LLNL-AR-820616

Lawrence Livermore National Laboratory

Floodplain and Wetland Assessment for the Site 300 Entrance/Exit Corral Hollow Road Widening Project Adjacent to the Lawrence Livermore National Laboratory Experimental Test Site

March 15, 2021

Prepared by: Lawrence Livermore National Security, LLC
Environmental Functional Area
Water Resources and Environmental
Planning Group

Prepared for: U.S. Department of Energy
National Nuclear Security Administration
Livermore Field Office

Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

Table of Contents

Table of Figures

Photographs

Overview

Lawrence Livermore National Security, LLC (LLNS) is proposing to modify and upgrade a San Joaquin County Road (Corral Hollow Road) at the entrance to the Lawrence Livermore National Laboratory (LLNL) Experimental Test Site (Site 300). LLNS operates LLNL under contract with the Department of Energy/National Nuclear Security Administration (DOE/NNSA).

The purpose of the proposed project is to implement traffic safety improvements at the Site 300 entrance and exit area. The project is needed to provide safer access for employees and visitors into and out of Site 300. This project includes widening Corral Hollow Road, which would encroach on the 100-year Corral Hollow Creek floodplain. In addition, a small artificial wetland occurs within the footprint of the project site.

DOE/NNSA has prepared this Floodplain and Wetland Assessment in accordance with 10 Code of Federal Regulations (CFR) 1022, Compliance with Floodplain and Wetland Environmental Review Requirements, which was promulgated to implement DOE requirements under Executive Order 11988 Floodplain Management and Executive Order 11990 Protection of Wetlands. This Floodplain and Wetland Assessment evaluates potential impacts on floodplain and wetland values and functions from the implementation of the Corral Hollow Road Widening Project, identifies alternatives to the proposed action, and allows for meaningful public comment.

Project Description

The purpose of the proposed project is to implement traffic safety improvements at the Site 300 entrance and exit area. The project is needed to provide safer access for employees and visitors into and out of Site 300.

A traffic study of the entrance and exit area along Corral Hollow Road was conducted in response to safety concerns raised by employees and visitors to Site 300 which included lack of visibility of oncoming traffic, improper passing, speeding, and near misses when merging onto Corral Hollow Road. Based on the collected traffic data, analysis, and field observations, the traffic study concluded with a set of recommendations for roadway improvements. Because these proposed roadway improvements would be located within the San Joaquin County (County) right-of-way, project designs have been submitted to the County's Department of Public Works for review, along with an application for a County encroachment permit. Additionally, a traffic control plan would be prepared and submitted to the County in advance of project implementation. The traffic control plan would describe how traffic would be directed throughout the project area during the construction period.

The proposed project would widen Corral Hollow Road by 12 feet along the south side of the road to accommodate installation of a left-hand turn lane on eastbound Corral Hollow Road, along with associated rumble strips and striping. The proposed project would also include slurry seal for the existing roadway, installation of speed limit signs and solar powered radar signs on

both eastbound and westbound Corral Hollow Road, and right-hand turn pocket delineators on westbound Corral Hollow Road.

To construct this new lane, the limits of disturbance would be bound by temporary construction fencing, and the topsoil along the south side of Corral Hollow Road would be stripped within the limits of disturbance. Imported structural fill would be installed and compacted, bringing the elevation up approximately 3 to 4 feet to the existing elevation of the roadway. New layers of asphaltic concrete would be laid, and the existing lanes would be slurry coated to the limits of the new alignment. New striping would then be installed to demarcate the new lanes and simulated median, along with appropriate signage where required. Lastly, much of the original topsoil would be reinstalled along the new shoulder, followed by hydroseeding.

