Appendix D

Aquatic Resources Delineation

HELIX Environmental Planning

East Line Street Bridge Replacement Project

Aquatic Resources Delineation Report

August 2023 | 05049.00002.001

Prepared for:

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
CWA	Clean Water Act
FAC	Facultative plants
FACU	Facultative upland plants
FACW	Facultative wetland plants
HELIX	HELIX Environmental Planning, Inc.
HUC	Hydrologic Unit Code
LADWP	Los Angeles Department of Water and Power
LRWQCB	Lahontan Regional Water Quality Control Board
msl	mean sea level
NRCS	Natural Resource Conservation Service
OBL	Obligate wetland plants
OHWM	ordinary high water mark
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
UPL	Upland plants
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WQC	Water Quality Certification

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EXECUTIVE SUMMARY

This report presents the results of an aquatic resources delineation within the 1.99-acre East Line Street Bridge Replacement Project (Study Area). The Study Area associated with the project is located on East Line Street and includes portions of the access roads situated along the Bishop Creek Canal, which is partially in the City of Bishop and unincorporated Inyo County, California. The potential presence of aquatic resources was assessed following the technical guidelines provided by the U.S. Army Corps of Engineers (USACE) in the *Corps of Engineers Wetlands Delineation Manual* (USACE Manual), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (Supplement), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (Interim Version). These technical guidelines present wetland and ordinary high water mark (OHWM) indicators, delineation guidance, and other information that pertain to the *Arid West* Region.

A total of 0.305 acre of aquatic resources have been delineated in the Study Area, which consists completely of other waters, as no wetlands were observed within the site. Other waters in the Study Area consist of the Bishop Creek Canal (0.305 acre, 554 linear feet), which would be considered potential waters of the U.S. and State.

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1.0 INTRODUCTION

On behalf of the City of Bishop (Applicant), HELIX Environmental Planning, Inc. (HELIX) has prepared this aquatic resources delineation report for Lumos & Associates, Inc., in support of the East Line Street Bridge Replacement Project (project) to delineate potential jurisdictional wetlands and other waters of the U.S. and State within a 1.99-acre Study Area located on East Line Street, partially in the City of Bishop and unincorporated Inyo County, California (Appendix A, Figure 1). The purpose of this delineation was to identify aquatic resources in the Study Area that would potentially qualify as waters of the U.S. and/or waters of the State. Waters of the U.S. are subject to regulatory jurisdiction by both the U.S. Army Corps of Engineers (USACE) and the applicable Regional Water Quality Control Board (RWQCB). Waters of the State are subject to the jurisdiction of the RWQCB. If present, impacts to aquatic resources would potentially require obtaining permits and authorizations from one or both agencies. The results presented in this document are preliminary and subject to verification by the USACE.

1.1 PROJECT LOCATION

The 1.99-acre Study Area, which includes the project footprint, is located on East Line Street in the City of Bishop in Inyo County, California, and can be located within portions of Sections 5 through 8, of Township 7 South and Range 33 East on the U.S. Geological Survey (USGS) *Bishop, California* 7.5-minute quadrangle map (Appendix A, Figure 2). The approximate center of the Study Area is latitude 37.3615516° and longitude -118.3859454°, NAD 83, and is located at an elevation that ranges from approximately 4,130 feet to 4,140 feet above mean sea level (msl).

1.2 DRIVING DIRECTIONS

From Bishop City Hall, located at 377 West Line Street within Bishop, CA, travel east on West Line Street for 0.1 mile towards Main Street. Proceed straight onto East Line Street and travel 0.5 mile to the East Line Street bridge. The site is accessible from the canal access roads immediately adjacent to the bridge.

1.3 AGENT CONTACT INFORMATION

Applicant:
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Phone: (760) 873-8458
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1.4 REGULATORY SETTING

1.4.1 Waters of the U.S.

On May 25, 2023, the United States Supreme Court issued a decision in the case of *Sackett v. Environmental Protection Agency* (Supreme Court of the United States, 2023) which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* determined that "the CWA extends to only those 'wetlands with a continuous surface connection to bodies that are "waters of the United States" in their own right,' so that they are 'indistinguishable' from those waters." The United States Environmental Protection Agency and the United States Army Corps of Engineers are reviewing the decision to determine next steps.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in "waters of the U.S.," including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The Clean Water Act (33 United States Code (USC) 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

1.4.2 Waters of the State

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Clean Water Act. Although the Clean Water Act is a federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the

Water Code). The WQC Program currently issues the WQC for discharges requiring USACE permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

I. A wetland definition;

II. A framework for determining if a feature that meets the wetland definition is a water of the state;

III. Wetland delineation procedures; and,

IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the State" includes all "waters of the U.S."

More specifically, a wetland is defined as: "*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation*." The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to waters of the State, which includes waters of the U.S. and non-federal waters of the State, requires filing of an application under the Procedures.

2.0 ENVIRONMENTAL SETTING

2.1 LOCATION DESCRIPTION

The Study Area, and surrounding area, has a history of municipal utility management associated with the Los Angeles Department of Water and Power (LADWP), as well as urban growth associated with the City of Bishop. Based on a review of historic aerial imagery (NETR 2023), the site is relatively unchanged since 1977. The alignment of the canal is in the same location dating back to 1947, however the roads that parallel the canal appear to have been widened between 1947 and 1977. The current extent of development and rural areas within/adjacent to the Study Area appear to be relatively the same as they were in 1977. An aerial image of the Study Area is included in Appendix A, Figure 3.

2.2 EXISTING CONDITIONS

Terrain throughout the Study Area is comprised of generally flat land and is entirely developed and disturbed. Bishop Creek Canal originates at North Fork Bishop Creek to the north and is conveyed south through the Study Area underneath East Line Street. Elevations on the site range from approximately 4,130 feet to 1,440 feet above msl.

2.3 FIELD CONDITIONS

Fieldwork for the aquatic resource delineation was conducted on June 16, 2023, and weather during the site visit was warm and partly cloudy.

2.4 INTERSTATE OR FOREIGN COMMERCE CONNECTION

The Study Area is in the Crowley Lake watershed (USGS Hydrologic Unit Code (HUC-8) 18090102). The canal in the Study Area diverts water from South and North Fork Bishop Creek, and is ultimately tributary to the Owens River, which flows into Owens Lake, a traditional navigable water. Although aquatic resources in the Study Area drain off site and are hydrologically connected to other waters of the U.S., they are not utilized for foreign or interstate commerce.

