INDIVIDUAL NPDES PERMIT REQUEST FOR FORCE MAJEURE, SOLID WASTE MANAGEMENT UNIT 54-017

1.0 SUMMARY OF REQUEST

The U.S. Environmental Protection Agency (EPA) issued National Pollutant Discharge Elimination System (NPDES) Permit No. NM0030759 (the Individual Permit or IP) to the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) (the Permittees) on September 30, 2010. The IP authorizes discharges of storm water associated with industrial materials from specified solid waste management units (SWMUs) and areas of concern (AOCs) at Los Alamos National Laboratory (the Laboratory). These 405 SWMUs and AOCs, collectively referred to as "Sites," are divided into 63 high-priority and 342 moderate-priority Sites.

The IP requires the Permittees to complete corrective action at high-priority sites within 3 yr of the IP's effective date of November 1, 2013. Part I.E.4(c) provides that EPA may approve an extension to this deadline if the Permittees can demonstrate a force majeure has resulted, or will result, in a delay in meeting the obligation to complete corrective action. Force majeure includes, among other things, "*the inability to obtain the necessary authorizations, approvals, permits or licenses due to an action or inaction by another governmental authority*" [Part I.E.4(c)].

The Permittees seek EPA approval to extend the IP deadline for corrective action for SWMU 54-017, a high-priority site located at Technical Area 54 (TA-54), Area G. The basis for this request, as explained more thoroughly below, is that the Permittees are pursuing Resource Conservation and Recovery Act (RCRA) corrective action for this same site under the March 2005 Compliance Order on Consent (RCRA Consent Order). DOE and LANS have requested that the New Mexico Environment Department (NMED) approve a corrective measures evaluation (CME) for Material Disposal Area (MDA) G (which includes SWMU 54-017) that recommended the construction and implementation of a robust permanent cover as part of the remedy under the RCRA Consent Order. This cover, when constructed, will completely eliminate exposure of any industrial materials in all of the SWMUs composing MDA G to storm water, thereby completing corrective action under Part I.E.2(c). The RCRA Consent Order currently contains a December 2015 deadline to implement the remedy at MDA G. The actual schedule to implement this remedy, however, is dependent upon NMED approval through a regulatory process that is outside the control of the Permittees. Further, it is technically and practicably infeasible to implement a different type of corrective action under Part I.E.2 or construct an interim cover at this Site under the IP.

2.0 SITE DESCRIPTION

SWMU 54-017, which operated from 1959 to 1980, is located in the eastern portion of Area G. The locations of TA-54 and Area G are shown in Figure 1. Area G is located on the top of Mesita del Buey and is bounded by canyons to the north and south. MDA G, which consists of subsurface disposal units within Area G, encompasses eight other SWMUs in addition to SWMU 54-017 (see Figure 2).

SWMU 54-017 consists of 19 inactive disposal pits that were used to dispose of radioactive and mixed wastes (see Figure 2). The depths of these pits range from 8 ft to 65 ft below the original ground surface. Four of these SWMUs [i.e., 54-013(b), 54-017, 54-018, and 54-020] are high-priority sites. Although other SWMUs at MDA G were used to dispose of polychlorinated biphenyl (PCB) wastes (e.g., SWMU 54-020), SWMU 54-017 was not. As discussed in more detail below, operational covers were placed over these disposal pits when they were no longer used for waste disposal.

