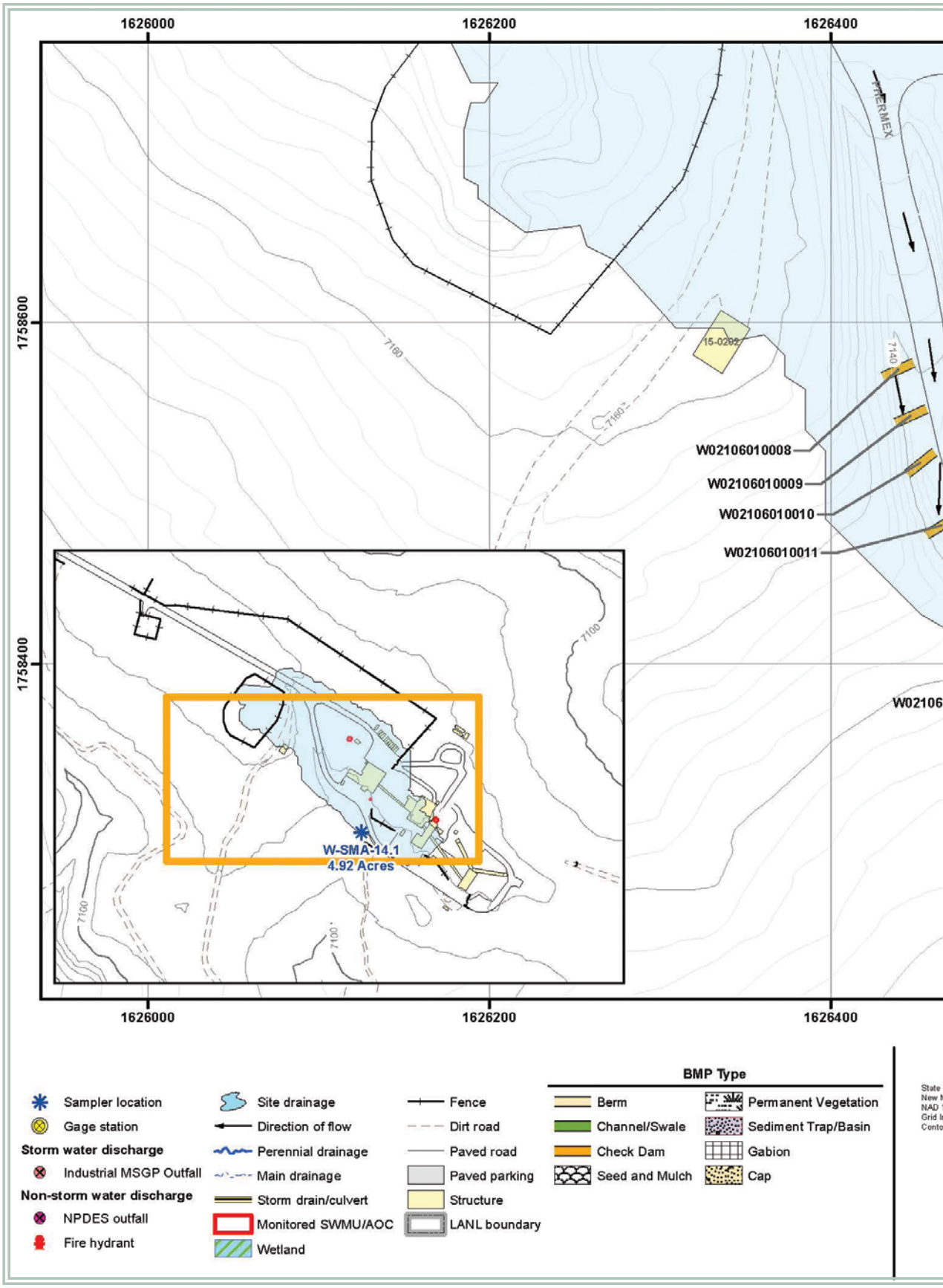
Rock Check Dams (W021-06-01-0008, -0009, -0010, -0011)

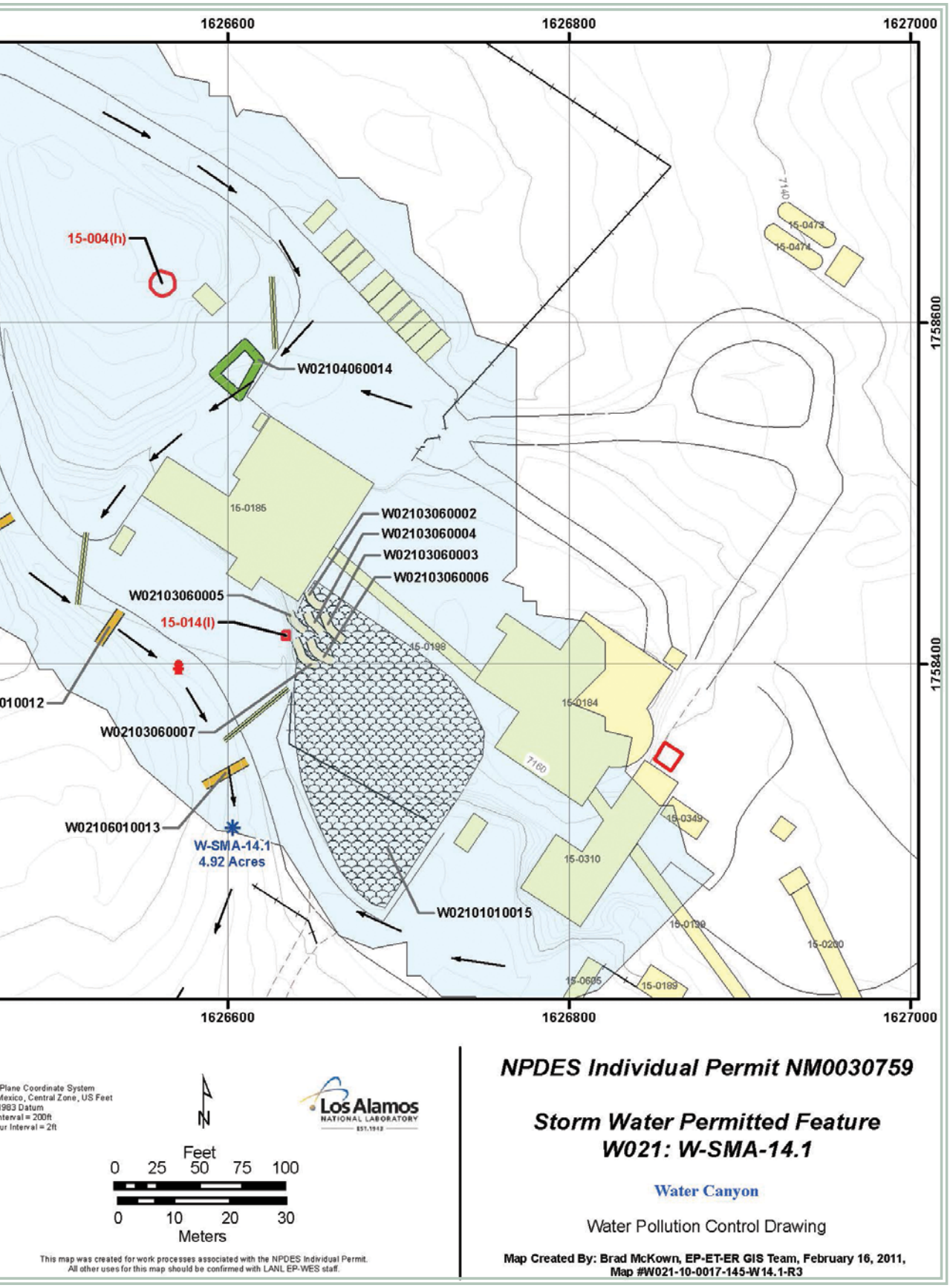
This is a series of four rock check dams located in the drainage west of the paved access road and structure 15-0185. They are used to help control run-on from the paved access road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sedi-ment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - South (W021-06-01-0012, -0013)