3.0 METHODS

3.1 DATA GATHERING

The following sources were used in preparation of this jurisdictional delineation:

- Aerial photography taken July 1, 2023, downloaded from Esri®,
- U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory online wetland mapper (USFWS 2023),
- Natural Resources Conservation Service (NRCS) web soil survey (NRCS 2023b),
- Corps of Engineers Wetlands Delineation Manual (USACE 1987),
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008),
- National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams (Interim Version) (USACE 2022),
- Field Indicators of Hydric Soils in the United States (Version 8.2) (NRCS 2018), and
- USACE 2020 National Wetland Plant List for the Arid West (USACE 2020).

3.2 BOUNDARIES OF THE DELINEATION

The delineation area includes the estimated 1.99-acre Study Area (Appendix B, *Aquatic Resources Delineation Map*). Refer to this map for the limits of the delineation.

3.3 DETERMINATION PROCEDURES

3.3.1 Delineation Methods

Criteria for determining the presence of wetlands or other waters subject to USACE jurisdiction are presented in the USACE *Wetlands Delineation Manual* (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0; USACE 2008), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (Interim Version; USACE 2022).

Key criteria for determining the presence of wetlands subject to USACE jurisdiction (USACE 1987) are:

a) The presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water.

b) A prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

To assess whether wetlands are present, USACE requires that data be recorded on three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators for all three parameters are generally required for USACE to assert jurisdiction.

Fieldwork for the jurisdictional delineation was conducted by HELIX wetland scientist Greg Davis on June 16, 2023, in accordance with the Corps of Engineers Wetlands Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Version 2.0; USACE 2008), and the National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams (Interim Version; USACE 2022). Vegetation, soils, and hydrologic characteristics were visually assessed by conducting meandering transects through the entire Study Area to obtain 100 percent visual coverage.

Plant species identifiable at the time of the survey were recorded in the field and are included in Appendix C of this report. Plants observed within the Study Area were categorized with the wetland indicator status for each species, as shown in Table 1 below.

Table 1
WETLAND INDICATOR STATUS RATING

Indicator Status (abbreviation)	Characterization
Obligate (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Occur in wetlands and non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Upland (UPL)	Almost never occur in wetlands

The Munsell Color chart (Gretag Macbeth 2000) was used to determine moist soil colors and thus, hydric soils, if present. Data were taken at four representative sample points throughout the Study Area to classify the site's soils, vegetation, and hydrologic characteristics. Wetland determination data forms are provided in Appendix D. Additionally, data was taken at one cross section within the Study Area to

characterize the OHWM of other waters within the site; refer to the OHWM field identification data sheet provided in Appendix E.

Geographic coordinates of aquatic resources boundaries and locations of sample points were recorded in the field with an electronic tablet wirelessly connected to a Juniper Geode® (Global Navigation Satellite System (GNSS)) receiver unit with sub-meter accuracy. These data were exported into ArcGIS Pro 3.1.2® and used to produce the Aquatic Resources Delineation Map included as Appendix B. Representative photographs of the Study Area, and the associated sampling locations, are included as Appendix F.

3.3.2 Plant/Habitat Nomenclature

Habitat nomenclature is generally derived from *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Plant nomenclature is taken from The Jepson Manual: Vascular Plants of California, second edition (Baldwin et al. 2012).

4.0 RESULTS

4.1 VEGETATION COMMUNITIES/HABITAT TYPES

One upland community occurs within the Study Area that consists of 1.68 acres of developed/disturbed land. This community is discussed below.

4.1.1 Developed/Disturbed

Due to the historic development of the Bishop Creek Canal and its associated roadways, along with the paved East Line Street alignment, the Study Area is characterized by one upland community that consists of approximately 1.68 acres of developed/disturbed lands (Appendix A, Figure 5). Non-paved areas of the site consist primarily of barren, compacted soil that is utilized as an access road for the Bishop Creek Canal. The Study Area is relatively void of vegetation aside from patches of mostly non-native vegetation at the base of utility poles, in roadside fill, and along fence lines of the adjacent properties to the east. Vegetation immediately adjacent to the canal, where present, appears to be routinely managed through mowing activities.

Although no particular plant species appear to be dominant within this community, non-native grasses and forbs such as hare barley (*Hordeum murinum* ssp. *leporinum*) (FACU), cheatgrass (*Bromus tectorum*) (--), Russian thistle (*Salsola tragus*) (FACU), and redstem filaree (*Erodium cicutarium*) (--) persist throughout areas influenced by the canal. Isolated patches of native vegetation also occur along the fence lines of the adjacent properties to the east, which includes wild licorice (*Glycyrrhiza lepidota*) (FAC), hemp dogbane (*Apocynum cannibinum*) (FAC), annual bursage (*Ambrosia acanthicarpa*) (--), rubber rabbitbrush (*Ericameria nauseosa*) (--), alkali sacaton (*Sporobolus airoides*) (FAC), beardless wildrye (*Elymus triticoides*) (FAC), and saltgrass (*Distichlis spicata*) (FACW).

4.2 CLIMATE

Climate in the Owens Valley is arid with cool, moist winters and hot, dry summers. The nearest weather station with sufficient climate data to generate 30-year average precipitation values is located at Bishop Airport in Bishop, California. The weather station is associated with the USDA-NRCS Climate Analysis for

Wetlands Tables (WETS). Average daily maximum and minimum temperatures are 99° and 57° Fahrenheit (F) in July and 55° and 23° F in January (NRCS 2023a). The mean annual precipitation is 5.17 inches, and the mean annual snowfall is 6.0 inches. Due to the rain shadow cast by the Sierra Nevada Mountain range, precipitation and snowfall values in Bishop are low, however rainfall can persist into the summer via high elevation thunderstorms. The Bishop Airport WETS weather station reported 16.37 inches of rainfall this rain season starting in July of 2022, which is 317 percent of the average annual rainfall for the area.

4.3 SOILS

The NRCS has mapped two soil units within the Study Area: Dehy loam, 0 to 2 percent slopes and Dehy-Dehy calcareous complex, 0 to 2 percent slopes (Appendix A, Figure 4). The general characteristics and properties associated with these soil types are described below. All soils in the Study Area are derived from alluvium of mixed rock sources (NRCS 2023).