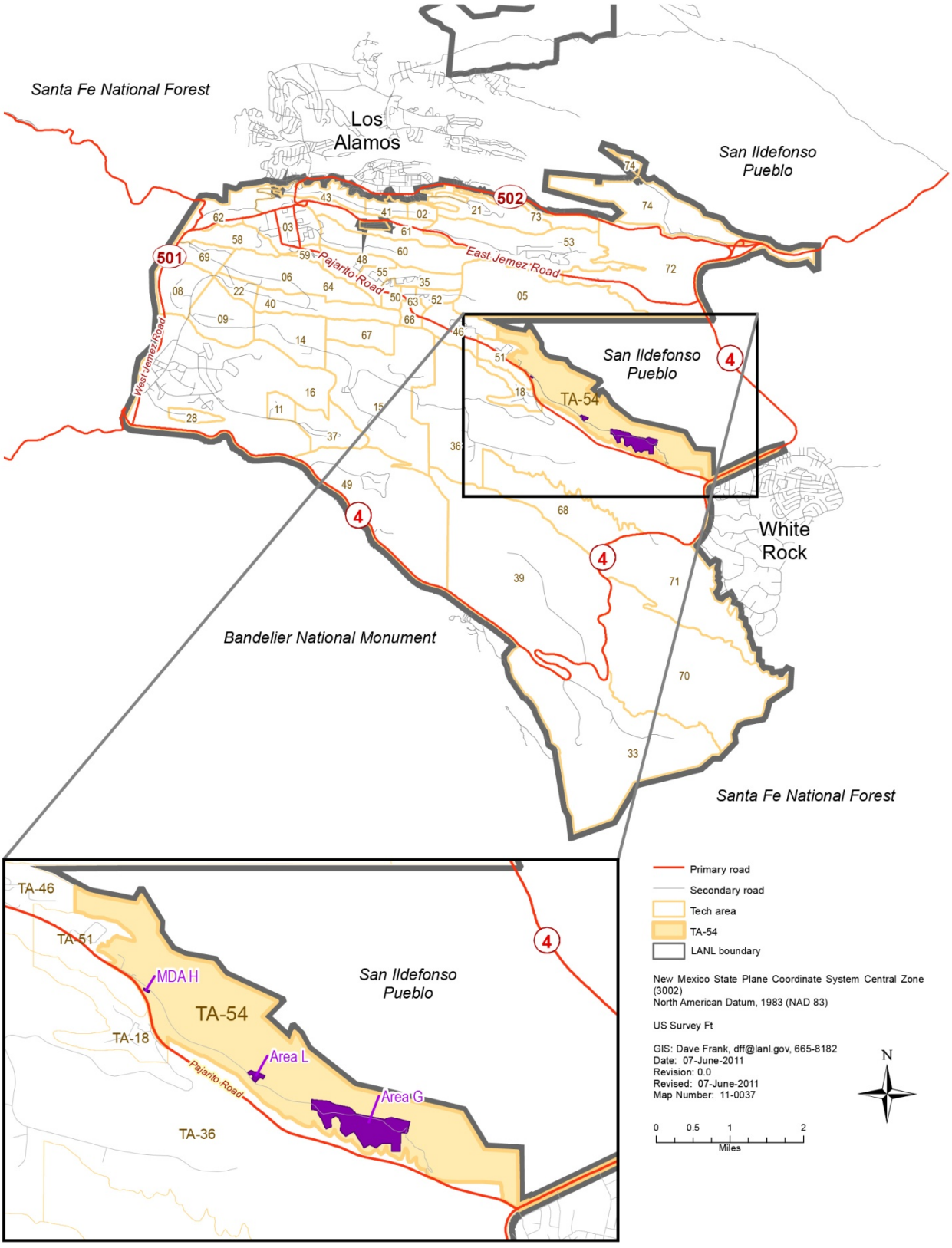

Figure 1 **Location of Area G in TA-54 with respect to Laboratory TAs and surrounding landholdings**

