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Floodplain Assessment for Establishing a Permanent Stoneyard Laydown Area at Technical Area 39

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
CFR	Code of Federal Regulations
DOE	(U.S.) Department of Energy
EO	Executive Order
EPA	(U.S.) Environmental Protection Agency
LANL	Los Alamos National Laboratory
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
RCRA	Resource Conservation and Recovery Act
RCA	radiological control area
TA	technical area



INTRODUCTION

The National Nuclear Security Administration (NNSA), a semi-autonomous agency within the U.S. Department of Energy (DOE), is proposing a permanent staging or laydown area at Los Alamos National Laboratory (LANL) at Technical Area 39 (TA-39; Figure 1). This floodplain assessment has been prepared in accordance with DOE regulations set forth in Title 10 Code of Federal Regulations (CFR), Part 1022, Compliance with Floodplain and Wetland Environmental Review Requirements (CFR 2003). The proposed project would re-designate a temporary concrete block storage area to establish a permanent outdoor storage area for new concrete shielding blocks and staging for concrete blocks that have reached their end of life, have been appropriately screened, and are pending recycling. Project activities within the Ancho Canyon 100-year floodplain include concrete shielding block storage and maintaining the area with minimal vegetation.

The 10 CFR 1022 was promulgated to implement Federal agency (e.g., DOE) requirements under Executive Order 11988, Floodplain Management (EO 1977). A floodplain is defined in 10 CFR 1022 as “the lowlands adjoining inland and coastal waters and relatively flat areas and flood prone areas of offshore islands,” and a base floodplain as “the 100-year floodplain, that is, a floodplain with a 1.0 percent chance of flooding in any given year” (CFR 2003). This floodplain assessment evaluates potential impacts to floodplain values and functions from implementation of the proposed action, identifies alternatives to the proposed action, and allows for meaningful public comment.

DOE/NNSA published this floodplain assessment for a 15-day public review and comment period. Please provide comments on this floodplain assessment to Karen Armijo at

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or

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After the close of the public comment period and before issuing a floodplain statement of findings, DOE/NNSA will reevaluate the practicability of alternatives to the proposed floodplain action and the mitigating measures, taking into account all substantive comments received during the public comment period. After issuing a floodplain statement of findings, DOE/NNSA shall endeavor to allow at least 15 calendar days of public review before implementing a proposed floodplain action.

