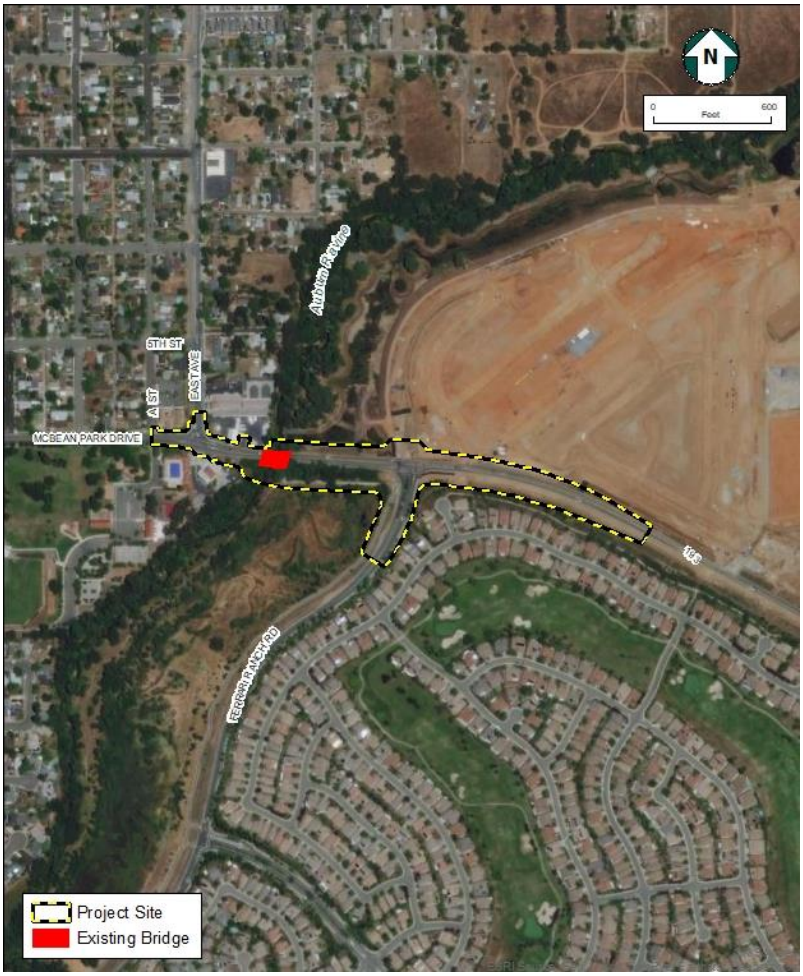
APPENDIX A

AIR QUALITY STUDY

AIR QUALITY STUDY

QUINCY ENGINEERING

MCBEAN PARK DRIVE BRIDGE REPLACEMENT PROJECT



AUGUST 2021

AIR QUALITY STUDY

McBEAN PARK DRIVE BRIDGE REPLACEMENT PROJECT

Prepared for:

Quincy Engineering
11017 Cobblerock Drive, Suite 100
Rancho Cordova, CA 95670
Contact Person: Lance Schrey
Phone: (916) 368-9181

Consultant:

601 Pollasky Avenue, Suite 301
Clovis, CA 93612
Contact: Annalisa Perea
Phone: (559) 449-2400
Fax: (559) 733-7821

August 2021

Project #140276

Table of Contents

List of Figures

Appendix A – Road Construction Emissions Model Version 9.0.0

List of Figures

List of Tables

SECTION 1 - PROJECT LOCATION

The City of Lincoln, Public Services Department (City) is proposing to replace the existing McBean Park Drive Bridge (19C0059) over Auburn Ravine near downtown Lincoln in western Placer County, California (Figure 1-1). The total Project site is approximately 11.6 acres located east of the bridge site north of McBean Park Drive/Highway 193. The Project is located in the Lincoln 7.5-minute United States Geological Survey (USGS) quadrangle within Sections 14 and 15, Township 12N, Range 06E of the Mount Diablo Base and Meridian (MDB&M). The City of Lincoln is located within the Sacramento Valley Air Basin (SVAB).