Description of the Project Site

The project site is located near the western boundary of San Joaquin County adjacent to the south side of Corral Hollow Road at the Site 300 Entrance (Figure 1). Private property is adjacent to the Corral Hollow Road right-of-way to the south, and LLNL's Site 300 boundary is to the north. The land adjacent to Corral Hollow Road to the south is agricultural rangeland. The Site 300 General Services Area (GSA) is located to the north of the project site. The GSA includes Site 300 administrative buildings, parking lots, and a local fire department station. The existing road is used extensively by commuters. At the project site, Corral Hollow Road is elevated above the adjacent grasslands on soil fill to decrease the chance of flooding. The total footprint of permanent and temporary disturbance associated with this project would be less than 1.7 acres. Of the total project footprint, 1.4 acres is within the 100-year floodplain of Corral Hollow Creek (Figure 2).

Three vegetation types/habitats are present and consist of non-native annual grasslands, artificial wetlands, and developed/ruderal. The project site includes the existing roadway and road shoulder and immediately adjacent grasslands. Within the road shoulder, almost all the project site is vegetated by annual grasslands and ruderal species. A very small artificial wetland is found within the project site at a culvert outfall.

The entire project site is upland habitat for two species listed as threatened under the federal Endangered Species Act. In addition, the project site is within the designated California red-legged frog critical habitat and is upland habitat for the California tiger salamander. No aquatic breeding habitat for these species occurs within the project footprint. The nearest potential aquatic breeding habitat for these species is an artificial pool that has been excavated within the floodplain 140 feet south of the project site.

Corral Hollow Creek is 100 to 550 feet south of the project site and flows roughly east toward the San Joaquin River. The creek has intermittent flow; water level is extremely shallow during the winter, and the creek remains dry for most of the year. Average annual rainfall (measured from September 1-August 30) at Site 300 from 1985-2020 has been approximately 10 inches per year.

Potential Floodplains Impacts

The following assessment of floodplain impacts for the Corral Hollow Road Widening Project includes an analysis of positive and negative, direct and indirect, and long- and short-term effects of the proposed action on the floodplain values and functions.

DOE Floodplain and Wetland Environmental Review Requirements define a floodplain as *the lowlands adjoining inland and coastal waters and relatively flat areas and flood prone areas of offshore islands*. A base floodplain is defined as *the 100-year floodplain, that is, a floodplain with a 1.0 percent chance of flooding in any given year*. The Federal Emergency Management Agency (FEMA) National Flood Hazard Map was used as the source of the base floodplain boundary at and near the Corral Hollow Road Widening Project site shown in Figures 2 (FEMA 2021a) and 3 (FEMA 2021b). The project site is in Section 35 of Flood Insurance Rate Map (FIRM) Number 06077C0725F in Zone A (FEMA 2009). Per the FIRM Map legend, Zone A indicates "No Base Flood Elevations determined" (FEMA 2009).

The construction of an additional lane and associated road shoulder south of Corral Hollow Road would result in permanent impacts to 0.3 acres within the 100-year floodplain of Corral Hollow Creek. An additional 1.1 acres of undeveloped land within the 100-year floodplain may be temporarily impacted during construction. Temporary disturbances may include grading or soil compaction to allow heavy equipment to access the area in and adjacent to the construction site.

Potential impacts to floodplain values include the addition of sediment to storm water runoff, the loss of a small volume of flood storage capacity within the floodplain, temporary and permanent impacts to habitat for protected species, and direct impacts to individual California red-legged frogs and California tiger salamanders inhabiting refugia within the project site. These potential impacts would be avoided or minimized through the avoidance measures described below.

A small volume of flood storage capacity would be lost through the construction of the new lane south of Corral Hollow Road. The land south of Corral Hollow Road within the Corral Hollow Creek floodplain is rangeland used for cattle grazing (Photographs 1 and 2). At the project site, the existing road is constructed 3 to 4 feet above the elevation of the floodplain. The new lane would also be raised above the elevation of the floodplain on structural fill to match the elevation of the existing roadway and minimize the chance of the road flooding. Because of the small area (0.3 acres) of floodplain that would be permanently lost due to this construction, and the lack of buildings within the floodplain near the project site, impacts to floodplain capacity resulting from this project are expected to be negligible.