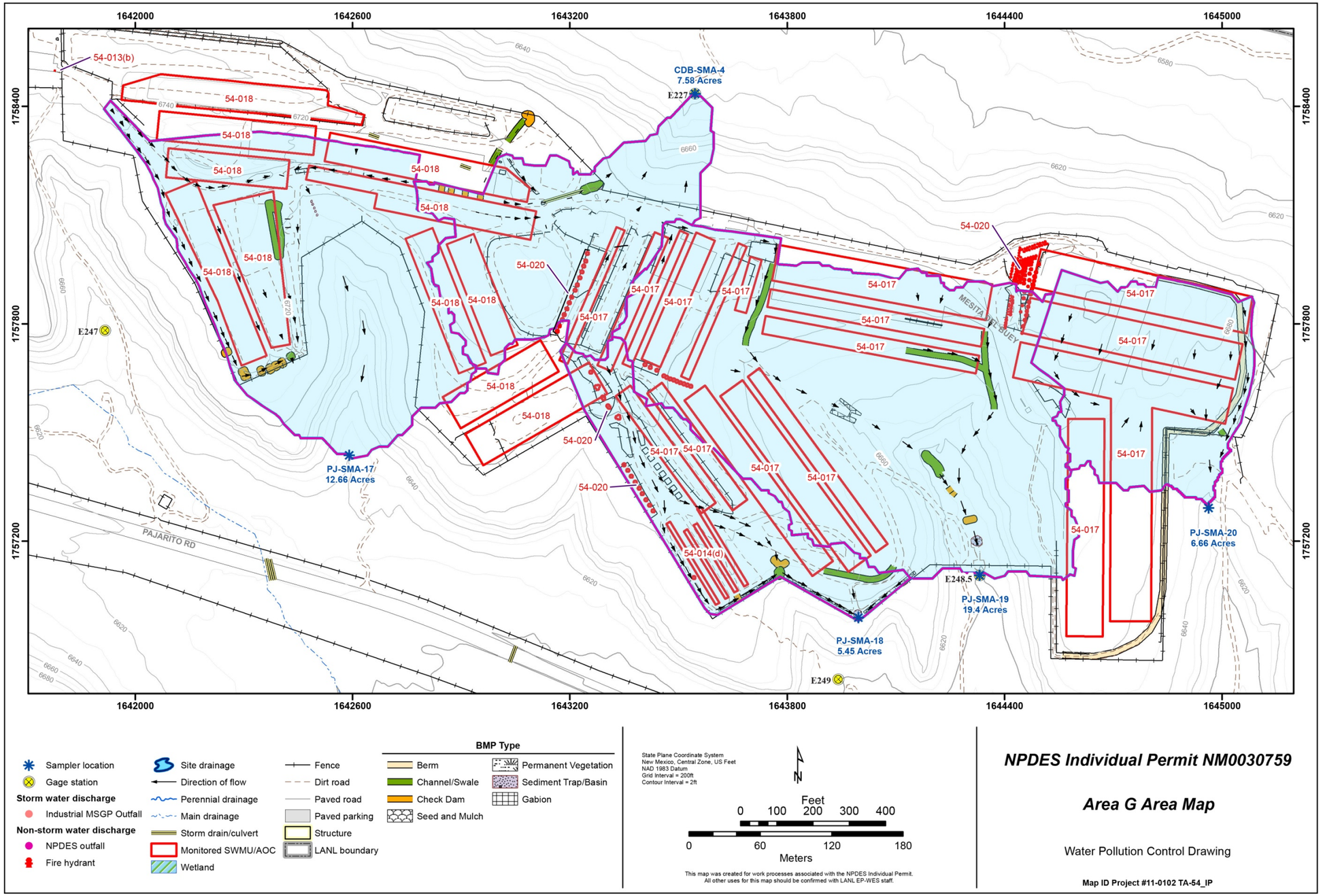

Figure 2 Area G with SWMU and FFCA locations

Although the Laboratory no longer uses MDA G for hazardous- or mixed-waste disposal, the surface of Area G is still used to store hazardous and mixed wastes in temporary domes and on storage pads under the Hazardous Waste Facility Permit (HWFP). The Laboratory also operates a number of low-level radioactive waste (LLW) disposal units that are regulated by DOE. As shown in Figure 2, the surface of Area G consists of asphalt-paved roads and storage pads, graded roads, buildings, utilities, shaft caps, and vegetated pit and trench covers. The capped shafts and vegetated pit and trench covers are maintained pursuant to DOE Order 435.1.

A detailed description of historical and current waste management practices at Area G is provided in Attachment 1, *Area G Site Description*.

3.0 BASIS OF REQUEST

3.1 Background

Under Part I.E of the IP, if a storm water sample from a Site with baseline-control measures (BCMs) exceeds a target action level (TAL), the Permittees must certify corrective action for high-priority sites before November 1, 2013. Corrective action consists of one of the following: (i) enhanced control measures to meet the TAL; (ii) total retention of storm water discharges from the Site, (iii) total elimination of exposure of pollutants to storm water at the Site; or (iv) receipt of an NMED-issued certificate of completion under the RCRA Consent Order.

Storm water samples were collected from Area G, E stations 248.5 and 249 (see Figure 2), pursuant to the Federal Facility Compliance Agreement (FFCA). The Permittees identified SWMU 54-017 as a high-priority site because at the time the application was submitted, Aroclor-1254 and Aroclor-1260 were detected at 0.11 µg/L and 0.095 µg/L, respectively, at station E 248.5 (PJ-248.5). Storm water samples collected in 2011 at the Site pursuant to the IP exceeded the IP TALs for copper and aluminum. Copper exceeded the TAL by a factor of approximately 2 in two samples, and aluminum exceeded the TAL by a factor of approximately 2 in one sample (although the samples did not show any PCB exceedances). RCRA investigation sampling results reported in the RCRA Consent Order investigation report for MDA G indicate copper and aluminum were not detected above background in sediment samples collected in drainages from Area G. Thus, it is not certain that the copper and aluminum TAL exceedances are associated with industrial materials that were managed at SWMU 54-017 before disposal. As a result of the copper and aluminum TAL exceedances, however, the Permittees are required to implement and certify corrective action.