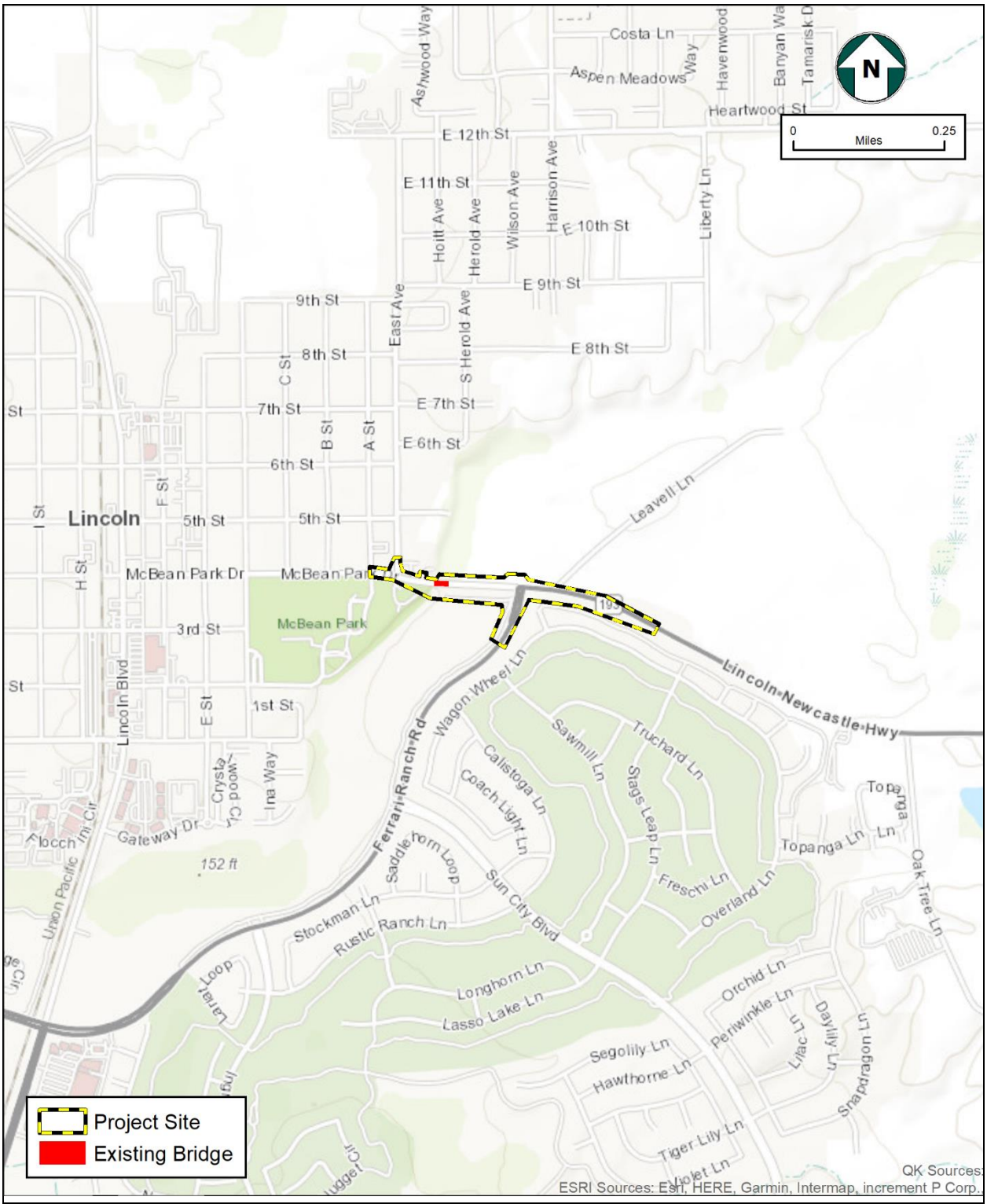


Figure 1-1
Vicinity Map

SECTION 2 - REGIONAL METEOROLOGY AND CLIMATE

The Project site is located in western Placer County, which falls within the Sacramento Valley Air Basin (SVAB) and is within the jurisdictional boundaries of the Placer County Air Pollution Control District (PCAPCD). The SVAB is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Ranges to the west and spans from Shasta County in the north to Sacramento County in the south. Topography in the Sacramento Valley is generally flat, with elevations anywhere from slightly below sea level near the Sacramento/San Joaquin Delta to over 2,150 feet above sea level at the Sutter Buttes. Hot dry summers and mild rainy winters characterize the Mediterranean climate of the SVAB.