Dehy loam, 0 to 2 percent slopes: this consociation is a somewhat poorly-drained soil derived from mixed alluvium that occurs on alluvial fans and floodplain terraces. A typical profile is loam and sandy clay loam to a depth of 19 inches, a depth to restrictive feature of more than 80 inches, and a depth to water table of 24 to 36 inches. The frequency of flooding is “rare”, and the frequency of ponding is “none”. Dehy loam soil is classified as prime farmland if drained and irrigated. This soil is listed on the national list of hydric soils in Inyo County when occurring in channels and alluvial fans.

Dehy-Dehy calcareous complex, 0 to 2 percent slopes: this complex is associated with somewhat poorly drained soils derived from mixed alluvium that occur on alluvial fans and floodplain terraces. A typical profile is loamy sand, sandy clay loam, and sandy loam to a depth of 36 inches, a depth to restrictive feature of more than 80 inches, and a depth to water table of 24 to 36 inches. The frequency of flooding is “rare”, and the frequency of ponding is “none”. Dehy-Dehy calcareous complex soil is classified as prime farmland if drained and irrigated. This soil is listed on the national list of hydric soils in Inyo County when occurring in channels and alluvial fans.

4.4 HYDROLOGY

The Study Area is in the Crowley Lake watershed (USGS HUC-8 18090102). The site is drained by Bishop Creek Canal, which diverts flow from South Fork Bishop Creek and North Fork Bishop Creek. Bishop Creek Canal flows south from the Study Area though a system of irrigation and diversion canals managed by the LADWP, which are ultimately tributary to the Owens River. Although most of the flow from the Owens River is diverted into the Los Angeles Aqueduct, there remains a continuous surface water connection to the historic Owens Lake basin, which is a traditional navigable waters of the U.S.

4.5 USFWS NATIONAL WETLANDS INVENTORY

The USFWS National Wetlands Inventory online database was reviewed to determine if there are any wetlands or other waters of the U.S. mapped by the USFWS in the Study Area or vicinity. The National Wetlands Inventory depicts the Bishop Creek Canal as a riverine feature in the Study Area. One wetland feature is mapped in the vicinity of the Study Area, which includes a freshwater emergent wetland to the north that appears to be associated with an irrigation ditch/canal that is connected to the Bishop Creek Canal (Appendix A, Figure 5).

5.0 AQUATIC RESOURCES

As depicted in Table 2 (located at this end of this section), a total of 0.305 acre of aquatic resources have been delineated in the Study Area which consists entirely of a canal (Bishop Creek Canal) (Appendix B).

Bishop Creek Canal

A total of 0.305 acre (554 linear feet) of Bishop Creek Canal was mapped within the Study Area, which flows in a uniformly linear constructed channel from north to south and passes underneath the East Line Street bridge. Both the North and South Forks of Bishop Creek converge with the Bishop Creek Canal, where water managed by the LADWP is conveyed south toward the Owens River. South of Bishop, water from the Bishop Creek Canal is directed into a network of irrigation channels and canals that have a hydrologic connection to the Owens River. Although the vegetation within Bishop Creek Canal appears to be routinely managed, some emergent plant species are present along its margins, which include tule (*Schoenoplectus acutus*) (OBL), annual beard grass (*Polypogon monspeliensis*) (FACW), common horsetail (*Equisetum arvense*) (FAC), Baltic rush (*Juncus balticus*) (FACW), and Mexican lovegrass (*Eragrostis mexicana*) (FACU).

Table 2
AQUATIC RESOURCES IN THE STUDY AREA

Feature	Latitude/Longitude	Cowardin Classification[1]	Area (ac.)	Area (sq. ft.)	Length (ft.)	Avg. Width (ft.)
Other Waters[2]						
C-1	37.361973/- 118.386077	R2UB3Hx	0.305	13,285.8	554	20
		Other Waters Total	**0.305**	**13,285.8**	**554**	--
		Total Aquatic Resources	**0.305**	**13,285.8**	**554**	--

[1] Cowardin Codes for Wetlands: System (R = Riverine) – Subsystem (2 = Lower Perennial) – Class (UB = Unconsolidated Bottom) – Subclass (3 = Mud) – Water Regime (H = Permanently Flooded) – Special Modifiers (x = excavated)
[2] C = Canal
ac = acre(s); sq.ft.= square feet

5.1 POTENTIAL WATERS OF THE U.S.

A total of 0.305 acre of aquatic resources were delineated in the Study Area that consists entirely of the Bishop Creek Canal (0.305 acre and 554 linear feet), which is a potential waters of the U.S per Section 404 of the CWA; 33 CFR Section 328.3(a)(3). Bishop Creek Canal diverts flow from North Fork Bishop Creek and South Fork Bishop Creek, receives flow from other natural drainages, and is tributary to the Owens River through a series of irrigation ditches and canals. The Owens River is ultimately tributary to Owens Lake, which is considered a traditional navigable water.

5.2 POTENTIAL WATERS OF THE STATE

Waters of the State include natural and artificial ponds, wetlands, and streams. This includes wetlands created by modification of a surface water of the State. A total of 0.305 acre of aquatic resources have been delineated in the Study Area that consists entirely of the Bishop Creek Canal (0.305 acre and 554 linear feet), which is expected to qualify as a waters of the State.

6.0 SUMMARY

HELIX conducted an aquatic resources delineation of the 1.99-acre Study Area for the East Line Street Bridge Replacement Project located on East Line Street partially within the City of Bishop and unincorporated Inyo County, California. A total of 0.305 acre of aquatic resources have been delineated in the Study Area, which consists completely of other waters, as no wetlands were observed within the site. Other waters in the Study Area consist of the Bishop Creek Canal (0.305 acre, 554 linear feet), which would be considered potential waters of the U.S. and State. The results presented in this document are preliminary and subject to verification by the resource agencies.

7.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, Editors. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley.

Gretag Macbeth. 2000. Munsell Soil Color Charts. New Windsor, NY.

Mayer, K.E. and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. State of California, Resources Agency, Department of Fish and Game, Sacramento, CA 166pp.

Nationwide Environmental Title Research, LLC (NETR). 2023. Historic Aerials viewer, aerial imagery 1947-2020; available at: https://www.historicaerials.com/viewer. Accessed July 28, 2023.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2023a. Climate Data and Summary Reports from AgACIS. Accessed online July 28, 2023 at: http://agacis.rcc-acis.org/?fips= 06067.

2023b. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/. Accessed July 28, 2023.

2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

State Water Resources Control Board (SWRCB). 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State [For inclusion in the Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California]*. Adopted April 2, 2019, and subsequently revised April 6, 2021. Available at: https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf.