In September 2011, DOE and LANS submitted a CME for MDA G, as required under the RCRA Consent Order. In the CME, DOE and LANS recommended a remedy that includes an evapotranspiration (ET) cover to prevent the possible migration of hazardous wastes and hazardous constituents from the MDA G SWMUs. The ultimate selection and implementation of the RCRA Consent Order remedy is subject to an administrative process, which includes a public comment period and will likely also include a public hearing (see Attachment 2, *Area G Regulatory Framework*). While this cover will undisputedly prevent any industrial materials from being exposed to storm water, the cover cannot be installed and implemented before the RCRA Consent Order administrative process is completed. Further, the Permittees cannot construct an interim cap because it would interfere with RCRA-permitted aboveground hazardous- and mixed-waste storage and LLW disposal.

3.2 IP Corrective Action Options

The Permittees have thoroughly evaluated the corrective action options listed in Part I.E.1 of the IP and have determined that construction of the ET cover pursuant to the RCRA Consent Order is a highly reasonable remedy that will achieve the goals of the IP by totally eliminating exposure of industrial materials at this Site to storm water. Moreover, as explained below, review of other IP corrective action options reveal they are neither technically feasible nor practical or could actually result in environmental harm.

The objectives of the September 2011 MDA G CME were to recommend a corrective measures alternative for closure of the SWMUs that met the cleanup objectives in Section XI.F.11 of the RCRA Consent Order. To meet these objectives, the long-term performance of various containment, treatment, and excavation technologies was assessed in accordance with EPA, DOE, and NMED risk- and dose-assessment guidance. The MDA G CME first identified technologies that were appropriate to address any potential unacceptable future risk from MDA G. These technologies were then screened, based on known performance data that have demonstrated the technologies' abilities to meet regulatory thresholds and other qualitative screening criteria. This screening process determined that an ET cover, combined with a soil-vapor extraction system, would best meet these regulatory objectives.

ET covers are designed to provide infiltration protection for arid and semiarid environments, where materials such as clays and synthetic/geosynthetic membranes are less reliable. ET covers may consist of multiple layers of geologic materials suited to achieve the ET criteria. Suitable vegetation is a significant component for most ET covers to aid in the dewatering of the cover material(s). The vegetated ET cover was developed specifically for landfills located in arid and semiarid environments such as Los Alamos. The earliest research in this area was conducted at Los Alamos at a test site within 2 mi of MDA G. Los Alamos climate's demand for water or potential ET far exceeds the actual supply of water (precipitation). The ET cover provides for a deeper-rooting medium, thus providing an opportunity for native vegetation to survive lengthy periods of drought.

The conceptual design assumptions in the MDA G CME included a 3.5-ft infiltration layer, a 1.5-ft layer of gravel admixture and vegetated topsoil, and moisture monitoring equipment. Cover maintenance and monitoring requirements will be enforced through the RCRA Permit to ensure the cover's integrity is not compromised by erosion, burrowing animals, or large plant roots. An institutional control will be recorded to ensure future land use will not adversely affect the cover's integrity. Engineering controls, such as fencing, will also be used to control access and prevent human intrusion.

In addition to the RCRA Consent Order, the ET cover must also meet the requirements of the Atomic Energy Act of 1954 for the radioactive portion of the wastes at MDA G. The October 2008 *Performance Assessment and Composite Analysis for the Los Alamos National Laboratory Technical Area 54, Area G, Revision 4* (PACA) establishes the technical requirements for closure needed to meet the performance objectives for radiological protection of the public from radionuclides disposed of at Area G. These technical requirements will be incorporated into the design of the final remedy during the corrective measures implementation (CMI) phase of the project.

The Permittees have also evaluated the other corrective action options in the IP to determine if one of the remaining options is both technically feasible and could be implemented in time to meet the November 1, 2013, deadline for corrective action for this high-priority Site. This evaluation of the three remaining options is summarized below.

- ***Enhanced control measures to meet the TAL.*** Site conditions, including ongoing active waste management activities and the location of the Site, make it impractical to install enhanced control

measures. The Permittees cannot construct any berms or other enhanced measures that interfere with waste-management activities. Because this Site is on the edge of a mesa top, it is not technically feasible to install control measures that divert storm water around SWMU 54-017.