This is a pair of check dams that are located in the drainage channel south of structure 15-0185 above the sampler. They are in place to help mitigate storm water run-off from the paved areas above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.49.4 Project Map




1626600
1626800
1627000
1758600
1758400
15-004(h)
W02104060014
15-0185
W02103060002
W02103060004
W02103060003
W02103060006
W02103060005
15-014(I)
15-0198
W02103060007
W02106010013
W-SMA-14.1
4.92 Acres
W02101010015
15-0184
15-0349
15-0310
15-0139
15-0260
15-0605
15-0189
15-0473
15-0474
7140
7160
Plane Coordinate System
Mexico, Central Zone, US Feet
983 Datum
nterval = 200ft
ur Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W021: W-SMA-14.1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 16, 2011,
Map #W021-10-0017-145-W14.1-R3

1000.49.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.49.6 Corrective Action Status

The Sites associated with W-SMA-14.1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.50 W-SMA-15.1

1000.50.1 Area Description

1000.50.2 Potential Pollutant Sources

1000.50.2.1 Historical Industrial Activity Areas

1000.50.3 Control Measures

1000.50.4 Project Map

1000.50.5 Storm Water Monitoring Plan and Schedule

1000.50.6 Corrective Action Status



1000.50 W-SMA-15.1

1000.50.1 Area Description

W-SMA-15.1 is located in TA-49. Access to the area is heavily controlled. The northern boundary of the SMA, slopes towards the receiving waters. The southern boundary of the SMA is an unpaved access road. The eastern and western boundaries of the SMA are undeveloped. Storm water flows in a north-northeasterly direction across the area.

1000.50.2 Potential Pollutant Sources

1000.50.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W022, W-SMA-15.1, Site 49-005(a).

SWMU 49-005(a) is an inactive landfill located at TA-49 east of Area 10 and north of the road that runs east from Area 10. The landfill is approximately 50 to 100 feet northeast of the Area 10 experimental chamber and shafts. The landfill reportedly was constructed in 1984 as a disposal area for non-radiological contaminated debris that resulted from the 1984 general surface cleanup of TA-49. The wastes reportedly consisted primarily of wood and small pieces of metal.

1000.50.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
49-005(a)	Landfill (east of Area 10)	Discrete Location, No overlap	Individual	•		•	

1000.50.3 Control Measures

There is no run-on to this SMA and no evidence of run-off.

Subsections to 1000.50.3 list all control measures used to control pollutant sources identified in Section 1000.50.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.50.4.

1000.50.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
W022 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
W022 06 01 0003	Check Dam - Rock		•		•

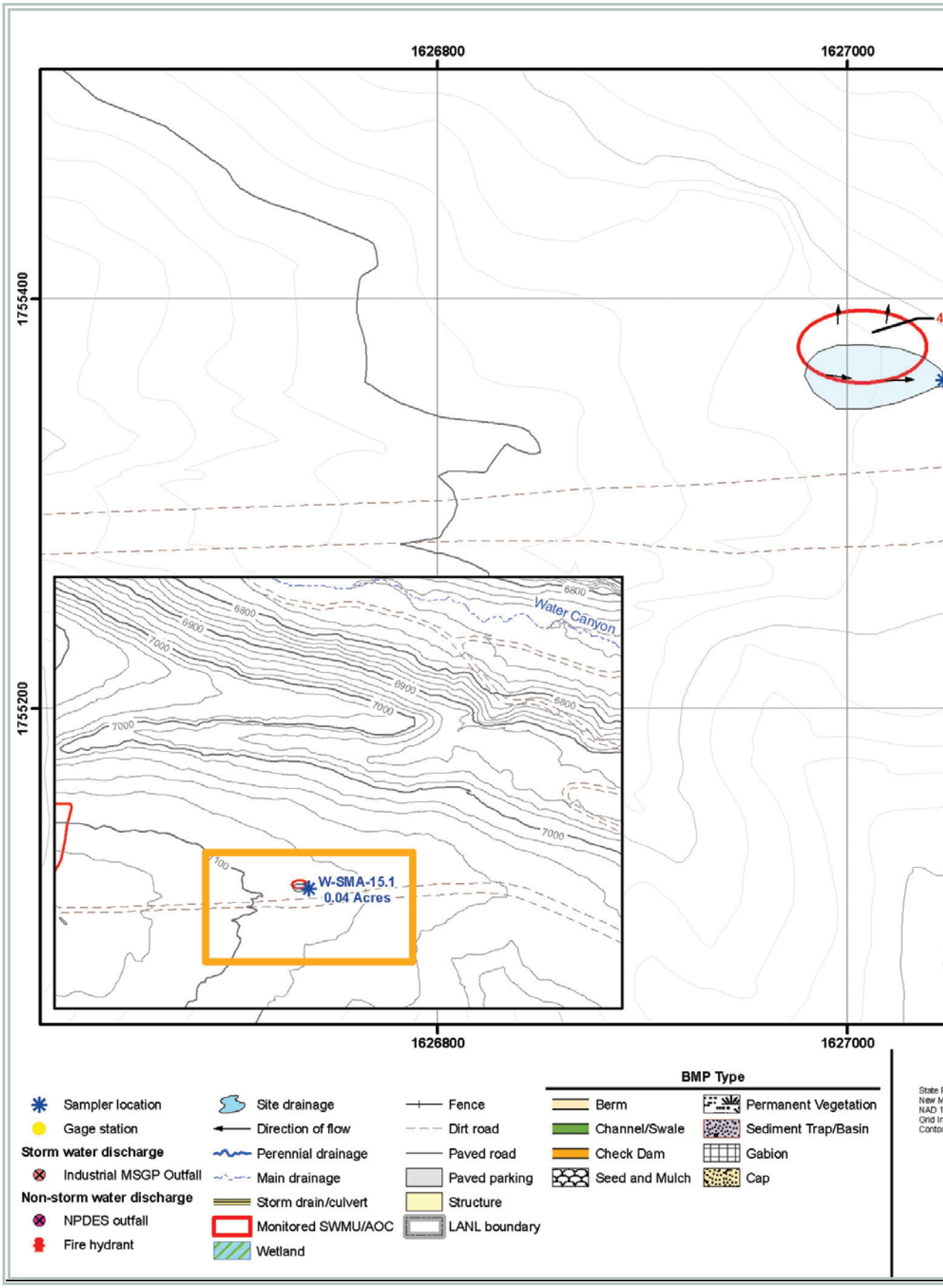
Established Vegetation (W022-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Check Dam (W022-06-01-0003)