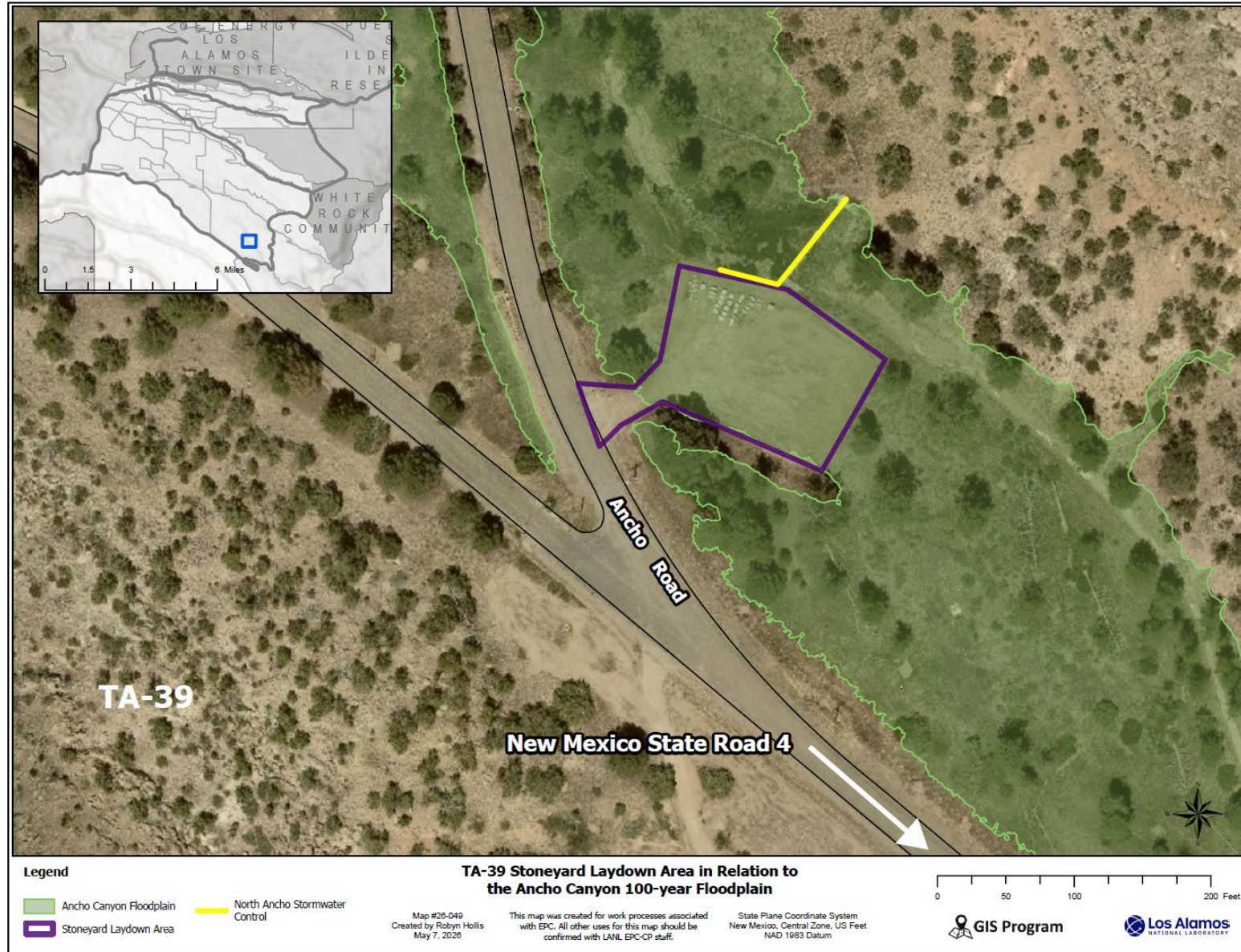


Figure 1. TA-39 Stoneyard laydown area in relation to the Ancho Canyon 100-year floodplain.

BACKGROUND

LANL operates remote firing sites in support of energetic materials testing. Firing sites often require the use of large concrete blocks as shielding to protect equipment, personnel, and the surrounding environment. Concrete blocks used in high-energy experiments are modular, interlocking, precast blocks designed to absorb blast pressure, contain fragmentation, and withstand extreme heat. They serve as rapid-assembly, dry-stacked (e.g., mortar free), temporary blast walls. The standard size block used at TA-39 is approximately 3' high × 3' wide × 6' long. Concrete blocks that have reached their end of life and have been appropriately screened are either properly disposed of as waste or may be recycled.

The project area proposed for re-designation as permanent concrete block storage is located within the former construction disturbance footprint from installation of the upper north Ancho grade control structure. The structure was installed in 2017 to reduce peak discharge from storm water run-off and sediment load within the Ancho Canyon watershed. The floodplain assessment process in accordance with 10 CFR 1022 was completed for the project in 2017 (LANL 2017). Temporary access and laydown areas were reseeded at the completion of the project. One permanent base course road was established from Ancho Road along the west side of the construction area to the structure as access for future maintenance. The access road was approximately 6' wide × 140' long (2,240 square feet; 0.05 acre). Temporary access and laydown areas were reseeded at the completion of the project (Figure 2).



Figure 2. Vegetation growth as of September 2018 at the upper north Ancho grade control structure construction and laydown area.

The segment of the Ancho Canyon 100-year floodplain, which is also the base flood elevation, runs roughly northwest to southeast in the project location (Figure 1). The canyon bottom is a mixture of developed and undeveloped areas. The overall vegetation is an overstory of ponderosa pine (*Pinus ponderosa*) with skunkbush sumac (*Rhus trilobata*), oneseed juniper (*Juniperus monosperma*) and an

understory of sparse blue grama grass (*Bouteloua gracilis*), sand dropseed (*Sporobolus cryptandrus*), and tarragon (*Artemisia dracunculus*). At the completion of the 2017 construction, the disturbed areas were revegetated with a mix of native perennial grasses, forbs, and shrubs in accordance with the LANL Seeding Specification (LANL 2021).

