

## LA-UR-17-22373

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Title: Floodplain and Wetland Assessment for the Mortandad Wetland  
Enhancement and the DP Dissipater Projects at Los Alamos National  
Laboratory

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Intended for: Environmental Programs

Issued: 2017-05-05 (rev.3)

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March 2017

# **Floodplain and Wetland Assessment for the Mortandad Wetland Enhancement and the DP Dissipater Projects at Los Alamos National Laboratory**

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Prepared for: U.S. Department of Energy, National Nuclear Security Administration,  
Los Alamos Field Office

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## **ACRONYMS AND TERMS**

BMP	Best Management Practice
CFR	Code of Federal Regulations
DP	Delta Prime
DOE	U.S. Department of Energy
LANL	Los Alamos National Laboratory
TA	Technical Area

## INTRODUCTION

This floodplain and wetland 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* and Executive Order 11990 *Wetlands Protection*. According to 10 CFR 1022, a 100-year floodplain is defined as “the lowlands adjoining inland and coastal waters and relatively flat areas and flood prone areas of offshore islands” and a wetland is defined as “an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.” In this action, DOE is proposing two projects to improve wetland and floodplain function at Los Alamos National Laboratory (LANL). The proposed work will comply with corrective action requirements under the Settlement Agreement and Stipulated Final Compliance Order (Settlement Agreement)<sup>1</sup> Number HWB-14-20.

The first project is located in Technical Areas (TA)-03 in upper Mortandad Canyon. The upper Mortandad wetlands have existing stormwater controls that need to be rehabilitated. Head-cut formation is occurring at the downstream portion of the wetland. This project will repair damages to the wetland and reduce the future erosion potential.

The second project is located in TA-21 in Delta Prime (DP) Canyon. The intent of the DP Dissipater Project in DP Canyon is to install stormwater control structures in DP Canyon to retain low channel flows and reduce downstream sediment transport as well as peak flows during low and moderate storm events. Due to increased erosion, the stream bank in this area has unstable vertical walls within the stream channel.

The DOE prepared this floodplain and wetland assessment to evaluate the potential impacts of implementing the proposed actions within the wetland and floodplain, as required by 10 CFR 1022.

## PROJECT DESCRIPTIONS

The first proposed action at the upper Mortandad Canyon wetland, which is directly south of TA-03 building 1076, is intended to correct the existing stormwater controls that are beginning to fail and causing head-cutting in the wetland (Figure 1; Photograph 1). This site is not within the 100-year floodplain. Heavy machinery such as excavators, front end loaders, and dump trucks will be

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<sup>1</sup> Settlement Agreement Number HWB-14-20 is the agreement between the Hazardous Waste Bureau of the New Mexico Environmental Department and the U.S. Department of Energy and Los Alamos National Security, LLC. The agreement settles and completely resolves the alleged violations contained in the December 6, 2014 Los Alamos National Laboratory Order, and any future claims, penalties, fines, liabilities or other sanctions against the Respondents and their officers, directors, employees, agents, constituent agencies, contractors, subsidiaries, successors, assigns, trustees, receivers, and other affiliates arising from or related to the February 14, 2014 incident at the Waste Isolation Pilot Plant.

used to accomplish the needs of the project. The work will be focused around the existing gabion structure. Spoils may be stored to the north of this structure, away from the wetland. The phases may include extraction of existing sediment, soil, piping and gabion, utilizing spoils on-site along with rock from existing gabion. The channel may be relocated to the desired location and new gabions may be installed according to engineering specifications. Reseeding, planting, mulching, or hydro-seeding may occur if necessary.



**Photograph 1. Upper Mortandad Canyon wetland with the erosional head-cutting visible on the left.**

The second proposed action being assessed in this document occurs in the bottom of DP Canyon (Figure 2; Photographs 2 and 3). The purpose of this project is to slow water flow and control sediment in a reach of DP Canyon. This project area is within the 100-year floodplain but does not contain any wetlands. The channel in this reach is currently showing bank undercutting and bank failure with channel widening. Channel widening has resulted in loss of bank vegetation including established trees. The project will use native materials sourced from DP Canyon and standard best management practice devices for installing energy dissipaters, channeling flow, armoring banks, and making areas for sediment accumulation. Local boulders will be used and positioned to direct flow away from banks to protect banks and dissipate energy. Native logs will be anchored into channel banks to direct flow away from banks into channel stream lines and



allow for sediment accumulation. Turf reinforcement matting will be used to reinforce banks. Disturbed areas outside of the channel bottom will be seeded with a select seed mix approved for the region.