This check dam is located east of the sampler and is used to help control storm water run-off. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.50.4 Project Map



1627200
1627400
1755400
1755200
9-005(a)
W-SMA-15.1
0.04 Acres
W02206010003
7080
Plane Coordinate System
exico, Central Zone, US Feet
983 Datum
terval = 200ft
r Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W022: W-SMA-15.1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 18, 2010,
Map #W022-10-0017-163-W15.1-R3

1000.50.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

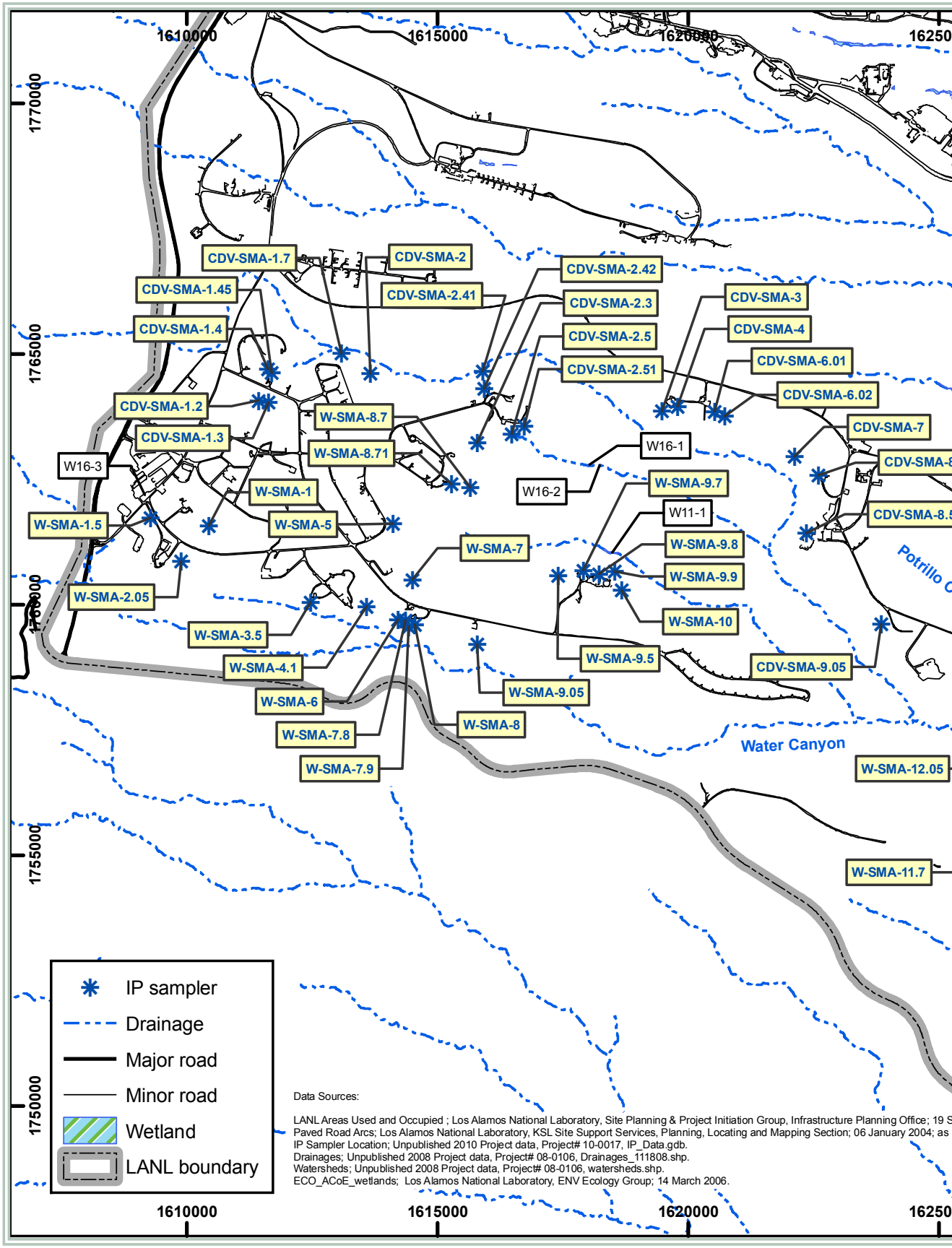
1000.50.6 Corrective Action Status

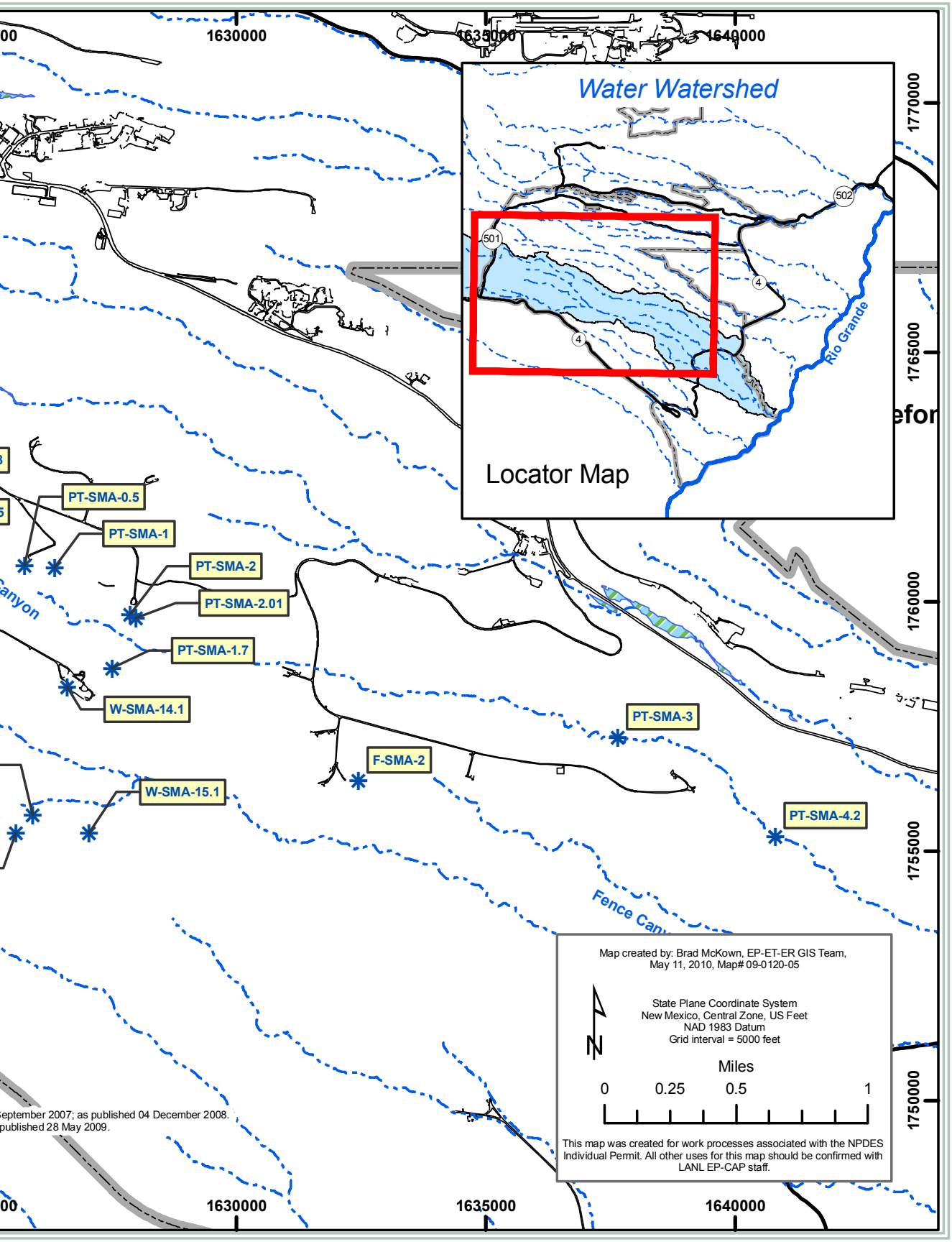
The Site associated with W-SMA-15.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

ATTACHMENT A
AMENDMENTS

[Reserved]

ATTACHMENT B
VICINITY MAP




Water Watershed
Locator Map
Rio Grande
PT-SMA-0.5
PT-SMA-1
PT-SMA-2
PT-SMA-2.01
PT-SMA-1.7
W-SMA-14.1
W-SMA-15.1
F-SMA-2
PT-SMA-3
PT-SMA-4.2
Fence Can
1630000
1635000
1640000
1770000
1765000
1760000
1755000
1750000
Map created by: Brad McKown, EP-ET-ER GIS Team,
May 11, 2010, Map# 09-0120-05
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 5000 feet
Miles
0 0.25 0.5 1
This map was created for work processes associated with the NPDES Individual Permit. All other uses for this map should be confirmed with LANL EP-CAP staff.
September 2007; as published 04 December 2008.
published 28 May 2009.