Prevailing winds are from the south and southwest, and as a result, air quality in western Placer County is influenced by mobile and stationary air pollution sources located upwind in the Sacramento metropolitan area. The inland location and surrounding mountains shelter the valley from much of the ocean breeze that keeps the coastal regions moderate in temperature. The only breach in the mountain barrier is the Carquinez Strait, which exposes the midsection of the valley to the coastal air mass. Air flow into the SVAB through the Carquinez Strait also carries pollutants from the San Francisco Bay Area into the SVAB.

Air quality in Placer County is also affected by inversion layers, which occur when a layer of warm air traps a layer of cold air, preventing vertical dispersion of air contaminants. The presence of an inversion layer results in higher concentrations of pollutants near ground level. Summer inversions are strong and frequent but are less troublesome than those that occur in the autumn. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

SECTION 3 - PROJECT DESCRIPTION

The bridge currently is overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The improvements would provide a safe, reliable structure, support alternative modes of transportation involving bikes, pedestrians, and neighborhood electrical vehicles (NEV), and be acceptable to the community with minimal impacts to traffic and the surrounding environment.

The replacement of the bridge and roadway modification will be funded with Highway Bridge Program (HBP) and local matching funds.

The Project is programmed as a bridge replacement project that will provide a wider bridge for vehicular, pedestrian, and NEV use as well as enhance the seismic integrity of the bridge. More importantly, the new bridge will be longer, and the profile will be raised significantly for necessary hydraulic conveyance. The bridge replacement involves the following activities:

- Removal of some of the constricting earthen fill prism from the floodway.
- Removal of the hydraulically inadequate and functionally obsolete (as classified in 2012 when programmed in the Highway Bridge Program) bridge.
- Construct a longer bridge.
- Replace the bridge with a wider bridge to accommodate three travel lanes, two shoulders and two sidewalks.
- Raise the roadway and bridge profile.
- Relocate overhead power and telecommunications as well as underground electrical and telecommunication facilities. Gas may also require relocation in the westerly roadway approach.

The McBean Park Drive Bridge Project must result in an adequate crossing of Auburn Ravine. Community members are in support of this Project, as it would ensure improved access during emergencies and would mitigate flooding events. As such, options to replace the bridge provide an excellent opportunity to celebrate the history of Lincoln by enhancing the bridge with appropriate aesthetic features that could be designed to establish a gateway to downtown Lincoln and the historic district.

The **five primary goals** for the Project are:

1. Replace the hydraulically inadequate bridge with a bridge that provides reliable general and emergency vehicle access during peak storm events.
2. Establish an enhanced river crossing.
3. Improve the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding.
4. Improve McBean Park Drive between the intersections of Ferrari Ranch Road and East Avenue to provide improved multi-modal connectivity for pedestrians, bicycles, and NEVs.
5. Maintain traffic on McBean Park Drive during construction.

SECTION 4 - REGULATORY FRAMEWORK

4.1 - Federal Regulations

4.1.1 - CRITERIA POLLUTANTS

The 1970 FCAA (last amended in 1990) required that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all national ambient standards by the deadlines specified in the FCAA. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

Table 4-1 presents current national and State ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant. Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the U.S. EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the National Ambient Air Quality Standards (NAAQS) had been achieved.

Table 4-2 shows the current attainment status of Placer County air basins. In summary, the Project area is nonattainment for the 8-hour ozone (Severe) and $PM_{2.5}$ (Moderate) NAAQS and is either attainment or unclassified for the remaining criteria pollutants. The FCAA required each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution.

Table 4-2 shows the current attainment status of the Project area. In summary, the Project area is in nonattainment for the 8-hour ozone (Severe) and PM_{10}. The Project area is in attainment for $PM_{2.5}$.