LLNL meets storm water pollution prevention requirements of the California National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (2009-0009-DWQ). Best Management Practices (BMPs) would be implemented to minimize or eliminate impacts to storm water runoff. Storm water protection activities, including implementation of BMPs, would be described in a project-specific Storm Water Pollution Prevention Plan (SWPPP) prior to commencing construction activities.

Impacts to protected species and storm water quality would be minimized by conducting the project during the dry season. The climate at the project site consists of hot, dry summers and

mild, wet winters. Most rainfall is received after October and before May of each year. California tiger salamanders and California red-legged frogs are most likely to make movements through upland habitat during periods of wet weather. This project would be conducted after May 15 and before October 15 when California tiger salamanders and California red-legged frogs are unlikely to make movements through dry upland areas such as the project site.

The project site is expected to have minimal value as upland habitat for California red-legged frogs and California tiger salamanders because of its proximity to the busy County road and the lack of small mammal burrows within the project site.

Temporary impacts to upland habitat for the California red-legged frogs and California tiger salamanders would be minimized by restoring all areas of temporary disturbance with a native grass seed mix appropriate for the area.

DOE/NNSA has consulted with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife regarding this project and will submit a Biological Assessment to the San Joaquin Valley Division of the U.S. Fish and Wildlife Service. The Biological Assessment describes the proposed project, potential effects on species listed as threatened or endangered under the federal Endangered Species Act (listed species) and measures that would be implemented during this project to avoid and minimize impacts to listed species and their critical habitat.

The following avoidance measures are required by the Endangered Species Act consultation for this project and would further minimize potential impacts to floodplain values:

- Temporary and permanent impacts to California red-legged frog and California tiger salamander habitat would be minimized through participation in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). Participation in the SJMSCP would include the payment of a fee by LLNS that would be applied toward the protection of 1.7 acres of natural habitat suitable for these species.
- A preconstruction survey for listed species would be performed by a biologist approved by the U.S. Fish and Wildlife Service (Service-approved biologist) prior to groundbreaking activities.
- Initial ground disturbance and construction would be monitored by a Service-approved biologist.
- Staging areas would be limited to existing parking lots and equipment yards.
- Prior to construction, an endangered species education and awareness program would be conducted for construction employees and supervisors. The program would include: a description of the species and their habitat needs; any reports of occurrences in the project area; an explanation of the status of each listed species and their protection under the Endangered Species Act; and a list of measures being taken to reduce effects on the species during construction and implementation.
- All trash and debris within the work area would be placed in containers with secure lids before the end of each workday to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other food related trash that may be left on-site.

- Activities shall be restricted to periods of low rainfall (less than 0.25 inch per 24-hour period and less than 30 percent chance of rain) or dry weather periods.
- Ground disturbing activities shall occur only during daylight hours.
- Standard construction BMPs would be incorporated into construction designs, plans, and specifications when appropriate.

Potential Wetlands Impacts

DOE Floodplain and Wetland Environmental Review Requirements define wetlands as *areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas*.

An aquatic resources delineation of the project site was completed in the fall of 2019 to determine the extent of wetlands and other aquatic resources at and adjacent to the project site. One small artificial wetland (430 square feet) was found within the project site during this delineation. The Central Valley Regional Water Quality Control Board has been consulted, and this wetland is not a water of the state. No wetlands nor other waters meeting the definition of waters of the U.S. or waters of the state occur at the project site.

The artificial wetland within the project site is shown in Figure 2 and Photograph 1. This wetland occurs at the outfall of a culvert that drains parking lots and roadways within the Site 300 GSA. Irrigation runoff from landscaping surrounding the Site 300 parking lot reaches this area throughout the year allowing the development of the artificial wetland. This wetland is not expected to be present “under normal circumstance” (without the addition of irrigation runoff) and therefore is not considered a wetland under 10 CFR 1022.

Army Corp of Engineers and Regional Water Quality Control Board permits for the fill of wetlands are not needed for the extension of this culvert and fill of the artificial wetland because it is not considered a regulated water of the state or a water of the U.S.

The wetland is dominated by the non-native wetland plant perennial pepperweed *(Lepidium latifolium)* and is expected to have minimal habitat value for protected species because of its small size and degraded quality.