U.S. Army Corps of Engineers (USACE). 2022. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams (Interim Version). Technical Report (TR)-22-26 prepared for the Wetlands Regulatory Assistance Program (WRAP), U.S. Army Corps of Engineers, Vicksburg, MS.

2020. Arid West 2020 Regional Wetland Plant List.

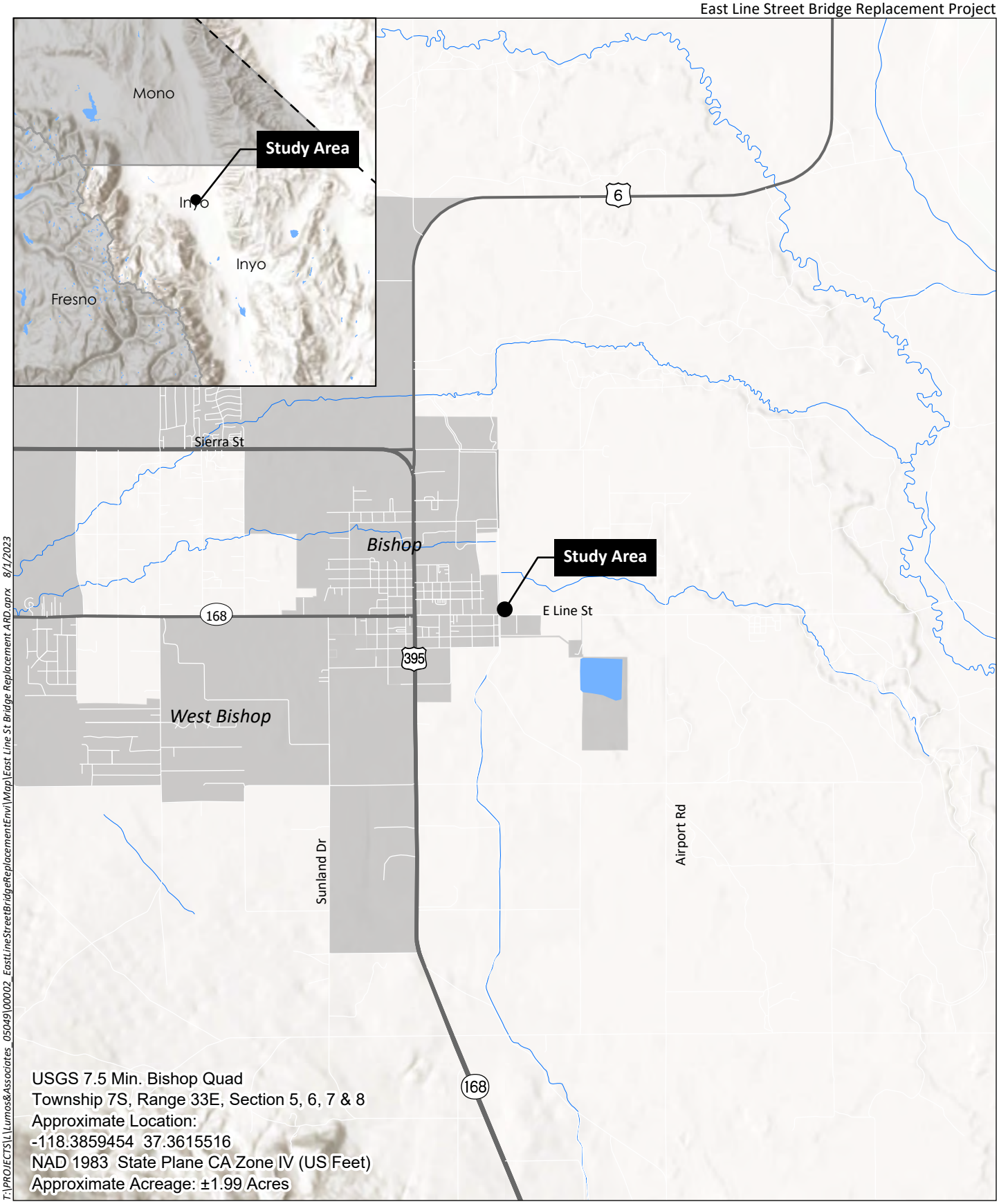
2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J.S. Wakeley, R.W. Lichvar, and C.V. Noble, Editors. Technical Report prepared for the U.S. Army Engineer Research and Development Center, Vicksburg, MS.

1987. Wetlands Research Program Technical Report Y-87-1 Corps of Engineers Wetland Delineation Manual. January 1987.

U.S. Fish and Wildlife Service (USFWS). 2023. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/mapper.html; accessed July 28, 2023.

Appendix A

Figures



T:\PROJECTS\L\Lumos&Associates_05049\00002_EastLineStreetBridgeReplacementEnv\Map\East Line St Bridge Replacement ARD.aprx 8/1/2023

Source: Base Map Layers (Esri, USGS, NGA, NASA)