Table 4-1
Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards [1]**		**National Standards [2]**		
		Concentration [3]	**Method [4]**	**Primary [3,5]**	**Secondary [3,6]**	**Method [7]**
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Table 4-2
Ambient Air Quality Standards and Designations for Placer County

Pollutants	Average Time	State Standards	State Attainment Status			Federal Standards	Federal Attainment Status		
			SVAB	MCAB	LTAB		SVAB	MCAB	LTAB
Ozone	1 hr	0.09 ppm	N	N	A	None	–	–	–
	8 hr	0.070 ppm	N	N	N	0.070 ppm*	N**	N**	U**
Particulate Matter PM_{10}	24 hr	50 µg/m³	N	N	N	150 µg/m³	A	A	A
	Annual	20 µg/m³	N	N	N	None	–	–	–
Fine Particulate Matter $PM_{2.5}$	24 hr	None	–	–	–	35 µg/m³	N	U	U
	Annual	12 µg/m³	A	U	A	12 µg/m³	A	U	U
Carbon Monoxide (CO)	1 hr	20 ppm	A	U	A	35 ppm	A	A	A
	8 hr	9 ppm	A	U	A	9 ppm	A	A	A
	Tahoe 8 hr	6 ppm	–	–	A	None	–	–	–
Nitrogen Dioxide (NO_2	1 hr	0.18 ppm	A	A	A	100 ppm	U	U	U
	Annual	0.030 ppm	A	A	A	0.053 ppm (100 µg/m³)	A	A	A
Sulfur Dioxide (SO_2)	1 hr	0.25 ppm	A	A	A	0.075 ppm (196 µg/m³)	A	A	A
	24 hr	0.04 ppm	A	A	A	0.14 ppm	A	A	A
	Annual	None	A	U	A	0.030 ppm	A	A	A
Lead	30-day average	1.5 µg/m³	A	A	A	None	–	–	–
	Calendar Quarter	None	–	–	–	1.5 µg/m³	A	A	A

*U.S. EPA revised the 8-hour ozone standard from 0.075 to 0.070 ppm on October 1, 2015.
** The attainment status is based on the 2008 8-hour ozone standard (0.075 ppm).
Attainment status: A = Attainment, N = Nonattainment, U = Unclassified

4.1.2 - TOXIC AIR CONTAMINANTS

TACs are regulated under both State and federal laws. Federal laws use the term "Hazardous Air Pollutants" (HAPs) to refer to the same types of compounds that are referred to as TACs under State law. Both terms encompass essentially the same compounds. The 1977 FCAAA required the U.S. EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 FCAAA, 189 substances are regulated as HAPs.

4.2 - Local Regulations

4.2.1 - Placer County Air Pollution Control District (PCAPCD)

The PCAPCD is the regional agency responsible for air quality regulation within Placer County. The PCAPCD regulates air quality through its planning and review activities and has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The PCAPCD regulates new or expanding stationary sources of TACs.

4.2.2 - Ozone Attainment Plan

For State air quality planning purposes, western Placer County is classified as a severe nonattainment area for ozone. The "severe" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the PCAPCD update the Clean Air Plan every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The PCAPCD's record of progress in implementing previous measures must also be reviewed. The Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions),10 which addresses attainment of the federal 8-hour ozone standard, as well as the 2012 Triennial Progress Report, 11 which addresses attainment of the State ozone standard, are the latest plans issued by the PCAPCD. The 2012 Triennial Progress Report, like the Ozone Attainment Plan, includes a current emission inventory and projected future inventories of ROG and NOx emissions in Placer County. The future inventories reflect future growth rates of population, travel, employment, industrial/commercial activities, and energy use, as well as controls imposed through local, State, and federal emission reduction measures. The 2012 Triennial Progress Report, like the triennial progress reports prepared in previous years, discusses rules that the PCAPCD has adopted during the previous three years, incentive programs that have been implemented, and other measures that would supplement those in the Ozone Attainment Plan to achieve the required five percent per year reduction required by the CCAA.