The culvert at this small wetland would be extended beyond the edge of the new lane, and the artificial wetland at the culvert outfall would be filled. The loss of wetland values resulting from this action would be avoided through the measures described in the previous section of this assessment (Potential Floodplains Impacts).

In addition, impacts to wetland values would be avoided through the following measure:

- The artificial wetland south of Corral Hollow Road would not contain surface water at the time of construction. This would be achieved by conducting the project during the dry season when rainfall is unlikely, and ensuring artificial water sources, such as irrigation runoff, do not reach this area during construction.

Alternatives

The traffic study of the Site 300 entrance and exit area along Corral Hollow Road concluded with a set of recommendations for roadway improvements. The main recommendation consisted of road widening to accommodate the additional lane configurations. Widening of the roadway to the north was rejected due to the proximity of the existing right-of-way to the Site 300 boundary. Speed humps were rejected for this roadway due to the posted speed limit and average daily traffic (ADT), as San Joaquin County guidelines consider speed humps mainly for residential neighborhoods with lower speed limits. A No Action alternative was also rejected due to the long-standing safety and traffic flow issues at the Site 300 entrance and exit area.

Conclusion

The goal of this project is to implement necessary traffic safety improvements along Corral Hollow Road at the Site 300 entrance and exit area. Impacts to floodplain values would be avoided to the maximum extent practicable during this project. The project is not expected to result in impacts to wetland values.

Potential impacts to storm water quality would be avoided because the project would be conducted following a project specific SWPPP during the dry season and any exposed soil at the project site would be stabilized by hydroseeding. The loss of floodplain volume that would result from this project would be minimal and is not expected to be significant.

The project would result in potential impacts to upland habitat for two species listed as threatened under the federal Endangered Species Act, the California red-legged frog and the California tiger salamander. In addition, the project site is located within critical habitat for the California red-legged frog. LLNS and DOE/NNSA have consulted with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife regarding these impacts. Impacts to these species would be minimized and mitigated through participation in the SJMSCP. LLNS would fund the protection of 1.7 acres of natural habitat for these species through participation in the SJMSCP as part of this project. The potential for direct impacts to listed species during construction is minimal because of the degraded habitat value of the grasslands at the project site adjacent to Corral Hollow Road. Direct impacts to listed species and their habitat would be further minimized through avoidance measures including limiting construction to the dry season and restoring areas of temporary disturbance at the project site.

DOE/NNSA has published this Floodplain and Wetland Assessment for a 15 day public review and comment period. After the close of the public comment period and prior to issuing a floodplain and wetlands statement of findings, DOE/NNSA will reevaluate the practicability of alternatives to the proposed floodplain action, mitigating measures, and consider all substantive comments received during the public comment period.

References

Federal Emergency Management Agency (FEMA). 2009. Flood Insurance Rate Map (FIRM), San Joaquin County, California, Map Number 06077C0725F. Accessed from the FEMA National Flood Hazard Viewer at https://www.fema.gov/flood-maps/national-flood-hazard-layer on March 11, 2021.

Federal Emergency Management Agency (FEMA). 2021a. National Flood Hazard Layer. Accessed at AcrGIS Online on February 19, 2021.

Federal Emergency Management Agency (FEMA). 2021b. Accessed from FEMA's Map Service Center at https://www.fema.gov/flood-maps/national-flood-hazard-layer on March 11, 2021.

Sequoia Ecological Consulting. 2019. Aquatic Resource Delineation Report, Corral Hollow Road, San Joaquin County, California. Prepared for Lawrence Livermore National Security by Sequoia Ecological Consulting, Inc. Danville, CA.

Figures

Figure 1. The project site is located south of the southern boundary of Site 300 in the San Joaquin County Right of Way.