The project reach is continuous, but three work areas are identified based on purpose and access limitations (Figure 2). Area 1 will use native material armoring, like boulders, positioned to direct flows away from banks. Area 2 has a long reach of bank widening where bank stabilization and armoring is proposed. Area 3, where the most severe bank failure exists, will include flow direction efforts to direct flow away from the highly erodible banks.

The project will use heavy equipment such as backhoe and front end loader to install the improvements and move soils. This work occurs within the 100-year floodplain and heavy equipment will traverse the floodplain. Spoils piles may be temporarily staged in the floodplain, but equipment and vehicles will be staged outside of the floodplain. The project will utilize and maintain appropriate best management practices (BMPs) to contain excavated materials, and all pollutants, including oil from machinery/vehicles. The project will stabilize disturbed areas as appropriate at the end of the project. A temporary access road up to 1500 feet in length will be developed for site access. This road is only temporary and will be returned to a natural state after the project is complete.



**Photograph 2. Unstable vertical banks.**



**Photograph 3. Severe bank undercutting.**

## **WETLAND IMPACTS**

The proposed excavation in the wetland in upper Mortandad canyon is less than 200 square feet in size with an overall footprint less than one acre in the surrounding forest. There is an existing stormwater control structure at this site that is being removed and replaced with a larger and better engineered structure.

There will be negative, short-term direct effects to the wetland from its temporary excavation and storage. Once the structures are in place, the wetland will be returned to its position intact. Additionally it will be supplemented with the addition of new wetland vegetation and seeds to promote stability and growth. This project will not affect the natural wetland processes.

No long-term negative direct or indirect impacts to the wetland are expected under the proposed project.

## **FLOODPLAIN IMPACTS**

The proposed action in DP Canyon will have a possible disturbance to the floodplain of up to 0.5 acres. Road access to the site does not exist. A temporary access road up to 1500 feet in length

will be developed for site access. The road will not occur in the floodplain unless it is required to cross the channel. The floodplain boundary averages 20 feet in width for the entire reach of the project. Any temporary access routes will be returned to a natural state after project completion.

There will be negative, short-term direct effects to the floodplain from the vehicle and heavy equipment compacting the soil and causing vegetation loss. Erosion, sediment transport, and flood hazard will return to pre-construction conditions once the project is completed and vegetation restored. This project will not affect the natural floodplain processes.

No long-term negative direct or indirect impacts to the 100-year floodplain are expected under the proposed project. No effects to lives or property associated with floodplain disturbance are anticipated.

## **MITIGATION MEASURES TO REDUCE IMPACTS TO THE WETLAND AND FLOODPLAIN**

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

- Support structures such as personnel trailers will not be installed within the floodplain or within 100 feet of the wetland.
- Any disturbed areas will be revegetated with an appropriate native seed mix or plants within 30 days or at the beginning of the growing season after construction is completed.
- All trash and debris (e.g., construction material) will be removed from the floodplain after construction is complete.
- Do not store hazardous materials, chemical, fuels, and oils within the floodplain or within 100 feet of the wetland.

Compliance with the Migratory Bird Treaty Act requires that no vegetation removal occurs 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 until the nesting is complete.

## **ALTERNATIVES**

The only viable alternative to the proposed actions is a no action alternative. This alternative was not selected because it would not allow DOE to fulfill its requirements under the 2015 Settlement Agreement Compliance Order No HWB-14-20. The reduction of the potential migration of chemicals is an important goal of LANL's operational practices.

## **CONCLUSIONS**

These projects will not result in long-term adverse impacts to the wetland in upper Mortandad Canyon or the 100-year floodplain in DP Canyon. Best management practices will be implemented. These proposed projects will not significantly modify existing elevations and flow paths within the wetland or floodplain from pre-project conditions to post-project conditions or result in other long-term negative impacts to the natural processes. No effects to lives and property associated with floodplain modifications are anticipated.