In 2025, facility operations for TA-39 determined that the formerly disturbed area was an optimal central area for staging concrete blocks for firing site activities. The activities were not reviewed at that time through the LANL-maintained project review tool used to identify, evaluate, and resolve project-specific issues with LANL subject matter experts. Potential impacts to the floodplain were not evaluated in 2025. Activities included removal of established grasses, forbs, and shrubs down to 5–6 inches high, driving equipment into and out of the area, and staging of concrete shielding blocks. Facility operations did not blade, grade, or perform any other soil-disturbing activities. Equipment and vehicles have also not been staged. The area currently consists of scattered vegetation, base course, and gravel (Figure 3). Facility operations subsequently used the LANL-maintained project review tool for review of the request to re-designate the area from temporary laydown storage area to establish a permanent storage area.



Figure 3. Proposed project area post-2025 in use as a temporary storage area.

PROJECT DESCRIPTION

This project proposes to re-designate the temporary concrete block storage area and establish a permanent outdoor storage area. This location was chosen because it is a mile closer to individual firing sites than the previous staging area but just outside the firing site hazard zones. This location creates time savings for programmatic work by reducing transport times while still allowing access during firing site operations. This location is accessible to large semi-trucks, flatbed trailers, and large forklifts, allowing them to turn and perform delivery and pickup activities safely and efficiently.

New concrete shielding blocks would be staged before being distributed for use at individual firing sites. Concrete blocks that have reached their end of life, have been appropriately screened and released as

material (not waste), and are designated for material recycling would also be stored in the project area before being recycled. Figure 1 shows the proposed project location within the Ancho Canyon floodplain. This assessment focuses on proposed activities and impacts that have occurred and are proposed to continue in or near the Ancho Canyon 100-year floodplain.

The project proposes to continue to maintain vegetation at 5–6 inches high. The proposed area would maintain its current grade and would not be bladed or graded. Equipment and vehicles would not be staged within the proposed project area. The project also proposes marking the footprint of the laydown area with stanchions or flags to prevent inadvertent expansion of the area footprint.

FLOODPLAIN IMPACTS AND MITIGATIONS

The proposed permanent project footprint is approximately 0.40 acres (17,230 square feet). The maintenance access road accounts for approximately 0.05 acre (2,240 square feet) of the project footprint. The maximum total long-term disturbance in the Ancho Canyon 100-year floodplain is approximately 0.32 acres (13,939 square feet). The area described includes necessary space for staging new concrete shielding blocks, storing blocks designated for recycling, and space for equipment, such as large trucks and forklifts, to turn safely. Even though the proposed area is within the 100-yr floodplain, the upper north Ancho grade control structure mitigates peak flows from flooding events.

Short-Term Impacts and Mitigations

Activities at the Stoneyard laydown area were immediately paused upon discovery that the proposed project had not been properly reviewed for institutional, state, and federal requirements before use of the area for temporary storage of concrete shielding blocks. A field walk-down was subsequently performed, including facility operations personnel, management, environmental programs personnel, and DOE/ NNSA personnel. LANL tools—the official management observation program, fact-finding sessions, and lessons learned sessions—have been implemented to determine the chain of events and to formulate ways to avoid reoccurrence of this issue. The LANL Issues Management System is being used to proactively identify and analyze issues related to this project, to manage identified corrective actions, and to document effectiveness in addressing issues. This process is ongoing, and definitive corrective actions are still being developed.

LANL subject matter experts use a LANL-maintained project review tool to identify, evaluate, and resolve project-specific issues, such as the presence of underground utilities, contaminated soils, spills and leaks, soil disturbance and stabilization, threatened and endangered species habitat, floodplains or wetlands; and to ensure regulatory agency authorizations, such as U.S. Army Corps of Engineers permit requirements and Clean Water Act permit requirements. The tool aids in identifying potential impacts to the natural and built environment from the proposed project.