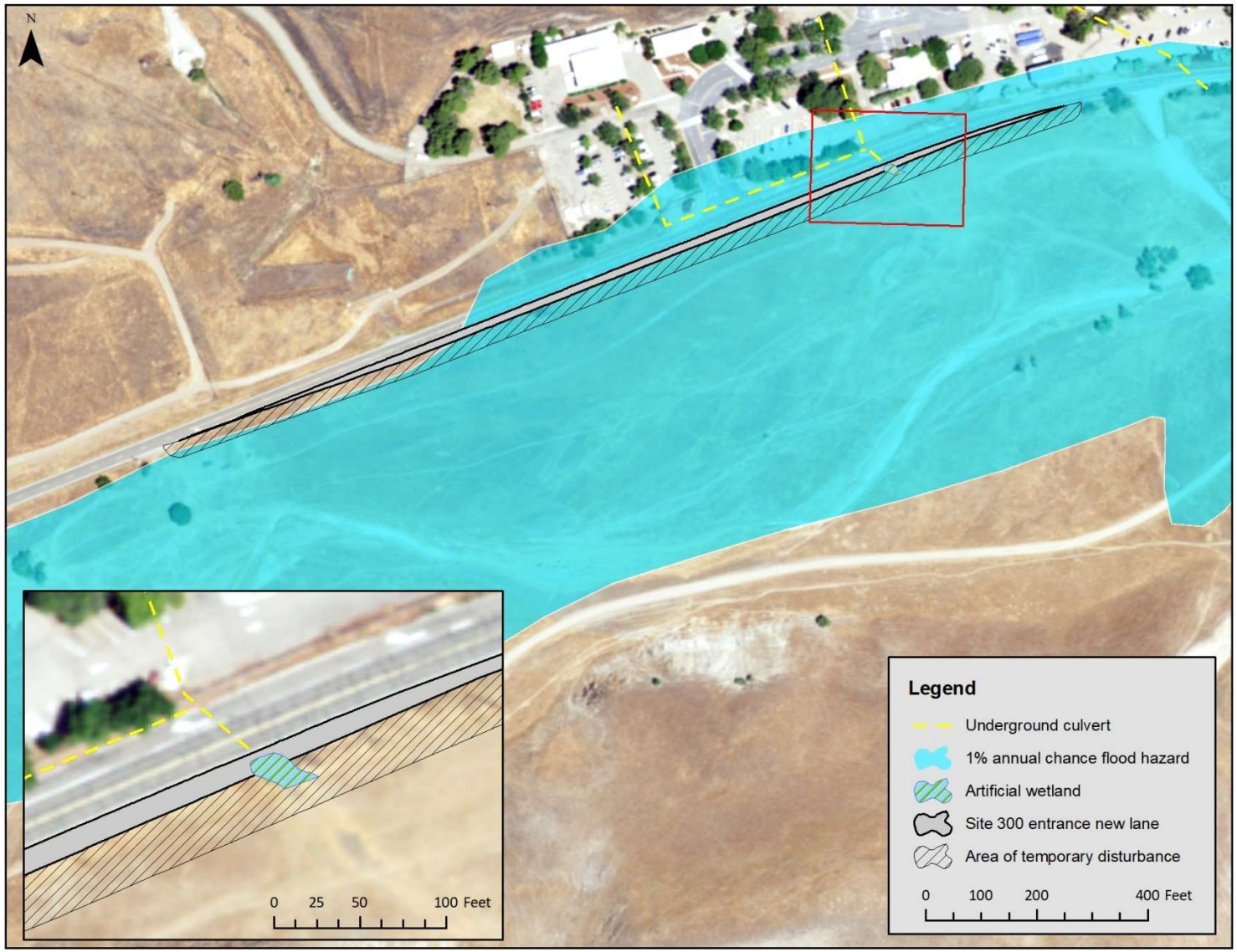

Figure 2. Location of the Site 300 Entrance/Exit Corral Hollow Road Widening Project shown with the location of flood hazard zones (FEMA 2021a) and a small artificial wetland.