4.2.3 - PCAPCD Rules and Regulations

Each lead agency is responsible for compliance with the rules and regulations, whether requiring implementation through mitigation, conditions of approval, or standard notes on improvement plans, grading plans, or design review permits. A general summary of the key PCAPCD rules and regulations is presented below.

Rule 202 – Visible Emissions: Rule 202 limits the amount of time during which air pollutant emissions of a certain shade of darkness or degree of opacity may be discharged, specifically to no more than three minutes in any one hour.

Rule 217 – Cutback and Emulsified Asphalt Paving Materials: Rule 217 limits the volatile organic compounds (VOCs) content of asphalt paving materials used in the district.

Rule 218 – Architectural Coatings: Rule 218 requires that architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the PCAPCD area meet specified maximum VOC content levels.

Rule 225 – Wood-Burning Appliances: Rule 225 establishes limits on the rate of particulate matter emissions from operation of a wood-burning appliance.

Rule 228 – Fugitive Dust: Rule 228 is intended to reduce the amount of particulate matter entrained in the ambient air, or discharged into the ambient air, as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The provisions of Rule 228 apply to any activity or manmade condition capable of generating fugitive dust within Placer County.

Rule 246 – Natural Gas-Fired Water Heaters: Rule 246 is intended to limit the emission of NOx from natural-gas-fired water heaters.

Regulation 3 – Open Burning: Regulation 3 includes Rules 301 through 306 related to smoke management for various land uses including agricultural uses, residential uses, and disposal sites. Regulation 3 is intended to reduce emissions of TACs from smoke from allowed outdoor burning.

Rule 501 – General Permit Requirements: Rule 501 provides an orderly procedure for the review of new sources of air pollution, and modification and operation of existing sources, through the issuance of permits.

4.2.4 - TOXIC AIR CONTAMINANTS

The PCAPCD is responsible for the control of toxic air contaminants generated by stationary sources within the County. As part of the permitting process for new stationary sources of emissions, the PCAPCD reviews the permit application and determines whether the equipment has the potential to generate levels of toxic air contaminants that would expose the local population to a maximum individual cancer risk of 10 in one million. If so, a health risk assessment must be prepared to evaluate the potential cancer risk. If a potential maximum individual cancer risk of more than 10 in one million is identified, the equipment must incorporate the best available control technology and/or limit its operations to ensure that this threshold is not exceeded. This would only apply to the plan if TAC-producing stationary equipment were to be used at land uses to be developed.

4.2.5 - ASBESTOS

Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Naturally occurring asbestos (NOA) is often found in serpentine rock formations,

which is present in several foothill areas of Placer County. Because asbestos has been proven to cause serious adverse health effects, including asbestosis and lung cancer, it is strictly regulated based on its natural widespread occurrence and its use as a building material. According to Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, CA, the Project site is located within a geologic area that has a low probability for the presence of NOA.

SECTION 5 - REGIONAL CONFORMITY

5.1 - Relationship to the 2020 Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS)

The Sacramento Area Council of Governments (SACOG) board adopted the 2020 MTP/SCS and accompanying documents at a special board meeting on November 18, 2019. The 2020 MTP/SCS includes all federal and regionally significant projects expected to occur in the nonattainment and maintenance areas. The proposed Mcbean Drive Bridge Improvements Project is listed within the 2020 MTP/SCS.

The Project is included and has been evaluated within the MTP/SCS as seen below:

Appendix A 2020 MTP/SCS project list:

- McBean Park Drive Bridge Rehabilitation
  McBean Park Drive over Auburn Ravine, east of East Avenue: Rehabilitate existing two-lane bridge. No added lane capacity.

- McBean Park Bridge Rehabilitation
  From East Avenue to Ferrari Ranch Road: Replace two-lane bridge with a four-lane bridge, including the McBean Park Bridge at Auburn Ravine.

5.2 - Background

The Sacramento Area Council of Governments (SACOG) is the designated Metropolitan Planning Agency for the Sacramento Region and is responsible for all regional transportation planning activities in Sacramento, Sutter, Yolo, and Yuba Counties, and in El Dorado and Placer Counties outside of the Tahoe Basin.