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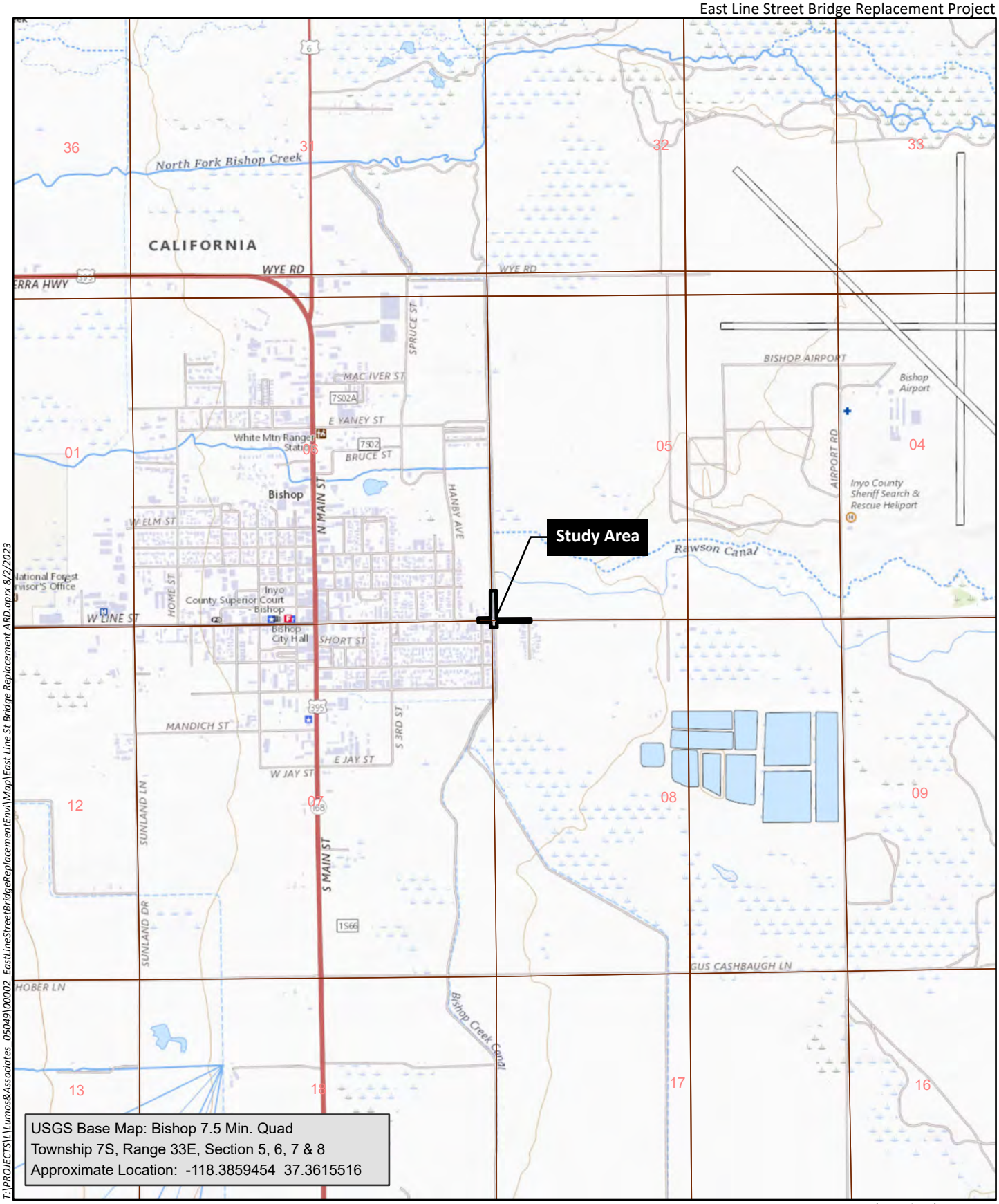
Site and Vicinity Map

Figure 1



USGS Base Map: Bishop 7.5 Min. Quad
Township 7S, Range 33E, Section 5, 6, 7 & 8
Approximate Location: -118.3859454 37.3615516

T:\PROJECTS\L\Lumos&Associates_05049\00002_EastLineStreetBridgeReplacementEnv\Map\East Line St Bridge Replacement ARD.aprx 8/2/2023

0 2,000 Feet

Source: USGS, The National Map, 2023

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USGS Topographic Map

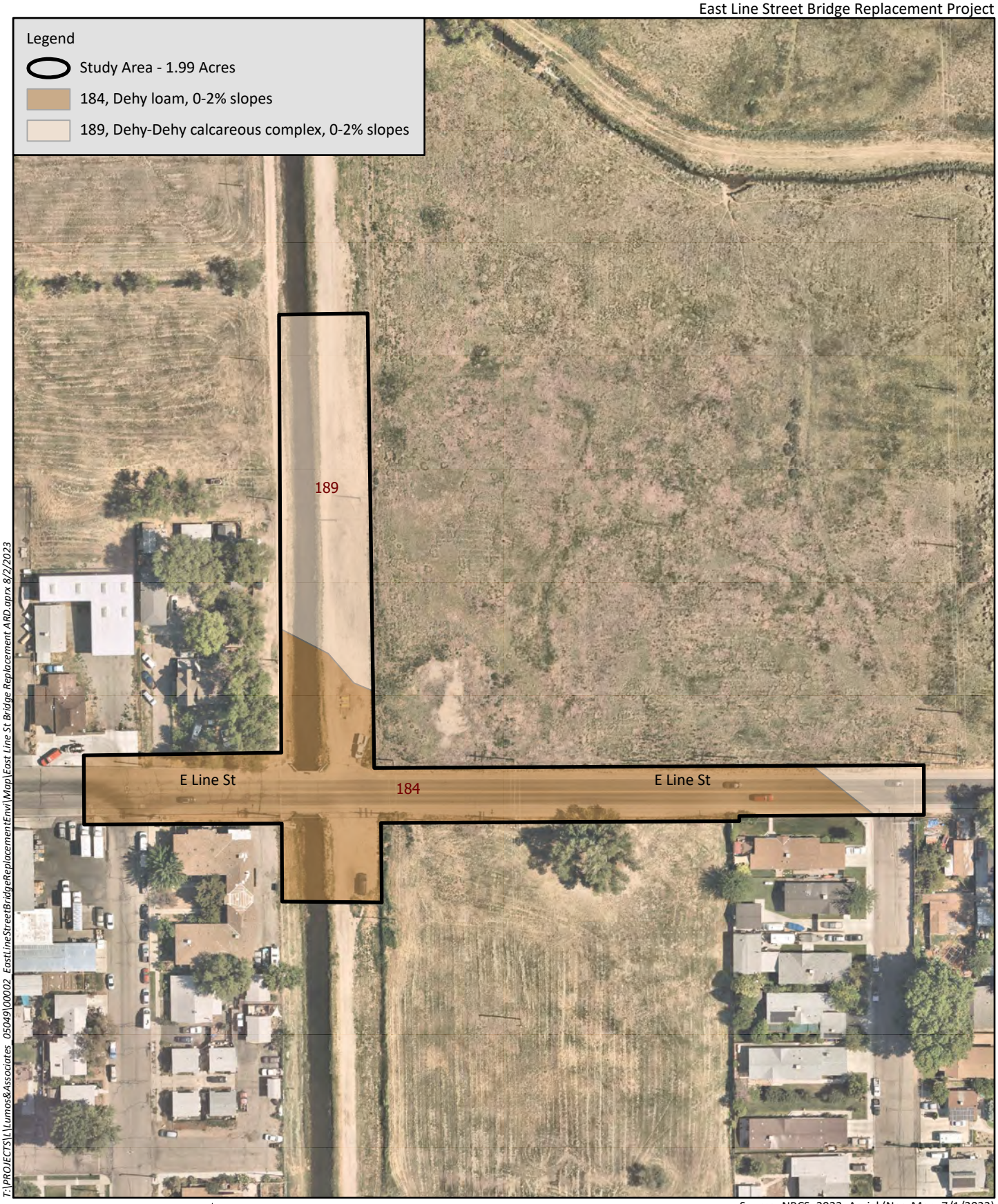
Figure 2

Source: Aerial (NearMap, 7/1/2023)

