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Floodplain Assessment for the TA-72 Outdoor Fire Range Upgrades at Los Alamos National Laboratory

Los Alamos
NATIONAL LABORATORY
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CONTENTS

FIGURE

PHOTOGRAPHS

ACRONYMS

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
LANL	Los Alamos National Laboratory
NNSA	National Nuclear Security Administration
TA	Technical Area

INTRODUCTION

This floodplain assessment was prepared in accordance with 10 Code of Federal Regulations (CFR) 1022 *Compliance with Floodplain and Wetland Environmental Review Requirements*, which was promulgated to implement the U.S. Department of Energy (DOE) requirements under Executive Order 11988 *Floodplain Management*. According to 10 CFR 1022, a floodplain is defined as "the lowlands adjoining inland and coastal waters and relatively flat areas and flood prone areas of offshore islands" and has one chance in 100 of being equaled or exceeded in any one-year period.

In this action, DOE/NNSA is proposing upgrades to the Technical Area (TA) 72 Outdoor Live Fire Range at Los Alamos National Laboratory (LANL), which will ensure that the Protective Force has the tactical training functionalities required to maintain proficient security and response capabilities. This project is located at LANL in the bottom of Sandia Canyon in TA-72. The proposed project will result in vegetation removal, added ground disturbance, and soil stabilization within the 100-year floodplain.

DOE prepared this floodplain assessment to evaluate the potential impacts of implementing the proposed action within a floodplain, as required by Executive Order 11988 and 10 CFR 1022. The floodplain assessment also supports the NEPA analysis that is being conducted.

PROJECT DESCRIPTION

In 2012, DOE/NNSA installed several upgrades to the Outdoor Live Fire Range including turning target systems, new lighting to illuminate the range for night fire, and an external speaker system for range operations. A floodplain assessment was completed for the 2012 design (LANL 2012a), but not all of the work was completed. Additionally in 2012, the storm water drainage channel that runs through the center of the outdoor live fire range was improved. This was an engineered structure where the channel was hardened and deepened and included an area to dissipate the energy of storm water flows to slow the water. This work also had a floodplain assessment (LANL 2012b).

The proposed 2018 upgrade designs include 1) construction of a new storage warehouse, 2) repair of the small drainage issues around the outdoor live fire range, and 3) placement of asphalt millings or base course on disturbed areas within the shooting range for extra stabilization of the soil and significant dust suppression (Figure 1).

The proposed 2400-ft^2 (222-m^2) warehouse will be constructed just south of building 36 and north of building 12 for storage of targets, supplies, and other consumables (Figure 1 and Photograph 1). This area is already disturbed, partially developed, and surrounded by other structures. The second part of this project will be to perform small repairs around the existing buildings to correct drainage issues during rain events. The third part of the project will be to place asphalt millings from onsite road projects and/or base course material at specific locations around the site. Areas that will receive the material are the existing dirt roads in the site, the parking areas, and the dirt field that is within range 5 (Figure 1 and Photograph 2). No asphalt millings or base course will be placed within the drainage structure or channel.