Federal regulations require that the Sacramento Area Council of Governments (SACOG) prepare air quality conformity determinations for its transportation plans and programs. The purpose of the conformity determination is to ensure that SACOG's plans and programs "conform" to all applicable federal air quality requirements. Based on guidance found in the Federal Clean Air Act, Section 176(c) (42 U.S.C. 7506(c)), and Title 40, Code of Federal Regulations, Part 93, Subpart A, conformity determinations must be based upon the most recent estimates of on-road vehicle-based emissions. The emissions estimates must also be based upon the most recent population, employment, travel, and congestion forecasts from SACOG, acting as the federally designated MPO for the Sacramento region.

SACOG has an emissions conformity procedure based on the modeling requirements contained in the Federal Clean Air Act. As part of this procedure, SACOG prepared a series of forecasting model runs for the Sacramento air quality planning areas using the Sacramento Activity-Based Travel Simulation Model (SACSIM) travel demand model. This model uses estimates of population, employment, and travel patterns for 2012, as the "base year," and future estimates of these same parameters for a series of future years.

The 2020 MTP/SCS includes all federal and regionally significant projects expected to occur in the nonattainment and maintenance areas.

5.3 - Conformity Analysis Report

The Conformity Analysis Report, adopted November 2019, was developed as part of the Sacramento Area Council of Governments' 2020 Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS).

The conformity demonstration requirement is described in the Clean Air Act Section 176(c) (42 U.S.C. 7506(c)) and U.S. Environmental Protection Agency (EPA) transportation conformity regulations (40 CFR 93 Subpart A). Transportation conformity ("conformity") is a way to ensure that federal funding and approval goes to those transportation activities that are consistent with air quality goals set for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. The analysis presented in this report demonstrates that the 2020 MTP/SCS meets the criteria specified in these regulations.

Conformity must be demonstrated in "all nonattainment and maintenance areas for transportation-related pollutants for which the area is designated nonattainment or has a maintenance plan" (40 CFR 93.102). SACOG performed an air quality conformity determination on the 2020 MTP/SCS and Amendment for the following stated designation areas: The following are the designations within the Sacramento region (only those applicable to Placer County are listed):

- 2008 8-Hour Ozone (including the ROG and NOx precursors) Severe-15 Nonattainment Area:
  - The Sacramento Metropolitan Area (Sacramento, Yolo and portions of El Dorado, Placer, Sutter, Solano Counties) and
  - The Sutter Buttes Area (Sutter County). The 2008 ozone standards classify the Sutter Buttes Area as an unclassified/attainment area for ozone, effective July 20, 2013.
- 2015 8-Hour Ozone (including the ROG and NOx precursors) Moderate Nonattainment Area:
  - The Sacramento Metropolitan Area (Sacramento, Yolo and portions of El Dorado, Placer, Sutter, Solano Counties).
  - The Sutter Buttes Area (Sutter County). The 2015 ozone standards classify the Sutter Buttes Area as a marginal nonattainment area for ozone, effective June 4, 2018.
- Particulate Matter (PM_{10}) Maintenance Area (Sacramento County)
- 2006 Fine Particulate Matter ($PM_{2.5}$) Nonattainment Area and Maintenance Area:
  - Nonattainment Area - Sacramento Area (Sacramento and portions of Yolo, Solano, Placer and El Dorado Counties)
  - Maintenance Area -Yuba City-Marysville Area (Sutter and a portion of Yuba County)

5.4 - Conformity Finding

The results of the emissions analysis show that the 2020 MTP/SCS meet the emissions conformity tests based on the Transportation Conformity requirements found in the Federal Clean Air Act, Section 176(c) (42 U.S.C. 7506(c)), and Title 40, Code of Federal Regulations, Part 93, Subpart A for the Sacramento ozone, carbon monoxide, PM_{10}, and $PM_{2.5}$ areas. A regional emissions analysis was conducted for the years 2020, 2022, 2023, 2024, 2026, 2027, 2035, and 2040 for each applicable pollutant.