HELIX Environmental Planning

Aerial Map

Figure 3



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0 125 Feet

Source: NRCS, 2023; Aerial (NearMap, 7/1/2023)

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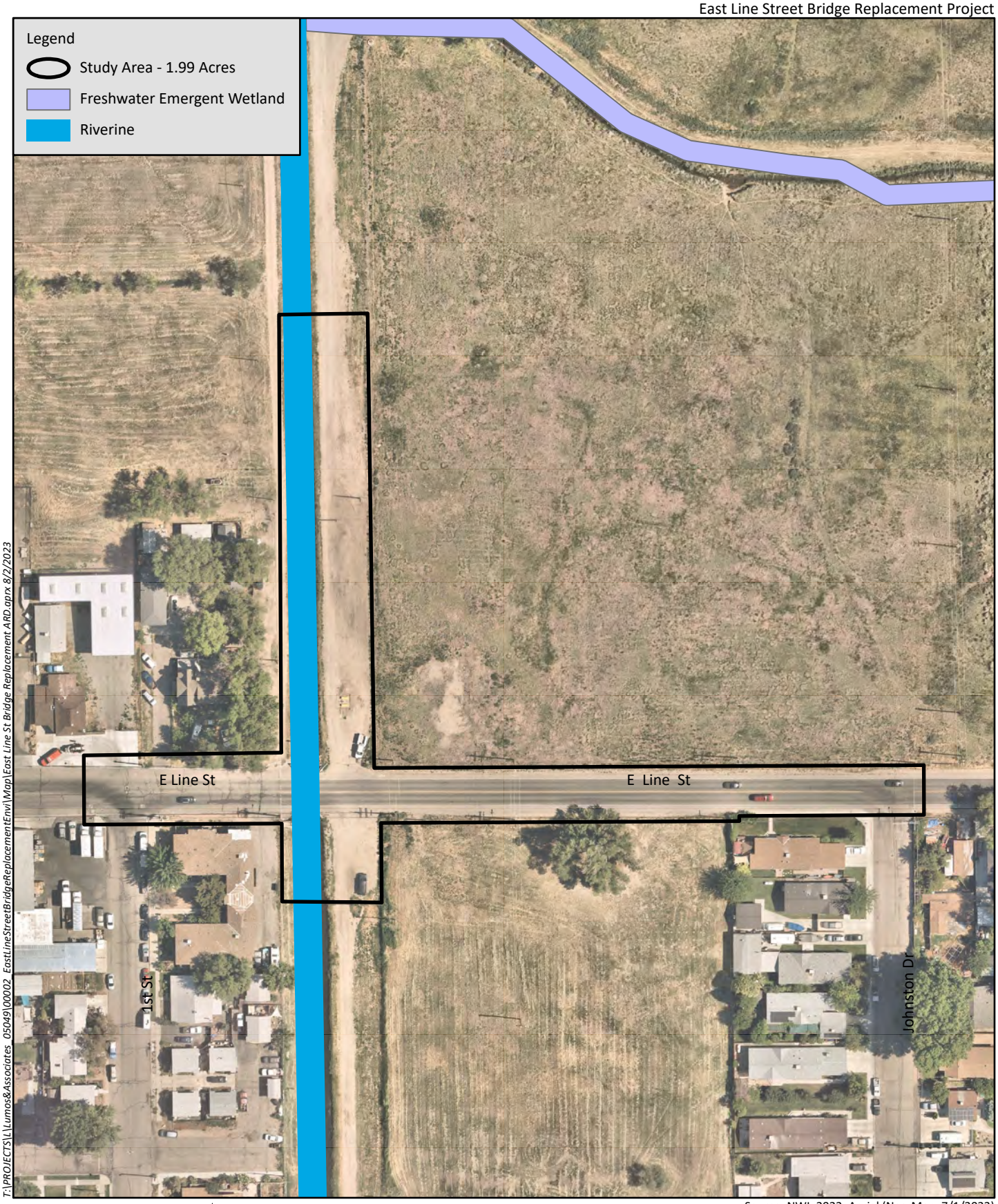
Soils Map

Figure 4



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Source: NWI, 2022; Aerial (NearMap, 7/1/2023)

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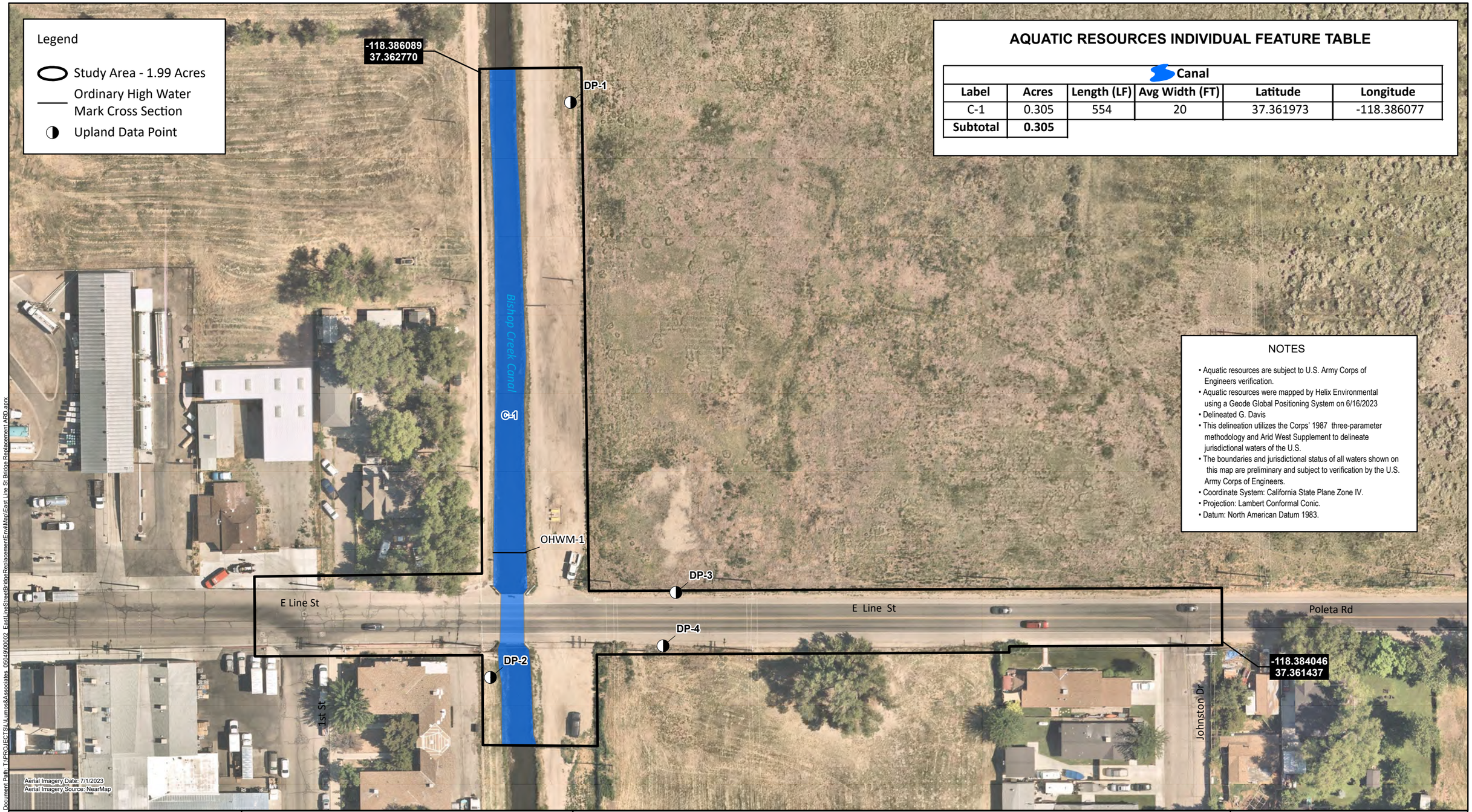
National Wetland Inventory Map