In accordance with 10 CFR Part 1022, a Statement of Findings based on the information in this document will be published and available for public comment. 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.

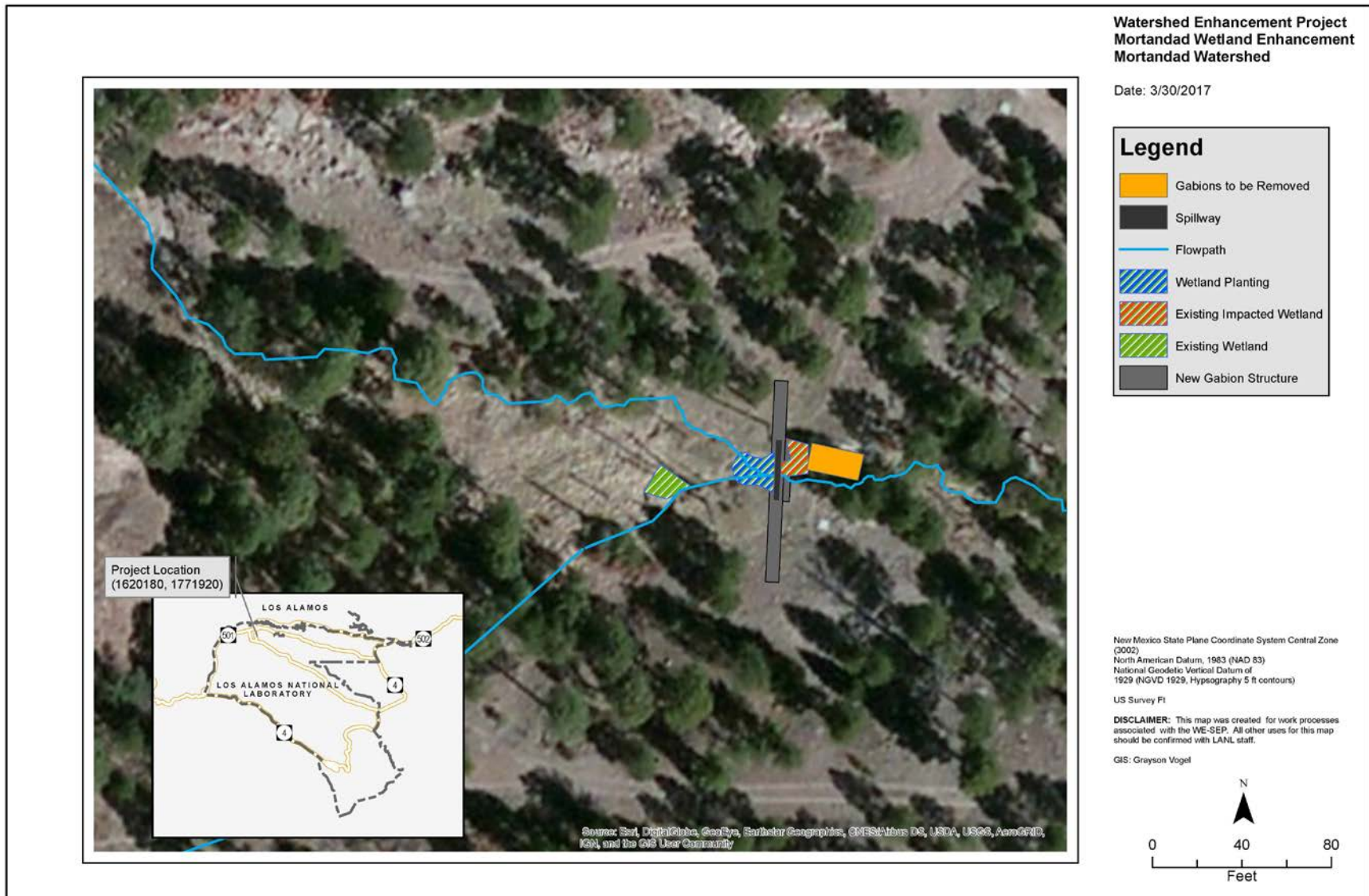


Figure 1. Proposed work in and around the small wetland in upper Mortandad Canyon.