- ***Total retention of storm water discharges from the Site.*** While it may be technically feasible to construct control measures that totally retain storm water at the site, even temporary ponding of water could adversely affect the LLW disposed of in the inactive pits. That is, the additional moisture could accelerate the migration of radionuclides and adversely impact the modeling assumptions in the PACA for Area G. The PACA and the associated DOE regulatory requirements are discussed in Attachment 2, *Area G Regulatory Framework*.
- ***Receipt of an NMED-issued certificate of completion under the RCRA Consent Order.*** NMED has determined, based upon the results of the investigations at MDA G, that corrective action is necessary. The MDA G CME DOE and the Laboratory submitted to NMED in September 2011 is the first step in the RCRA Consent Order corrective action process. NMED cannot issue a certificate of completion for MDA G until the selected remedy is implemented. Therefore, it is not possible for DOE and LANS to obtain a certificate of completion before the IP milestone.

3.3 The Delayed IP Milestone Will Not Adversely Impact the Environment

If EPA grants this force majeure, the delayed milestone will not adversely impact the environment for the following reasons.

- ***The Permittees will continue to inspect and maintain BCMs.*** A number of BCMs are in place near this Site. A sediment trap (J02605010005) and an earthen channel/swale (J02604010009) are located to the south of SWMU 54-017 (see Figure 3). A series of BCMs is located to the east of SWMU 54-017, including from north to south, a channel/swale (J02506010010); four rock check dams (J02506010009, J02506010008, J02506010007, and J02506010005); and a sediment basin (J02505020002) (see Figure 4). Concrete and asphalt caps and curbing are present over much of northeastern SWMU 54-017 (J02708030005 and J02703090001). Riprap is used to reinforce the drainage channel below these paved areas (J02704060006) (see Figure 5). The Permittees will continue to inspect and maintain these BCMs while the milestone is delayed. The Permittees will also continue to attempt to collect storm water samples from measureable storm events.
- ***The industrial materials at this SWMU are not exposed to storm water.*** As discussed above, an operational cover, which consisted of compacted crushed tuff and top soil, was placed over the wastes that were historically disposed of in the 19 disposal pits composing SWMU 54-017. DOE Order 435.1 requires the Permittees to maintain these covers to ensure no LLW is exposed by erosion. In addition, many of the SWMU 54-017 pits are covered with asphalt.
- ***Current waste management activities are highly regulated.*** The management and storage of hazardous and mixed wastes at Area G is strictly controlled under the HWFP. The HWFP contains numerous provisions to ensure no hazardous wastes or hazardous constituents are released to the environment from the nine RCRA-permitted container storage units (see Attachment 2, *Area G Regulatory Framework*).

  In addition to the HWFP waste management requirements, TA-54 is covered by a site-specific storm water pollution prevention plan (SWPPP), which was developed pursuant to Laboratory's Multi-Sector General Permit for Storm water Discharges Associated with Industrial Activity (NMR05GB21). This SWPPP includes storm water control measures, a storm water monitoring plan, and inspection and corrective action requirements.