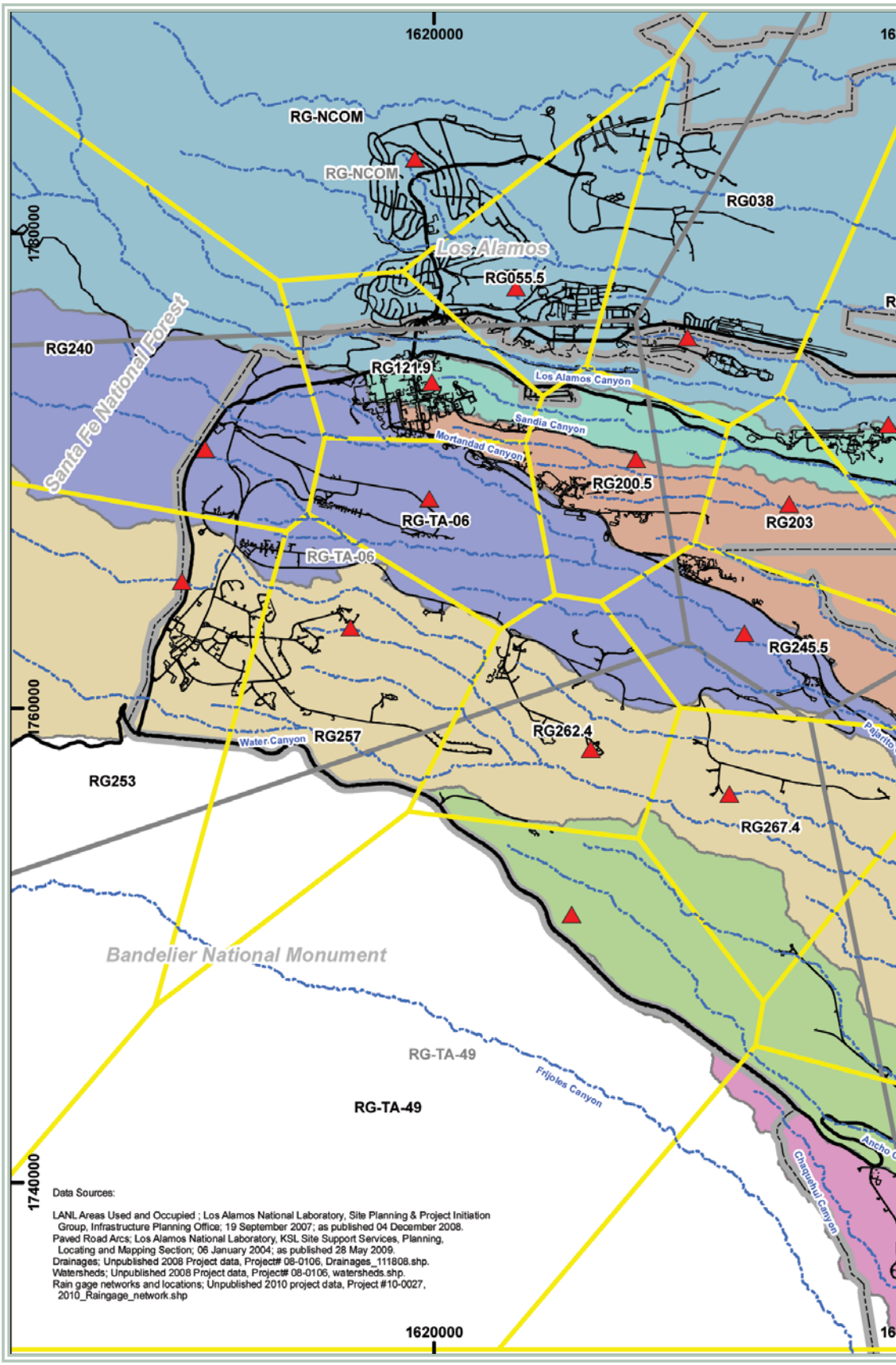
ATTACHMENT C
PRECIPITATION NETWORK

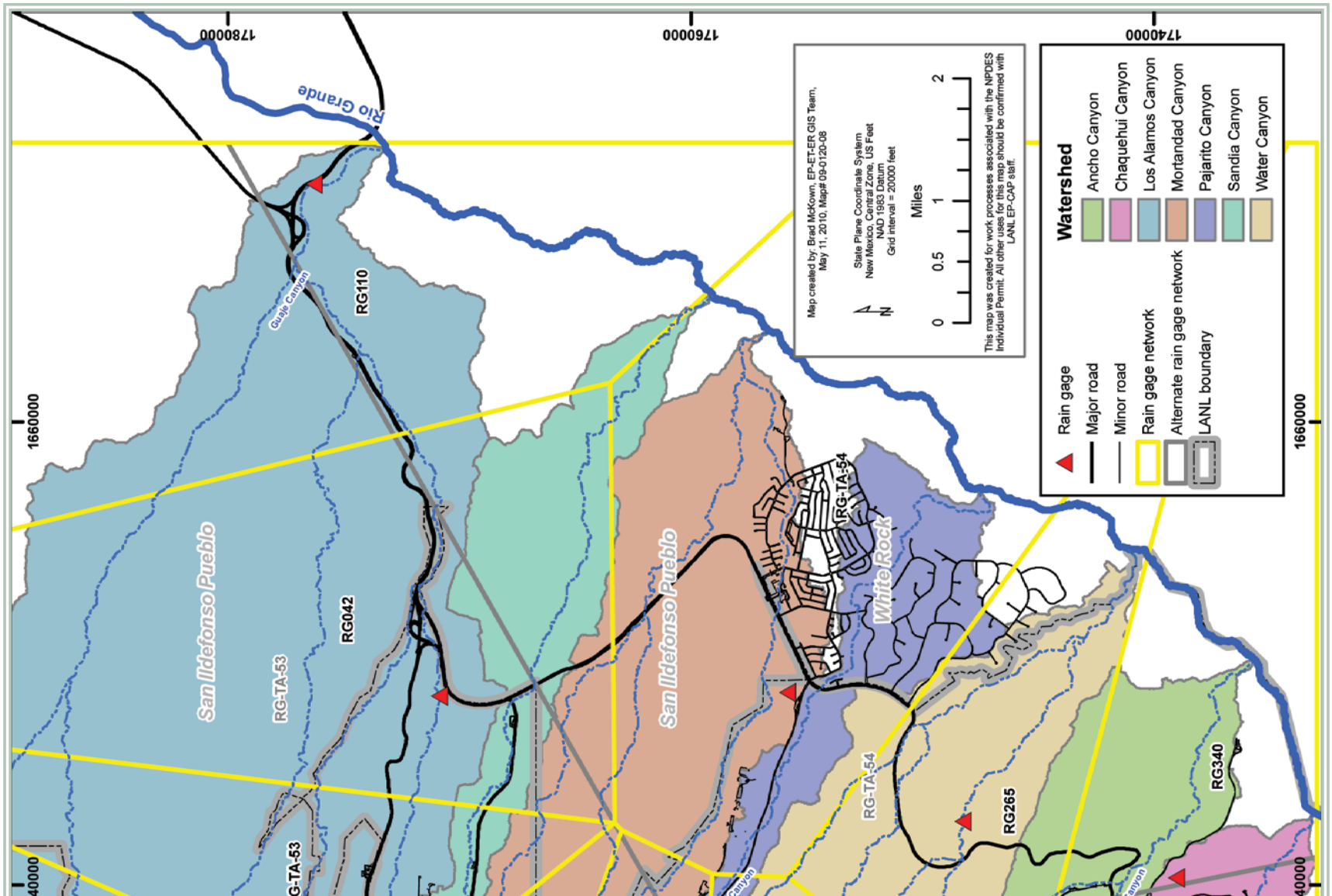
SMA Number	Rain Gage	Alternate Gage
CDV-SMA-1.2	RG253	RG-TA-06
CDV-SMA-1.3	RG253	RG-TA-06
CDV-SMA-1.4	RG253	RG-TA-06
CDV-SMA-1.45	RG253	RG-TA-06
CDV-SMA-1.7	RG253	RG-TA-06
CDV-SMA-2	RG257	RG-TA-06
CDV-SMA-2.3	RG257	RG-TA-06
CDV-SMA-2.41	RG257	RG-TA-06
CDV-SMA-2.42	RG257	RG-TA-06
CDV-SMA-2.5	RG257	RG-TA-06
CDV-SMA-2.51	RG257	RG-TA-06
CDV-SMA-3	RG257	RG-TA-06
CDV-SMA-4	RG257	RG-TA-06
CDV-SMA-6.01	RG257	RG-TA-06
CDV-SMA-6.02	RG257	RG-TA-06
CDV-SMA-7	RG257	RG-TA-06
CDV-SMA-8	RG262.4	RG-TA-06
CDV-SMA-8.5	RG262.4	RG-TA-06
CDV-SMA-9.05	RG262.4	RG-TA-49
F-SMA-2	RG267.4	RG-TA-49
PT-SMA-0.5	RG262.4	RG-TA-49
PT-SMA-1	RG262.4	RG-TA-49
PT-SMA-1.7	RG262.4	RG-TA-49
PT-SMA-2	RG262.4	RG-TA-49
PT-SMA-2.01	RG262.4	RG-TA-49