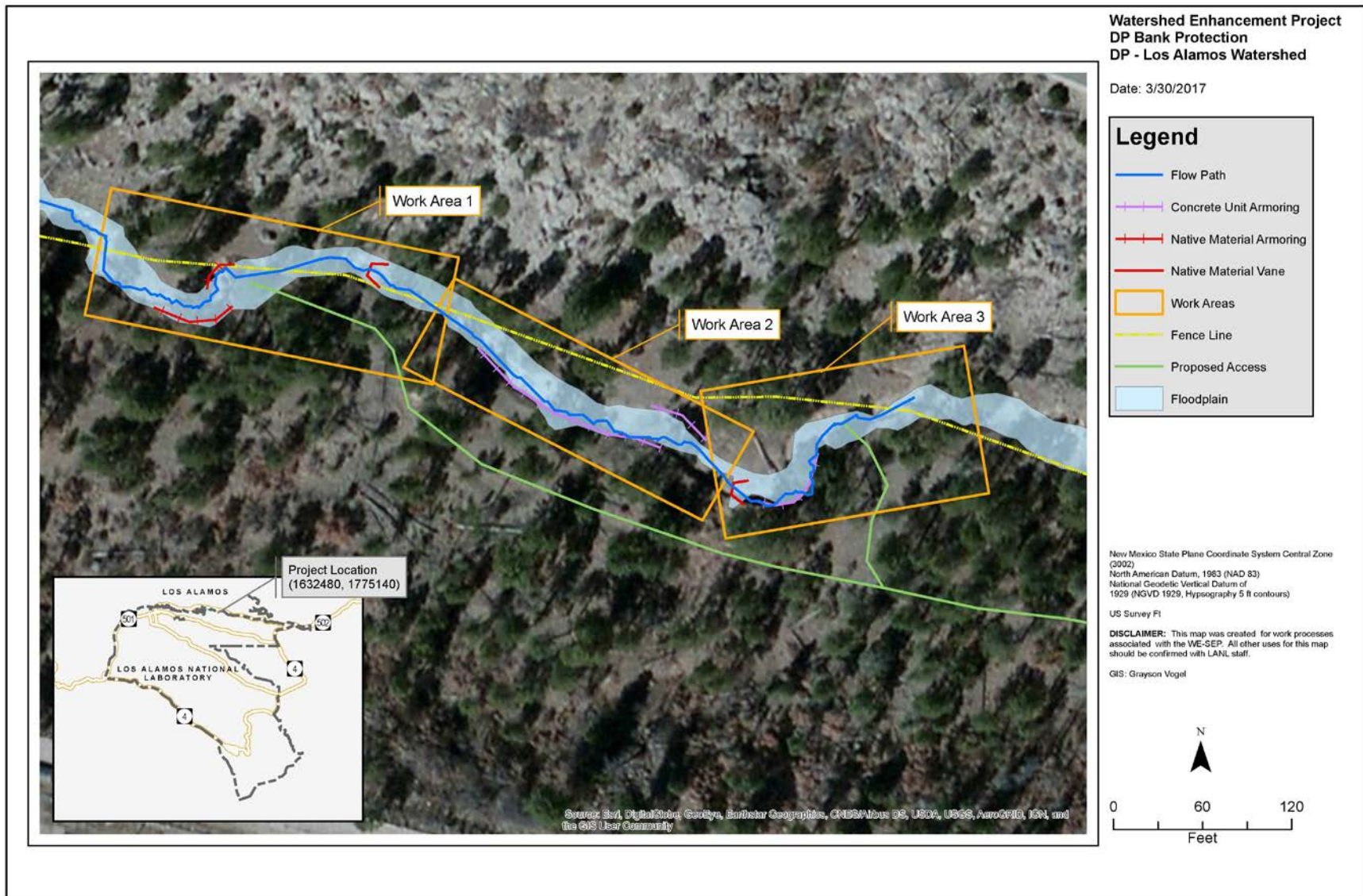


Figure 2. Proposed location for channel improvements in DP Canyon in relation to the 100-year floodplain.