Subject matter experts identified and reviewed the following requirements to avoid potential impacts:

- The project does not propose work in any wetlands within LANL property; no wetlands impacts are expected.
- The total proposed area of project disturbance is not 1 acre or larger; therefore, National Pollution Discharge Elimination System Construction General Permit coverage is not required.

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- The project would not be subject to additional requirements regarding the Energy Independence and Security Act, Section 438. No additional impervious surfaces or modification to stormwater flow paths are proposed.
 - In accordance with U.S. Army Corps of Engineers regulations, a Clean Water Act Section 404 dredge and fill permit or New Mexico State Section 401 Water Quality Certification would not be required for this project (Federal Register 2023). There are no activities in the watercourse.
 - Based on LANL surveys and procedures, no historical or archaeological resources are located within 100 feet of the proposed project areas. No impacts are expected to occur to cultural resources; however, the project must follow the LANL procedure for inadvertent discoveries (LANL 2019).
 - Based on LANL surveys and procedures, no threatened or endangered species habitat is located near the proposed project area. No impacts are expected to occur to threatened or endangered species.
 - The proposed project is not located in a Solid Waste Management Unit¹ or Area of Concern.² No impacts are expected to occur in either of these types of areas.

The project has not removed and does not expect to remove soil from the project area. Vegetation cut during periodic maintenance, such as mowing, in the project area is kept on site. If any soil is removed from the site, it must be managed, characterized, and disposed of in accordance with P409, *LANL Waste Management* (LANL 2022).

The project would avoid or minimize additional potential short-term direct and indirect floodplain impacts from release of pollutants to the floodplain and exposure to stormwater through implementation of the following best management practices:

- Hazardous materials, chemicals, fuels, and oils would not be stored within the floodplain.
- Heavy equipment would not be used within the floodplain, especially if conditions are too wet to prevent damage to the soil structure.
- Equipment would be refueled at least 100 feet from the Ancho Canyon floodplain.

Potential direct effects to migratory birds and other biological resources are limited because minimal habitat has been disturbed. Shrub and grass removal occurred in October 2025. The Migratory Bird Treaty Act prohibits killing migratory birds, including nestlings and eggs in an active nest which includes vegetation removal during the nesting season (May 15 through July 15). If future vegetation removal is proposed during the nesting season, LANL Biological Resources subject matter experts would conduct an onsite inspection for bird nests. Site activities would conform to requirements stipulated in the Migratory Bird Best Management Practices Source Document for Los Alamos National Laboratory (LANL 2020).

¹ An SWMU is any discernible unit at which solid waste has been placed at any time and from which NMED determines a potential risk of release of hazardous waste or hazardous waste constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste.

² An AOC is any area that has a known or suspected release of hazardous waste or hazardous constituents that is not from an SWMU and that the Secretary of the New Mexico Environment Department (NMED) has determined could pose a current or potential threat to human health or the environment.

Long-Term Impacts and Mitigation

Minimal long-term impact is anticipated as a result of this project. No aboveground permanent structures or impervious surfaces are proposed in the floodplain; however, the established vegetation was removed down to base course within the laydown area. The project will continue to maintain the area free of vegetation for personnel safety and reduction of vehicle and equipment ignition fire hazard.

After high-flow events, the area within the floodplain would be monitored for erosion and debris entrapped around concrete blocks in the laydown area. Maintenance options will be assessed and scheduled.

This assessment also considers the impacts of the proposed actions in the floodplain on habitat conservation for existing flora and fauna, aesthetic values, and public interest. The proposed action would not impact cultural resources because none are expected to be discovered in the project area. The proposed action is not expected to remove any protected species habitat. The proposed action is not considered to negatively impact aesthetic values or public interest because the proposed project would occur in areas that are internal to LANL.

ALTERNATIVES

The alternatives available to DOE/NNSA include the following:

- returning laydown activities to an administrative area to the south;
- using an existing storage area to the west of the project location; or
- using an existing storage area to the north of the project location.

Several other areas in TA-39 were considered but are also in the floodplain, would require removal of potentially contaminated soil, and are inside firing site hazard zones (inaccessible during firing site operations). These options present obstacles that reduce LANL's effectiveness and responsiveness to increasingly important and urgent national security needs that rely on LANL's firing sites.