Figure 5

Appendix B

Aquatic Resources Delineation Map



AQUATIC RESOURCES INDIVIDUAL FEATURE TABLE

Canal					
Label	**Acres**	**Length (LF)**	**Avg Width (FT)**	**Latitude**	**Longitude**
C-1	0.305	554	20	37.361973	-118.386077
Subtotal	**0.305**				

NOTES

- Aquatic resources are subject to U.S. Army Corps of Engineers verification.
- Aquatic resources were mapped by Helix Environmental using a Geode Global Positioning System on 6/16/2023
- Delineated G. Davis
- This delineation utilizes the Corps' 1987 three-parameter methodology and Arid West Supplement to delineate jurisdictional waters of the U.S.
- The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers.
- Coordinate System: California State Plane Zone IV.
- Projection: Lambert Conformal Conic.
- Datum: North American Datum 1983.

Document Path: T:\PROJECTS\Lumos&Associates_050490000002_EastLineStreetBridgeReplacement\Envi\Map\East Line St Bridge Replacement ARD.aprx

HELIX Environmental Planning

USACE REGULATORY FILE #:
VERIFIED BY: TBD
DATE OF VERIFICATION: TBD

REVISIONS

DATE	DESCRIPTION	BY

0 75 150
Feet
1 inch = 75 feet

N

AQUATIC RESOURCES DELINEATION MAP

East Line Street Bridge Replacement

Bishop, Inyo County, California

August 9, 2023

APPENDIX B

Drawn By: JCD

Appendix C

Plant Species Observed in the Study Area

Family	Scientific Name	Common Name	Rating[1]
Native			
Apocynaceae	*Apocynum cannabinum*	hemp dogbane	FAC
Asteraceae	*Ambrosia acanthicarpa*	annual bur-sage	NI
	Ericameria nauseosa	rubber rabbitbrush	NI
Equisetaceae	*Equisetum arvense*	common horsetail	FAC
Fabaceae	*Glycyrrhiza lepidota*	wild licorice	FAC
Poaceae	*Distichilis spicata*	saltgrass	FACW
	Elymus triticoides	beardless wildrye	FAC
	Eragrostis mexicana	Mexican lovegrass	FACU
	Sporobolus airoides	alkali sacaton	FAC
Non-native			
Chenopodiaceae	*Salsola tragus*	Russian thistle	FACU
Poaceae	*Bromus tectorum*	cheatgrass	NI
	Cynodon dactylon	bermudagrass	FACU
	Hordeum murinum ssp. *leporinum*	hare barley	FACU

[1] FAC – facultative; FACU – facultative upland; FACW – facultative wetland; OBL – obligate; UPL – upland; NI – reviewed but given no regional indicator

Scientific and common names from: Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, D.H. Wilken, Editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkley *or* U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory, *Arid West 2020 Regional Wetland Plant List* (USACE 2020)

Appendix D

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: East Line Street Bridge Replacement Project City/County: Bishop/Inyo Sampling Date: 6/16/2023

Applicant/Owner: City of Bishop State: CA Sampling Point: 1

Investigator(s): G. Davis Section, Township, Range: Section 5-8, Township 7 South, Range 33 East

Landform (hillslope, terrace, etc.): Alluvial valley floor Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): D Lat: 37.362681 Long: -118.385913 Datum: NAD 83

Soil Map Unit Name: 189 - Dehy-Dehy calcareous complex, 0-2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Site is located in a partially vegetated area on the Bishop Creek Canal access road, which is heavily disturbed from vehicle traffic.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1 x 1 meter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 1 x 1 meter)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 x 1 meter)			
1. Eragrostis mexicana	40	Y	FACU
2. Cynodon dactylon	30	Y	FACU
3. Ambrosia acanthicarpa	10	N	NI
4. Hordeum murinum ssp. leporinum	10	N	FACU
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Sampling location does not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100					SL	Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

No hydric soils detected at sampling location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected at sampling location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: East Line Street Bridge Replacement Project City/County: Bishop/Inyo Sampling Date: 6/16/2023

Applicant/Owner: City of Bishop State: CA Sampling Point: 2

Investigator(s): G. Davis Section, Township, Range: Section 5-8, Township 7 South, Range 33 East

Landform (hillslope, terrace, etc.): Alluvial valley floor Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): D Lat: 37.361578 Long: -118.385625 Datum: NAD 83

Soil Map Unit Name: 184 - Dehy loam, 0-2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Site is located within a disturbed area north of East Line Street that consists of roadside fill.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1 x 1 meter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 1 x 1 meter)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 x 1 meter)			
1. Salsola tragus	40	Y	FACU
2. Bromus tectorum	20	Y	NI
3. Glycyrrhiza lepidota	15	N	FAC
4. Ambrosia acanthicarpa	10	N	FACU
5. Sporobolus airoides	5	N	FAC
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Sampling location does not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					SL	gravelly sandy loam
5-	REFUSAL							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Gravel/compacted road fill