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

SMA Number	Rain Gage	Alternate Gage
PT-SMA-3	RG267.4	RG-TA-54
PT-SMA-4.2	RG267.4	RG-TA-54
W-SMA-1	RG253	RG-TA-06
W-SMA-1.5	RG253	RG-TA-06
W-SMA-2.05	RG253	RG-TA-06
W-SMA-3.5	RG257	RG-TA-06
W-SMA-4.1	RG257	RG-TA-06
W-SMA-5	RG257	RG-TA-06
W-SMA-6	RG257	RG-TA-06
W-SMA-7	RG257	RG-TA-06
W-SMA-7.8	RG257	RG-TA-06
W-SMA-7.9	RG257	RG-TA-06
W-SMA-8	RG257	RG-TA-06
W-SMA-8.7	RG257	RG-TA-06
W-SMA-8.71	RG257	RG-TA-06
W-SMA-9.05	RG257	RG-TA-06
W-SMA-9.5	RG257	RG-TA-06
W-SMA-9.7	RG257	RG-TA-06
W-SMA-9.8	RG257	RG-TA-06
W-SMA-9.9	RG257	RG-TA-06
W-SMA-10	RG257	RG-TA-06
W-SMA-11.7	RG262.4	RG-TA-49
W-SMA-12.05	RG262.4	RG-TA-49
W-SMA-14.1	RG262.4	RG-TA-49
W-SMA-15.1	RG262.4	RG-TA-49

ATTACHMENT C
PRECIPITATION NETWORK (Continued)




Rio Grande
Guaje Canyon
RG110
RG042
RG-TA-53
San Ildefonso Pueblo
RG-TA-54
White Rock
RG265
RG340
1780000
1760000
1740000
1660000
1640000
Map created by: Brad McKown, EP-ET-ER GIS Team,
May 11, 2010, Map# 09-0120-08
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 20000 feet
Miles
0 0.5 1 2
This map was created for work processes associated with the NPDES Individual Permit. All other uses for this map should be confirmed with LANL EP-CAP staff.
Watershed
Ancho Canyon
Chaquehui Canyon
Los Alamos Canyon
Mortandad Canyon
Pajarito Canyon
Sandia Canyon
Water Canyon
Rain gage
Major road
Minor road
Rain gage network
Alternate rain gage network
LANL boundary

ATTACHMENT D
PHYSICAL CHARACTERISTICS

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate	Sampler Y Coordinate	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Potrillo	I001	PT-SMA-0.5	1,625,751.01	1,760,731.05	318,686.70	15-009(e) C-15-004	57.42 65.85
Potrillo	I002	PT-SMA-1	1,626,351.01	1,760,695.05	209,294.32	15-004(f) 15-008(a)	20,138.89 825.97
Potrillo	I003	PT-SMA-1.7	1,627,504.49	1,758,677.78	70,545.34	15-006(a)	0.00
Potrillo	I004	PT-SMA-2	1,627,867.01	1,759,759.05	128,520.54	15-008(f) 36-003(b) 36-004(e)	2,906.56 641.17 4,895.21
Potrillo	I004A	PT-SMA-2.01	1,627,976.76	1,759,680.16	33,690.78	C-36-001 C-36-006(e)	0.77 1,619.03
Potrillo	I005	PT-SMA-3	1,637,651.37	1,757,291.05	32,567,818.38	36-004(a) 36-006	5,923.61 22,024.28
Potrillo	I007	PT-SMA-4.2	1,640,805.24	1,755,302.34	46,479,584.84	36-004(d)	4,745.93
Fence	F001	F-SMA-2	1,632,446.60	1,756,417.57	1,710,990.84	36-004(c)	8,461.12
Cañon de Valle	V001	CDV-SMA-1.2	1,611,431.63	1,764,078.41	71,098.60	16-017(b)-99 16-029(k)	1,891.44 9,387.79
Cañon de Valle	V002	CDV-SMA-1.3	1,611,628.38	1,764,035.60	5,081.36	16-017(a)-99 16-026(m)	0.00 1,979.83
Cañon de Valle	V003	CDV-SMA-1.4	1,611,616.31	1,764,707.41	1,103,638.73	16-020 16-026(l) 16-028(c) 16-030(c)	22,202.52 1.52 1,140.45 0.77
Cañon de Valle	V004	CDV-SMA-1.45	1,611,691.44	1,764,622.12	745.98	16-026(i)	371.83
Cañon de Valle	V005	CDV-SMA-1.7	1,613,079.93	1,765,017.87	6,008.01	16-019	6,107.99
Cañon de Valle	V006	CDV-SMA-2	1,613,662.52	1,764,601.60	141,784.03	16-021(c)	826.05
Cañon de Valle	V007	CDV-SMA-2.3	1,615,797.68	1,763,255.41	4,414,721.62	13-001 13-002 16-003(n) 16-003(o) 16-029(h) 16-031(h)	151,726.59 32,210.35 3,775.42 66,548.37 917.51 440.35
Cañon de Valle	V008	CDV-SMA-2.41	1,615,900.15	1,764,662.14	105,008.00	16-018	40,161.61
Cañon de Valle	V008A	CDV-SMA-2.42	1,615,932.12	1,764,311.23	27,010.00	16-010(b)	17,216.77
Cañon de Valle	V009	CDV-SMA-2.5	1,616,475.01	1,763,407.05	1,007,115.83	16-010(c) 16-010(d) 16-028(a)	25,089.01 28,219.01 11,573.35
Cañon de Valle	V009A	CDV-SMA-2.51	1,616,733.40	1,763,567.35	130,340.52	16-010(i)	3,552.40