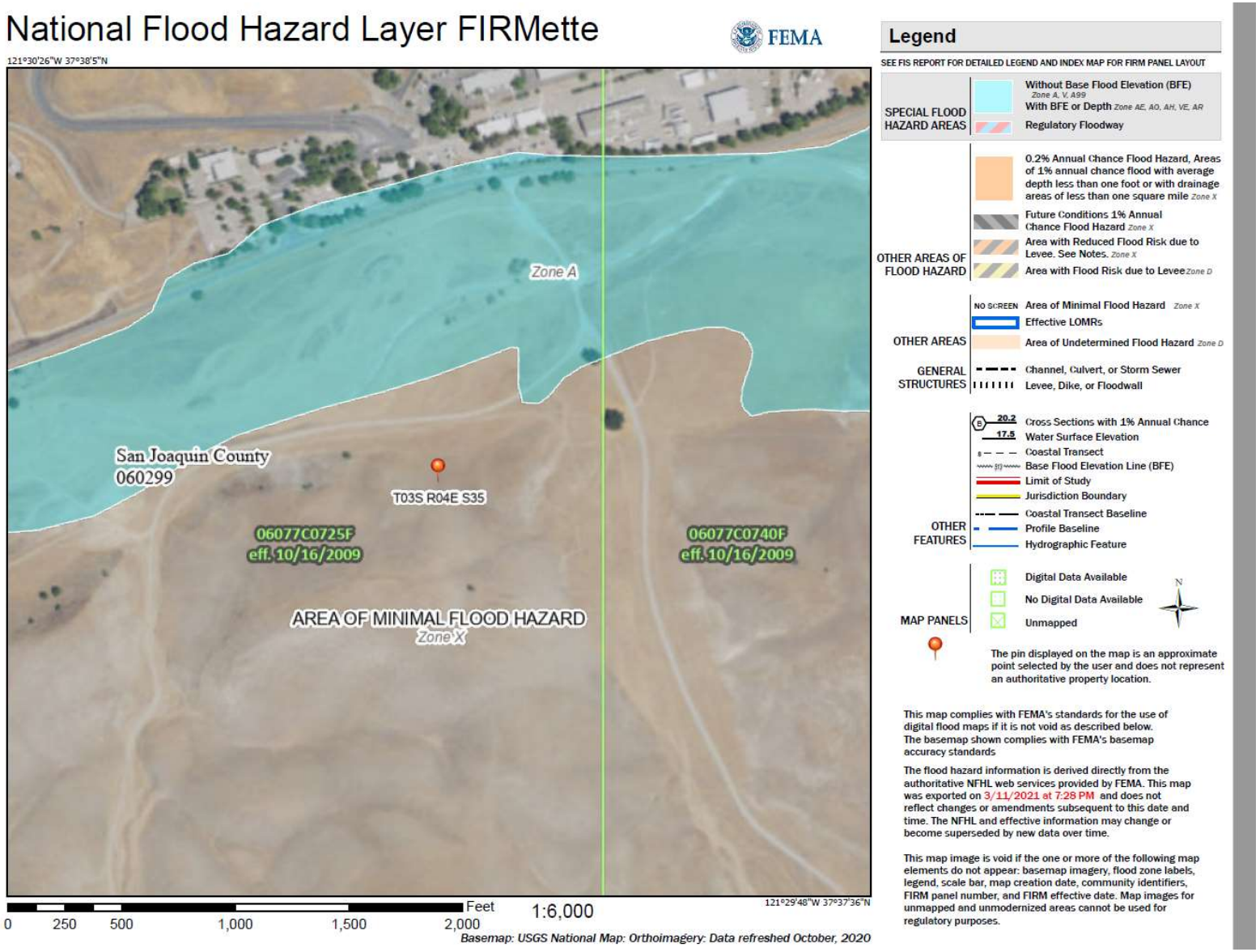

Figure 3. FEMA National Flood Hazard Map (FEMA 2021b).

Photographs

Photograph 1. Facing southeast from the Corral Hollow Road shoulder at the project site (August 2020). The artificial wetland is shown as a green patch in center of this photograph.

Photograph 2. Facing southwest from the Corral Hollow Road shoulder at the project site (August 2020).