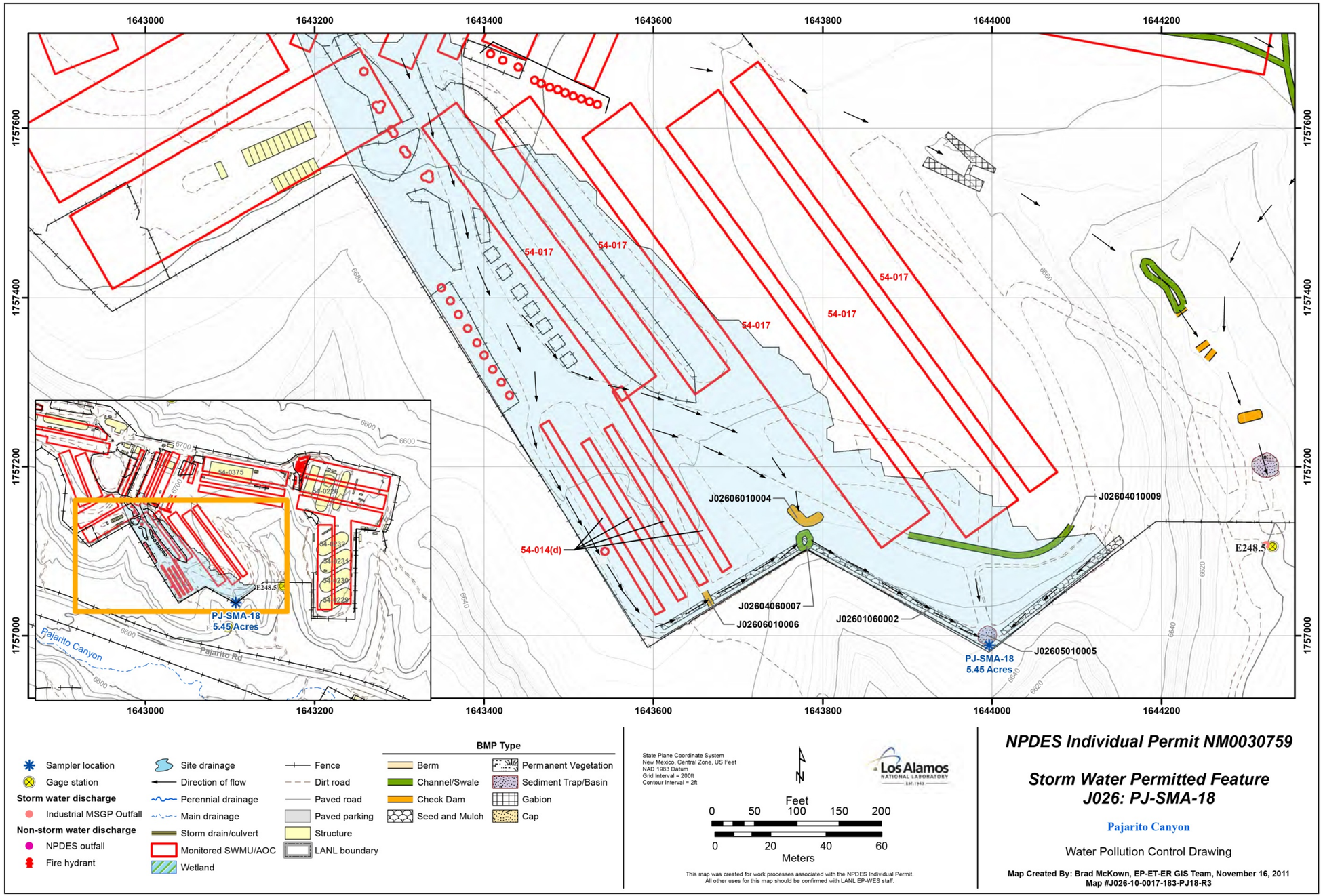

Figure 3 Storm water–permitted feature J026: PJ-SMA-18

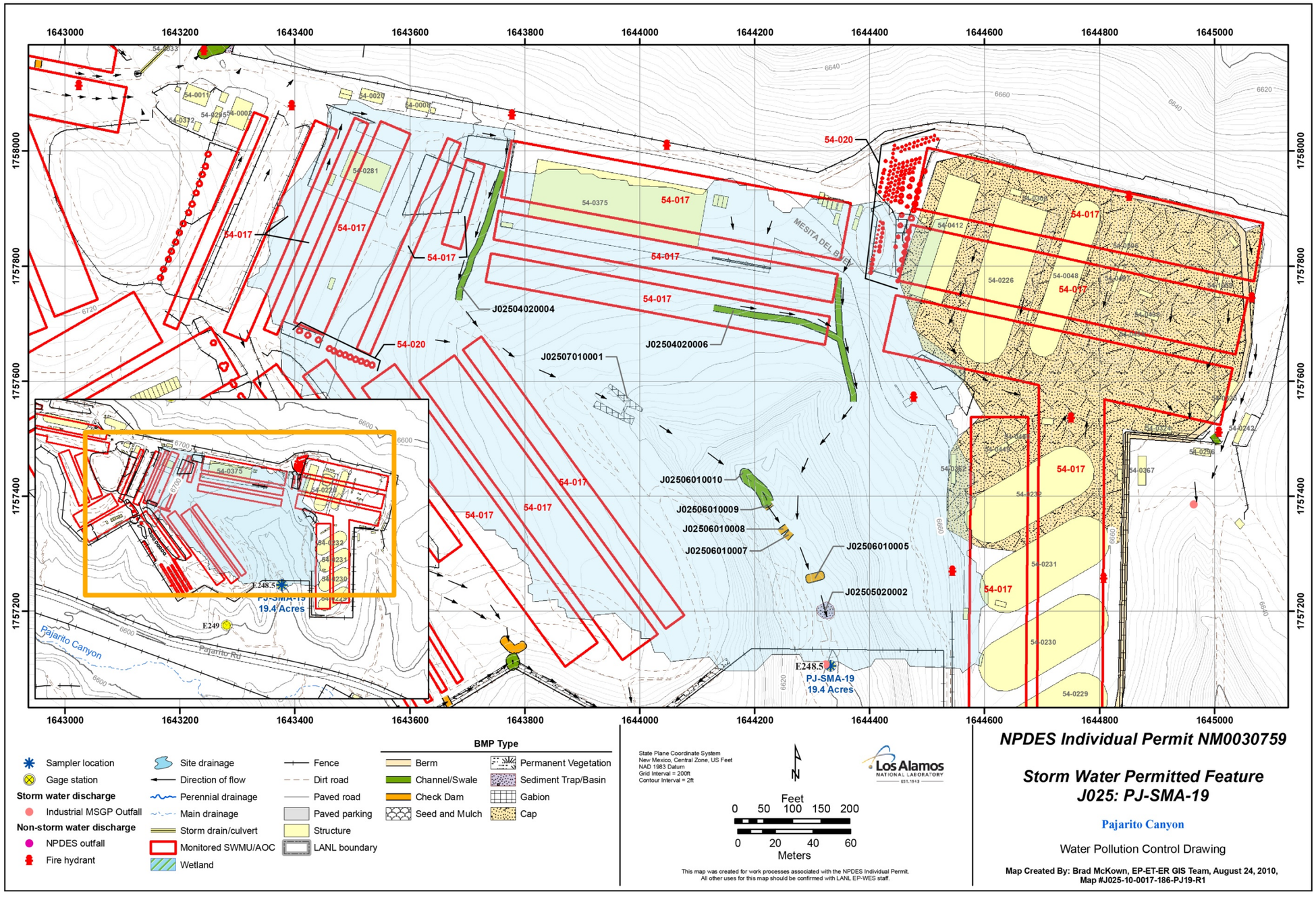

Figure 4 Storm water–permitted feature J025: PJ-SMA-19

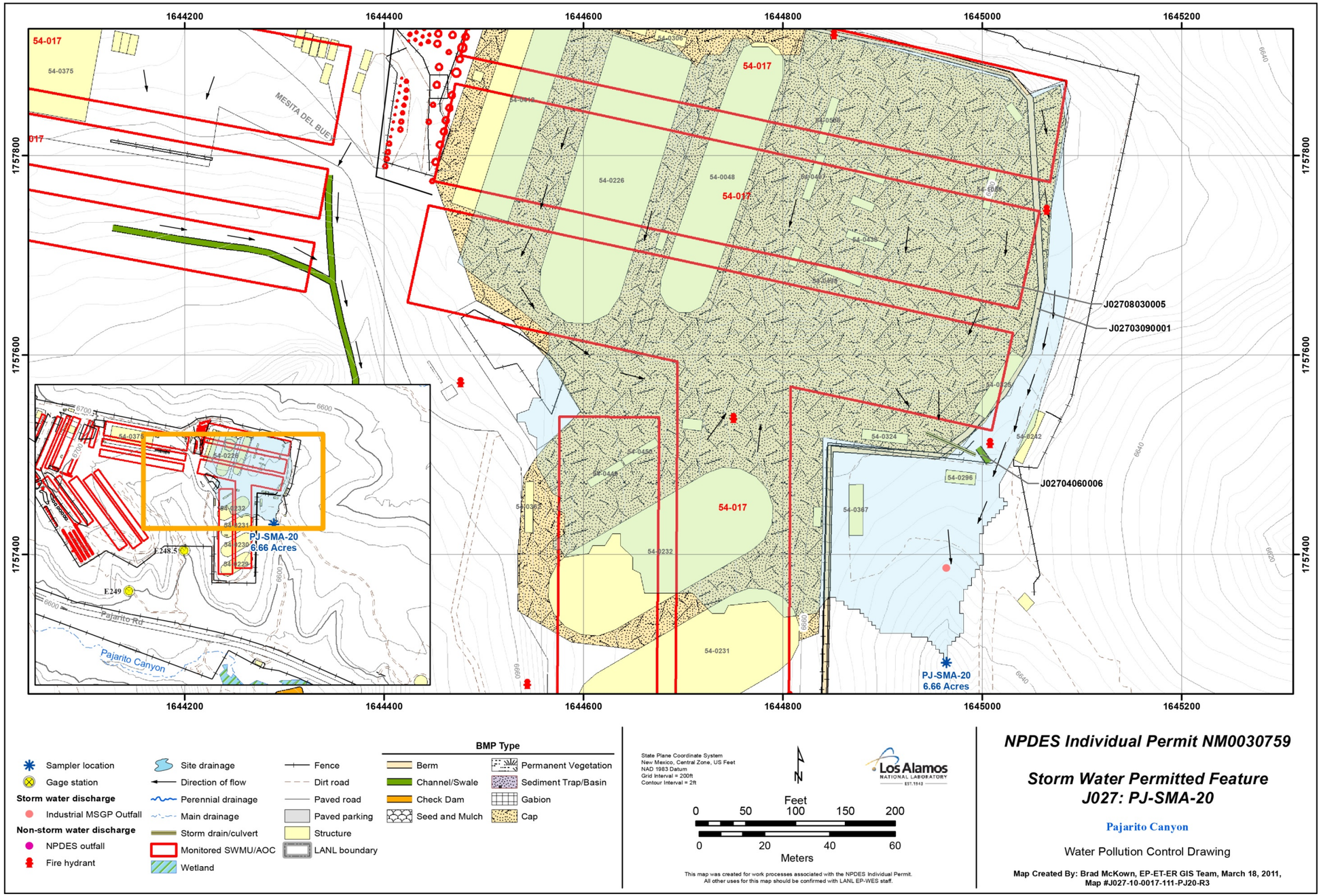

Figure 5 Storm water–permitted feature J027: PJ-SMA-20

LLW operations at Area G are also subject to the nuclear safety management regulations contained in 10 Code of Federal Regulations (CFR) 830. Requirements under 10 CFR 830 include establishing technical safety requirements to prevent the release of the radioactive material inventory present in wastes disposed of in the MDA G SWMUs. These technical safety requirements preclude conditions that would result in contact of the waste inventory with storm water.

- ***Implementation of the CMI will be a permanent solution***. Once constructed, the final remedy will result in the total elimination of exposure of pollutants to storm water at the Site. Once NMED selects the RCRA Consent Oder remedy, the public participation process has concluded, and any necessary changes have been incorporated into the scope of the selected remedy, DOE and LANS will draft the CMI plan. The CMI plan will include the detailed remedy design as well as the post-construction operation and maintenance plan. The final design will also incorporate the more stringent design standards of DOE Order 435.1. Once constructed, the operation and maintenance of the remedy will be regulated through both RCRA post-closure requirements in the HWFP and under DOE Order 435.1.

4.0 CONCLUSION