ATTACHMENT D
PHYSICAL CHARACTERISTICS (Continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate	Sampler Y Coordinate	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Cañon de Valle	V010	CDV-SMA-3	1,619,475.01	1,763,859.05	14,716.22	14-009	1,325.37
Cañon de Valle	V011	CDV-SMA-4	1,619,783.01	1,763,959.05	1,802.01	14-010	63.31
Cañon de Valle	V012	CDV-SMA-6.01	1,620,528.13	1,763,868.71	53,452.22	14-001(g) 14-006	0.77 530.52
Cañon de Valle	V012A	CDV-SMA-6.02	1,620,724.81	1,763,758.71	3,799.18	14-002(d) 14-002(e)	790.03 835.62
Cañon de Valle	V013	CDV-SMA-7	1,622,123.01	1,762,963.05	15,991.04	15-008(d)	391.32
Cañon de Valle	V014	CDV-SMA-8	1,622,591.01	1,762,583.05	1,059,672.69	15-011(c)	0.00
Cañon de Valle	V015	CDV-SMA-8.5	1,622,358.59	1,761,436.00	6,183.46	15-014(a)	87.44
Cañon de Valle	V016	CDV-SMA-9.05	1,623,846.19	1,759,616.49	85,514.04	15-007(b)	11,687.07
Water	W001	W-SMA-1	1,610,435.01	1,761,579.05	1,579,254.32	16-017(j)-99 16-026(c2) 16-026(v)	698.75 763.13 18,729.71
Water	W002	W-SMA-1.5	1,609,271.01	1,761,739.05	346,851.64	16-026(b2) 16-028(d)	1,521.22 3,205.49
Water	W003	W-SMA-2.05	1,609,892.00	1,760,865.23	38,238.00	16-028(e)	10,540.86
Water	W004	W-SMA-3.5	1,612,463.01	1,760,051.05	79,999.28	16-026(y)	1,422.74
Water	W005	W-SMA-4.1	1,613,587.01	1,759,967.05	13,457.43	16-003(a)	608.80
Water	W006	W-SMA-5	1,614,100.66	1,761,619.05	3,106,212.41	16-001(e) 16-003(f) 16-026(b) 16-026(c) 16-026(d) 16-026(e)	211.80 12,124.96 2,770.92 12,687.24 7,240.26 6,643.32
Water	W007	W-SMA-6	1,614,205.22	1,759,701.93	3,352.44	11-001(c)	1,187.35
Water	W008	W-SMA-7	1,614,498.62	1,760,510.55	98,139.69	16-026(h2)	22,572.70
Water	W009	W-SMA-7.8	1,614,363.01	1,759,695.05	68,927.10	16-031(a)	1,947.70
Water	W010	W-SMA-7.9	1,614,423.01	1,759,563.05	293.51	16-006(c)	274.49
Water	W011	W-SMA-8	1,614,539.50	1,759,599.05	72,474.70	16-016(g) 16-028(b)	0.77 2,727.77
Water	W012	W-SMA-8.7	1,615,647.01	1,762,343.05	753,727.65	13-001 13-002 16-004(a) 16-026(j2) 16-029(h) 16-035	131,627.22 137,435.01 602.27 14,230.37 4,770.03 1,429.78
Water	W012A	W-SMA-8.71	1,615,273.31	1,762,405.92	1,012.98	16-004(c)	323.11
Water	W013	W-SMA-9.05	1,615,787.17	1,759,218.10	37,066.41	16-030(g)	9,984.21
Water	W014	W-SMA-9.5	1,617,408.78	1,760,581.46	4,115.62	11-012(c)	929.46

ATTACHMENT D
PHYSICAL CHARACTERISTICS (Continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate	Sampler Y Coordinate	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Water	W015	W-SMA-9.7	1,617,907.85	1,760,690.84	6,496.60	11-011(a) 11-011(b)	163.16 52.29
Water	W016	W-SMA-9.8	1,618,223.36	1,760,620.56	444.31	11-005(c)	179.36
Water	W017	W-SMA-9.9	1,618,535.01	1,760,663.05	13,987.15	11-006(b)	1,713.60
Water	W018	W-SMA-10	1,618,681.12	1,760,291.05	337,409.32	11-002 11-003(b) 11-005(a) 11-005(b) 11-006(c) 11-006(d) 11-011(d)	6,848.23 8,878.77 1,687.45 1,723.33 2,115.86 1,343.42 96.85
Water	W019	W-SMA-11.7	1,625,583.01	1,755,367.05	303,605.32	49-008(c)	84,627.27
Water	W020	W-SMA-12.05	1,625,910.18	1,755,732.03	18,490.24	49-001(g)	18,378.50
Water	W021	W-SMA-14.1	1,626,602.94	1,758,304.07	214,290.19	15-004(h) 15-014(l)	163.74 19.27
Water	W022	W-SMA-15.1	1,627,047.11	1,755,360.79	1,624.22	49-005(a)	778.72

ATTACHMENT E
PROCEDURAL DOCUMENTS

Procedure	Title	Summary
EP-SOP-5211	Surface Water Site Assessments	This SOP describes the process for conducting the annual erosion re-evaluation. The procedure identifies responsible participants and provides a detailed checklist to evaluate the erosion potential at a Site permitted under the IP. Erosion matrix scores range from 1 to 100 and are qualitatively determined based on a systematic assessment of the Site. The assessment involves an evaluation of the Site setting, examination of the Site for evidence of runoff and erosion, and documentation of structures and/or operations that are directing storm water onto the Site.
SOP-5213	Inspecting storm water runoff samplers and retrieving samples	This procedure describes the process for inspecting ISCO storm water runoff samplers and retrieving storm water runoff samples from all locations where the Los Alamos National Laboratory (LANL) conducts storm water sampling activities. This procedure applies to the storm water project technical staff and subcontractor personnel conducting activities at storm water sampler stations.
SOP-5215	Processing Storm Water Samples	Describes the processing of storm water samples in the laboratory at TA-59 and preparation of samples for shipping.