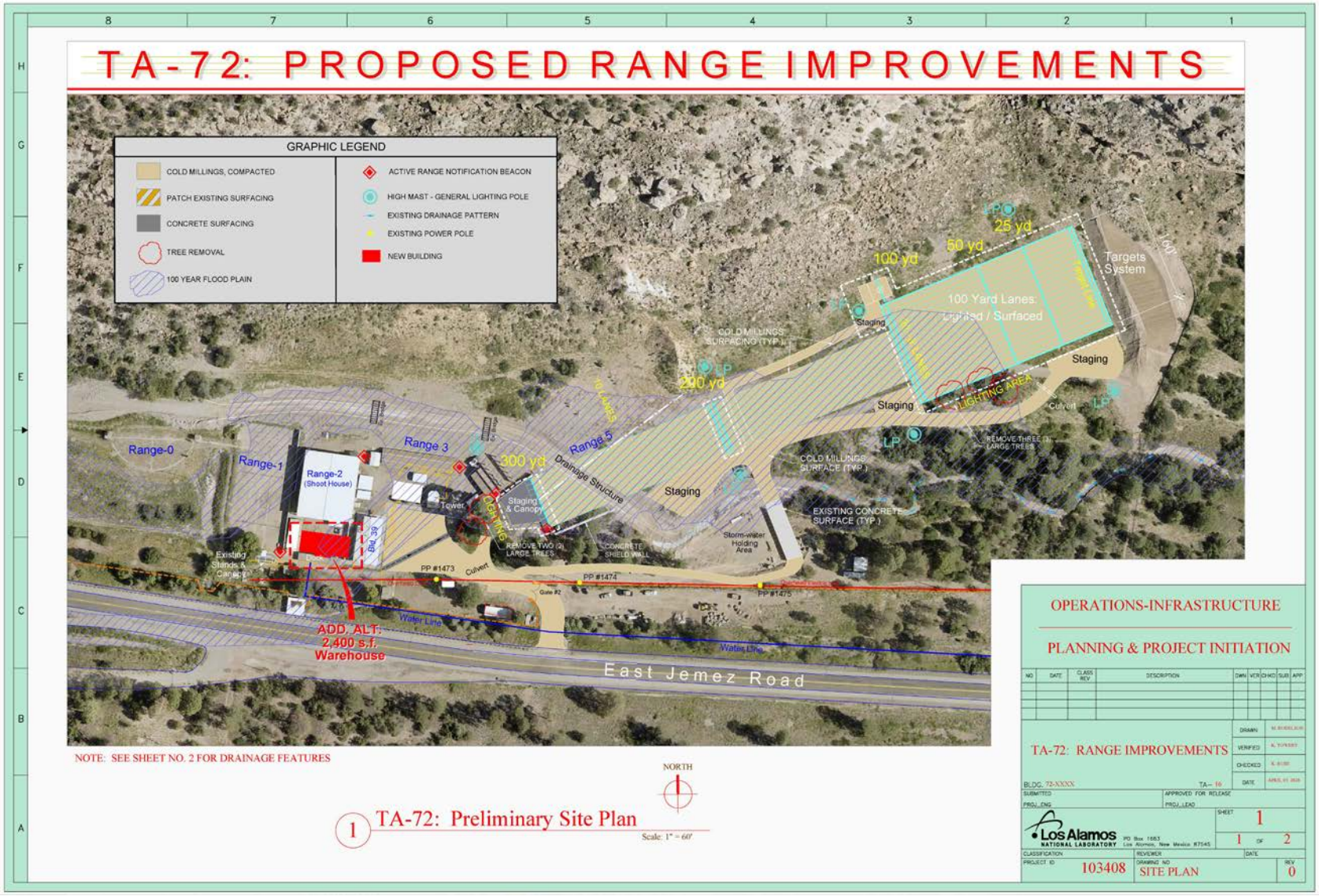

Figure 1. Proposed upgrades for the TA-72 outdoor live fire range in Sandia Canyon in relation to the 100-year floodplain.

Photograph 1. Proposed location of the new warehouse facing north towards building 36.

Photograph 2. Looking east toward range 5. The existing dirt roads and the dirt field on range 5 will be covered with asphalt millings or base course.

The use of asphalt millings and/or base course will provide extra stabilization of the soil and significant dust suppression around the range. This will reduce the amount of fine particles, particularly silica, rendered airborne by projectile and fragment impacts and protect personnel during mowing and other maintenance and range related activities.

There are approximately five trees in the area that will be removed. These are known hazard trees that have the potential to cause damage to infrastructure, injury to personnel, or are too close to one of the ranges.

FLOODPLAIN IMPACTS

Ground disturbance within the floodplain will occur during vegetation removal and the placement of asphalt millings or base course. The negative, short-term effects to the floodplain will be from ground disturbance throughout the duration of the project.