The administrative area (inside the main TA-39 entrance security fence) is flat and accessible by large trucks, but most of this area is inside the floodplain. The section that is not in the floodplain has been used to stage concrete blocks in the past; however, it is frequently used to stage other large items, including roll-off bins and construction equipment. A future warehouse is also planned for this area. The administrative area is the farthest point from the concrete block end use and adds 1 mile to forklift transport. Finally, use of the administrative area would create a first-impression eyesore to high-level visitors such as federal congressional representatives, cabinet members, regents, and federal program customers.

The existing storage area to the west of Ancho Road and the project area is flat, is outside most firing site hazard zones, is not a Radiological Control Area (RCA), and is an established staging area. However, it is not accessible by large trucks and therefore would require the blocks to be staged at a secondary location for deliveries and pickups farther from the administrative area. This area is currently near capacity for equipment storage. The existing equipment would need to be moved to another area.

The existing storage area to the north of the project location on Ancho Road is flat, is not in an RCA, and is an established staging area; however, the most accessible portion is in the floodplain. This area is inside the most utilized hazard zone for firing sites and is often inaccessible—from hours to days at a time. The area is also used for training. The area does not have space for large trucks to turn around due to other programmatic-mandated structures placed adjacent to the floodplain.

CONCLUSIONS

As described in this assessment, the proposed project location improves overall efficiency for consolidated storage and reduces transportation time of concrete shielding blocks. The area includes necessary space for staging new concrete shielding blocks, blocks designated for recycling, and space for equipment, such as large trucks and forklifts, to turn safely. The proposed project would result in limited and minor direct and indirect long-term impact to the 100-year floodplain but would not result in adverse impacts to the floodplain values or functions.

The project has not changed the flood hazard rating. This proposed project has not significantly modified flow paths within the floodplain from pre-project conditions to post-project conditions. No effects are anticipated to lives or property associated with floodplain modifications.

In accordance with 10 CFR 1022 (CFR 2003), DOE/NNSA will publish this floodplain assessment and initiate a 15-calendar-day public comment period. DOE/NNSA will take into account all substantive comments received on this floodplain assessment and reevaluate the practicability of alternatives before providing the Statement of Findings on the floodplain action.

LITERATURE CITED

CFR 2003. Title 10 Code of Federal Regulations, Part 1022, Compliance with Floodplain and Wetland Environmental Review Requirements.

DOE 2019. DOE Technical Standard - Explosives Safety. U.S. Department of Energy. November 2019.

EO 1977. Executive Order 11988, Floodplain Management.

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LANL 2017. Floodplain Assessment for the North Ancho and Lower Sandia Control Supplemental Environmental Projects at Los Alamos National Laboratory. Los Alamos National Laboratory, LA-UR-17-30209.

LANL 2019. A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory, New Mexico. Los Alamos National Laboratory report LA-UR-19-21590.

LANL 2020. Migratory Bird Best Management Practices Source Document for Los Alamos National Laboratory. Revised November 2020. J. E. Stanek, B. E. Thompson, A. A. Sanchez, J. T. Berryhill, and C. D. Hathcock. Los Alamos National Laboratory report LA-UR-20-24292.

LANL 2022. P409, *LANL Waste Management*. As directed by the following:

New Mexico Administrative Code (NMAC), Title 20, Environmental Protection
10 CFR, Energy

40 CFR, Protection of Environment
48 CFR, Federal Acquisition Regulations System
49 CFR, Transportation
Department of Energy Acquisition Regulation (DEAR) Part 970.5223, Integration of Environment, Safety, and Health into Work Planning
DOE Order 435.1, Radioactive Waste Management
DOE M 435.1-1, Radioactive Waste Management Manual
DOE Order 414.1D, Quality Assurance
DOE Order 458.1, Radiation Protection of the Public and the Environment
DOE Order 460.2B, Departmental Materials Transportation Management
DOE Order 474.2A, Nuclear Material Control and Accountability
LANL Institutional RCRA Permit, EPA and NMED RCRA Operating Permit
LANL 2023. Vegetation and Fuels Prescription Controls Requirements for Sited High Explosives Facilities. Los Alamos National Laboratory document WFO-OP-276.