ATTACHMENT E
PROCEDURAL DOCUMENTS (continued)

Procedure	Title	Summary
SOP-5217	Inspecting, Maintaining, and Installing Control Measures	Describes the steps to inspect, maintain when necessary, and install new control measures (formerly called BMPs) for the Individual Permit Compliance Project.
SOP-5219	Photograph Management	Describes how to log in, process, and submit to records photos that are taken in the field.
SOP-5220, R0	EX-ID/PR-ID Project Reviews for the IP	Describes the assignment of review responsibilities, documentation of reviews, and followup actions for projects with potential impacts to SMAs.
EP-DIV-SOP-10004	Managing Electronic Precipitation Data for Storm Water Projects	This standard operating procedure (SOP) states the responsibilities and describes the process for managing electronic precipitation measurement data collected for use by LANL storm water programs. Electronic data management processes include: downloading electronic data from remote data loggers and/or the LANL Weather Machine; processing the raw data files; uploading electronic data from the remote data loggers into Hydstra ©; calculating the 24-hour cumulative amount, storm duration, and maximum 30-minute storm intensity; and transferring the calculated precipitation results to the Storm Water Tracking System (SWTS).

ATTACHMENT E
PROCEDURAL DOCUMENTS (continued)

Procedure	Title	Summary
EP-DIV-SOP-10005	Operation and Maintenance of Gage Stations for Storm Water Projects	This procedure describes the installation, verification, activation, inspection, maintenance, seasonal deactivation, and permanent decommissioning of surface water gaging stations and the rain gage that is installed at some gage stations. Gage station equipment and electronic instruments include flumes, weirs, stilling wells, electronic data loggers, transducers for stage (water level) measurement, digital cell phones and telemetry, solar battery-charging equipment, and electronic rain gages. This procedure also describes how to obtain supplemental flow measurements in flowing streams.
EP-DIV-SOP-10008	Installing, Setting Up, and Operating ISCO Samplers	This procedure describes the installation, setup, programming, and operation of Teledyne ISCO model 3700 full-size portable automated samplers used to collect storm water runoff samples. This procedure applies to the project and contractor personnel conducting operation and maintenance activities at stream gaging stations and single stage stations.

ATTACHMENT F
TRAINING LOG

(Reserved)

ATTACHMENT G
ACRONYMS

AOC	Area of Concern
ATAL	Average Target Action Level
Control	Best Management Practice
CEARP	Comprehensive Environmental Assessment and Response Program
CMP	Corrugated Metal Pipe
CWA	Clean Water Act
D & D	Decontamination and Decommissioning
DL	Detectable Level
DU	Depleted Uranium
EPA	Environmental Protection Agency
FFCA	Federal Facility Compliance Agreement
HEs	High Explosives
IP	NPDES Permit No. NM0030759
JCNNM	Johnson Controls Northern New Mexico
LACP	Los Alamos Characterization Program
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security
MDA	Material Disposal Area
MQL	Minimum Quantification Level
MSGP	Multi-Sector General Permit
MTAL	Maximum Target Action Level
NMED	New Mexico Environmental Department
NMFS	National Marine Fisheries Service
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
OEW	Ordnance and Explosive Waste
PCBs	Polychlorinated biphenyl
PF	Permitted Feature
PPT	Pollution Prevention Team
RADS	Radioactive Pollutants
RCRA	Resource Conservation and Recovery Act
RFI	Remedial Facilities Investigation
RLW	Radioactive Liquid Waste
SAA	Satellite Accumulation Area
SDPPP	Site Discharge Pollution Prevention Plan
SMA	Site Monitoring Area
SWMU	Solid Waste Management Unit
SWTS	Storm Water Tracking System
TA	Technical Area
TALs	Target Action Levels
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
USFWS	United States Fish & Wildlife Service
UXO	Unexploded Ordnance
VCA	Voluntary Corrective Action
VCP	Vitrified Clay Pipe
WPCD	Water Pollution Control Drawing
WQDB	Water Quality Database
WWTP	Waste Water Treatment Plan

REFERENCES

The following list includes documents used in the preparation of this plan. The reference list is provided to allow the reader to search additional sources of information and serves as a starting point for further research. Where provided, parenthetical information following each reference provides the author(s), publication date, and ER ID number. ER ID numbers are assigned by the Environmental Programs Directorate's Record Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set. Copies of these references are maintained at the NMED Hazardous Waste Bureau; the U.S. Department of Energy–Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6; and the Directorate.

LANL (Los Alamos National Laboratory) 1990. "*Solid Waste Management Units Report*," Vol. II of IV (TA-10 through TA-25), Los Alamos National Laboratory document LA-UR-90-3400, prepared by International Technology Corporation under Contract 9-XS8-0062R-1, Los Alamos, New Mexico. (LANL 1990, 007512)

LANL (Los Alamos National Laboratory) 1990. "*Solid Waste Management Units Report*," Vol. III of IV (TA-26 through TA-50), Los Alamos National Laboratory document LA-UR-90-3400, prepared by International Technology Corporation under Contract 9-XS8-0062R-1, Los Alamos, New Mexico. (LANL 1990, 007512)

LANL (Los Alamos National Laboratory) 2006. "*Summary of Watersheds Potentially Impacted by the Los Alamos National Laboratory*", Los Alamos National Laboratory document LA-UR-06-05387, Los Alamos, New Mexico

LANL (Los Alamos National Laboratory) 2008. "*2008 Interim Facility-Wide Groundwater Monitoring Plan*", Los Alamos National Laboratory document LA-UR-08-3273, Los Alamos, New Mexico

NMED (New Mexico Environment Department) 2008. "*Re: Approval of Los Alamos National Laboratory Proposal for No Further Action*", "New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Los Alamos, New Mexico. (NMED 2008, HWB-LANL-02-019)

US Army Corps of Engineers Albuquerque District 2005. "*Wetlands Delineation Report Los Alamos National Laboratory Los ALamos, New Mexico*", (COE 2005) [COE 2005]