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils detected at sampling location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected at sampling location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: East Line Street Bridge Replacement Project City/County: Bishop/Inyo Sampling Date: 6/16/2023

Applicant/Owner: City of Bishop State: CA Sampling Point: 3

Investigator(s): G. Davis Section, Township, Range: Section 5-8, Township 7 South, Range 33 East

Landform (hillslope, terrace, etc.): Alluvial valley floor Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): D Lat: 37.361458 Long: -118.385662 Datum: NAD 83

Soil Map Unit Name: 184 - Dehy loam, 0-2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Site is located within a disturbed, relatively barren area south of East Line Street that consists of roadside fill.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1 x 1 meter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 1 x 1 meter)			
1. Ericameria nauseosa	60	Y	NI
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 x 1 meter)			
1. Distichilis spicata	5	N	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Sampling location does not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100					SL	gravelly sandy loam
3-	REFUSAL							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Gravel/compacted road fill

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils detected at sampling location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected at sampling location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: East Line Street Bridge Replacement Project City/County: Bishop/Inyo Sampling Date: 6/16/2023

Applicant/Owner: City of Bishop State: CA Sampling Point: 4

Investigator(s): G. Davis Section, Township, Range: Section 5-8, Township 7 South, Range 33 East

Landform (hillslope, terrace, etc.): Alluvial valley floor Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): D Lat: 37.361390 Long: -118.386149 Datum: NAD 83

Soil Map Unit Name: 184 - Dehy loam, 0-2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Site is located above the west bank of the Bishop Creek Canal in a vegetated area that is routinely mowed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1 x 1 meter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 1 x 1 meter)			
1. Ericameria nauseosa	10	Y	NI
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 1 x 1 meter)			
1. Glycyrrhiza lepidota	40	Y	FAC
2. Hordeum murinum ssp. leporinum	30	Y	FACU
3. Equisetum arvense	15	N	FAC
4. Apocynum cannabinum	10	N	FAC
5. Elymus triticoides	5	N	FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Sampling location does not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					SL	gravelly sandy loam
6-12	10YR 4/1	100					L	gravelly loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

No hydric soils detected at sampling location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators detected at sampling location.

Appendix E

OHWM Field Identification Data Sheets

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

OMB Control No. 0710-XXXX

Approval Expires:

Project ID #: 5049.2.1	Site Name: East Line Street Bridge Replacement	Date and Time: 6/16/2023, 0900
Location (lat/long): 37.361696, -118.386077 (OHWM-1)	Investigator(s): G. Davis	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

gage data	LiDAR	geologic maps
X climatic data	X satellite imagery	land use maps
X aerial photos	X topographic maps	Other: _____

Describe land use and flow conditions from online resources.

Were there any recent extreme events (floods or drought)?

Site is associated with a managed canal. The site was not subject to recent extreme flood or drought events.

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Site is associated with a constructed canal (Bishop Creek Canal) that is managed by LADWP, which diverts flow from S. Fork and N. Fork Bishop Creek. The canal is linear and relatively uniform.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- X **Break in slope:** x
  - X *on the bank:* x
  - *undercut bank:*
  - *valley bottom:*
  - Other: _____
- **Shelving:**
  - *shelf at top of bank:*
  - *natural levee:*
  - *man-made berms or levees:*
  - *other berms:* _____
- **Channel bar:**
  - *shelving (berms) on bar:*
  - *unvegetated:*
  - *vegetation transition (go to veg. indicators)*
  - *sediment transition (go to sed. indicators)*
  - *upper limit of deposition on bar:*
- **Instream bedforms and other bedload transport evidence:**
  - *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - *bedforms (e.g., poofs, riffles, steps, etc.):*
  - *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- **Secondary channels:**

Sediment indicators

- **Soil development:**
- **Changes in character of soil:**
- **Mudcracks:**
- **Changes in particle-sized distribution:**
  - *transition from* _____ to _____
  - *upper limit of sand-sized particles*
  - *silt deposits:*

Vegetation Indicators

- **Change in vegetation type and/or density:**

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- *vegetation absent to:*
- *moss to:*
- *forbs to:*
- *graminoids to:*
- *woody shrubs to:*
- *deciduous trees to:*
- *coniferous trees to:*
- **Vegetation matted down and/or bent:**
- **Exposed roots below intact soil layer:**

Ancillary indicators

- **Wracking/presence of organic litter:**
- **Presence of large wood:**
- **Leaf litter disturbed or washed away:**
- **Water staining:**
- **Weathered clasts or bedrock:**

Other observed indicators?

Describe:

Step 4 Is additional information needed to support this determination?

Yes X No

If yes, describe and attach information to datasheet:

Project ID #: 5049.2.1

Step 5 Describe rationale for location of OHWM

The OHWM is made apparent by an abrupt break in slope that transitions from the edge of the managed canal to the canal access roads. The feature is a constructed channel managed by LADWP, flow remains relatively uniform within the channel and likely recedes slightly during the low-flow season. Given that the feature is anthropogenic in nature and is utilized for transporting water, it lacks complexity and does not have OHWM indicators aside from geomorphic characteristics.

Additional observations or notes

N/A

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? X Yes No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
See attached	

Appendix F

Representative Site Photographs

Photo 1. View of the of the East Line Street Bridge and Bishop Creek Canal looking south. Note that this is the location of the ordinary high water mark (OHWM)-1 cross section.

Photo 2. View of the of the East Line Street Bridge and Bishop Creek Canal looking north.

Photo 3. View of Bishop Creek Canal looking downstream to the south of the East Line Street Bridge. Note that the data point (DP)-4 location is visible on the right bank of the canal between the OHWM and chain link fence.

Photo 4. View of Bishop Creek Canal looking upstream to the north of the East Line Street Bridge.

Photo 5. View of the unpaved access road along the canal north of East Line Street.

Photo 6. View of the Bishop Creek Canal looking south towards the East Line Street Bridge.

Photo 7. View of the trees on the properties adjacent to the Study Area to the west of the canal.

Photo 8. View looking west toward the bridge on East Line Street.

Photo 9. View looking east from the bridge on East Line Street. Note that the DP-2 location is on the opposite side of the road along the fence line and the DP-3 location is adjacent to the gate in the right corner of the photo.