The Permittees have evaluated the corrective action options listed in Part I.E.2 of the IP and have determined that "total elimination of exposure of pollutants to storm water at the Site" is the best corrective action option for this Site. It is consistent with the ET cover recommended by DOE and LANS in the MDA G CME report and is also consistent with site closure requirements under DOE Order 435.1. Total retention is not a viable corrective action option because it could adversely impact buried LLW. The certificate of completion corrective action pathway is also not applicable to this Site because NMED will not issue a certificate until the remedy for MDA G has been implemented, and this will occur after the IP corrective action deadline. The following summarizes the basis for this force majeure extension request.

- ***The cause or causes of the delay.*** A storm water sample collected from SWMU 54-017 in 2011 slightly exceeded TALs for copper and aluminum. Because this Site is listed in Part I.E.4 as a high-priority site, the Permittees are required to certify completion of corrective action under Part I.E.2 by November 1, 2013. The ultimate selection and implementation of the RCRA Consent Order remedy for MDA G is subject to an administrative process that includes a public comment period and an opportunity for a public hearing. All these actions are dependent upon actions by governmental authorities (i.e., NMED and DOE) that are independent of the IP.
- ***The expected duration of the delay, including any obligations that would be affected.*** The RCRA Consent Order currently contains a December 2015 deadline to implement the remedy at MDA G. The actual schedule to implement this remedy, however, is dependent upon NMED approval through a regulatory process that is outside the control of Permittees. As described in Attachment 2, *Area G Regulatory Framework*, a firm deadline cannot be established at this time, but the administrative processes under the HWFP, RCRA Consent Order, and DOE Order 435.1 are defined. The Permittees will update EPA regarding the expected duration of the delay when key administrative milestones, such as NMED's issuance of the RCRA Consent Order Statement of Basis for the MDA G CME and the start of RCRA closure activities for the container storage areas, are known.
- ***The actions taken or to be taken by the Permittees to minimize the delay.*** The Permittees are working closely with NMED under both the RCRA Consent Order and HWFP and have met all regulatory deadlines to date. Although the Permittees do not have control over the duration of the delay, the delay will not adversely impact the environment because the Permittees will

continue to inspect and maintain BCMs, the industrial materials at this Site are not exposed to storm water, and current waste-management activities are highly regulated.

- ***The timetable by which those actions are expected to be implemented.*** The schedule for the construction of the RCRA Consent Order remedy will be approved by NMED as part of the CMI. The Permittees are working closely with NMED under both the RCRA Consent Order and HWFP and are meeting applicable regulatory deadlines.