No negative, long-term impacts to the floodplain are expected under the proposed project. With the exception of the defined channel, the slope of the fire range, including the project areas is minimal (<1%), and does not receive run-on water from upstream facilities or drainages. The placement of asphalt millings or base course within the floodplain will slightly increase impervious runoff volumes but will also provide extra soil stabilization in the floodplain. The drainage design for the entire fire range will ensure run-off is directed into the channel thereby minimizing erosion and damage to facilities. The project will not change the elevations or flow paths; thus, the potential for erosion, sediment transport, and flooding following completion of this project will be reduced. No effects to lives or property associated with floodplain disturbance are anticipated.

Long-term, positive effects to the floodplain are associated with decreasing the potential for erosion.

Negative, short-term effects from the project will be mitigated and minimized by the implementation of the following best management practices for work in floodplains during construction.

- Any disturbed areas outside of the identified project areas will be revegetated or stabilized with an appropriate method. Approved stabilization methods include revegetation with native seed mix and planting within 30 days or at the beginning of the growing season after construction is complete.
- Hazardous materials, chemicals, fuels, and oils will not be stored within the floodplain.
- Work in a floodplain will not take place when the soil is too wet to adequately support equipment.
- Equipment will be refueled at least 100 ft (30 m) from any drainage, including dry arroyos.

Compliance with the Migratory Bird Treaty Act restricts vegetation removal during the peak bird breeding season, May 15 through July 31, unless biological resources staff at LANL have

conducted a nest check to ensure that there are no nesting birds present. If active nests are found, the nest tree or shrub will be left in place until the nesting is complete.

ALTERNATIVES

The only alternative evaluated was a no action alternative. The proposed project will serve to fulfill mission requirements and ensure armed Protective Force personnel are trained and qualified to protect the LANL workforce and operations as required by: DOE Order 470.3B *Graded Security Protection (GSP) Policy*, DOE Order 470.4B *Safeguards and Security Program, Admin Change 1*, DOE Order 473.3 *Protection Program Operations*, and the LANL Site Safeguards and Security Plan. Compliance with the listed safety and security requirements is mandatory, thus a no action alternative was not selected.

CONCLUSIONS

This project will not result in long-term, adverse impacts to the floodplain. Temporary disturbance within the floodplain will cease following completion of activities. Best management practices will be implemented. This proposed project will not significantly modify existing elevations and flow paths within the floodplain upstream and downstream of the project from pre-project conditions to post-project conditions or result in other long-term, negative impacts to the floodplain and its functionality. No effects to lives and property associated with floodplain modifications are anticipated. Design of this project has been coordinated with other existing projects in the area including the Section 404 corrective action for TA-72 and the Supplemental Environmental Project watershed enhancement project in lower Sandia Canyon

DOE/NNSA will take into account all substantive comments received on this floodplain assessment before executing the proposed action. In accordance with 10 CFR 1022, and prior to implementing the proposed action, DOE/NNSA will provide a Statement of Findings to state, tribal and local governments and others who submitted comments on the proposed floodplain action. This statement will include a brief description of the proposed project, an explanation of why it is located in a floodplain, the alternatives considered, a statement indicating if the action conforms to state and local floodplain requirements, and a brief description of the steps to be taken to minimize potential harm within the floodplain.

LITERATURE CITED

LANL (Los Alamos National Laboratory) 2012a. “Floodplain Assessment for the Proposed Outdoor Fire Range Upgrades at TA-72 in Lower Sandia Canyon, Los Alamos National Laboratory.” Los Alamos National Laboratory report LA-UR-12-23681.

LANL (Los Alamos National Laboratory) 2012b. “Floodplain Assessment for the Proposed Engineered Erosion Controls at TA-72 in Lower Sandia Canyon, Los Alamos National Laboratory.” Los Alamos National Laboratory report LA-UR-12-24060.