- **Ozone:** The analysis determined that the implementation of the 2020 MTP/SCS and the MTIP would result in less total regional on-road vehicle-related emissions (ROG and NOx) than the emissions budget found adequate by the EPA in the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, 2013 SIP Revisions. This analysis has used these budgets for demonstration of the 2008 and 2015 standards and the 1997 standard as necessary. This draft contains both approved and pending approval ozone budgets.
- **PM_{10}:** The analysis determined that the implementation of the 2020 MTP/SCS and the MTIP would result in less total regional on-road vehicle-related emissions than the emissions budget found adequate by the EPA in the 2010 PM_{10} Implementation/ Maintenance Plan and Re-designation Request for Sacramento County.
- **$PM_{2.5}$:** The analysis determined that the total regional on-road vehicle-related emissions associated with implementation of the 2020 MTP/SCS and the MTIP for the analysis years are projected to be less than or equal to the emissions for the baseline scenario, satisfying the test established in Interim Transportation Conformity Guidance for 2006 $PM_{2.5}$ NAAQS Nonattainment Areas in the Sacramento area. The analysis also found that implementation of the 2020 MTP/SCS and the MTIP would result in less total regional on-road vehicle-related emissions than the emissions budgets found adequate by the EPA in the 2014 Yuba City Marysville $PM_{2.5}$ Maintenance Plan and Re-designation Request.
- **TCMs:** The implementation of the 2020 MTP/SCS and the MTIP will not impede the timely implementation of the TCMs identified in the 2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan, 2013 revisions.
- Consultation for this analysis was conducted in accordance with SACOG's Public Participation Plan.
- Both the 2020 MTP/SCS and the MTIP have been financially constrained consistent with 40 CFR 93.108 and with 23 CFR Part 450.

Since the proposed Project is listed within the 2020 MTP/SCS and was included as part of this analysis, it can be concluded that implementation of the proposed Project would be in conformance with the applicable air quality plan, and pollutant emissions would be less than significant within applicable nonattainment areas to the Project site.

SECTION 6 - POTENTIAL IMPACTS OF THE PROJECT ON AIR QUALITY

6.1 - Significance Criteria

According to Appendix G of the CEQA Guidelines, a project would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under any applicable national or State ambient air quality standards (including releasing emissions that exceed quantitative standards for ozone precursors).
- Create objectionable odors affecting a substantial number of people.

6.1.1 - CRITERIA POLLUTANTS

The PCAPCD's CEQA Air Quality Handbook includes the holds as listed in Table 6-1, expressed in pounds per day (lbs/day), which serve as air quality standards in the evaluation of air quality impacts associated with development projects. In setting these thresholds, the PCAPCD considered both the health-based air quality standards as well as the attainment strategies developed in conjunction with the CARB and the U.S. EPA. The Project area is located within a $PM_{2.5}$ nonattainment area. However, since PCAPCD has not established a $PM_{2.5}$ threshold, this analysis uses the Sacramento Metropolitan Air Quality Management District's $PM_{2.5}$ threshold.

Table 6-1
Recommended Significance Threshold and Project Emissions

Pollutant	Proposed Project Emissions (lbs/day)	Construction/Operational Threshold (lbs/day)	Cumulative Threshold (lbs/day)
ROG	5.15	82	10
NOx	62.91	82	10
PM_{10}	52.60	82	N/A
$PM_{2.5}$	12.60	82	N/A

Notes: PCAPCD has not developed a $PM_{2.5}$ threshold. The $PM_{2.5}$threshold shown in this table is based on the Sacramento Metropolitan Air Quality Management District's $PM_{2.5}$threshold.
Source: PCAPCD CEQA Air Quality Handbook

According to the PCAPCD's CEQA Air Quality Handbook, PCAPCD recommends a criteria pollutant cumulative threshold of significance for land use projects of 10 pounds per day for ROG and NOx for project operations. If a project is unable to mitigate emissions onsite to below 10 pounds per day for ROG or NOx, PCAPCD recommends the project participate in

the PCAPCD Offsite Mitigation Program. PCAPCD's Handbook does not recommend cumulative thresholds of significance for PM_{10} emissions.

6.1.2 - TOXIC AIR CONTAMINANTS

The operation of any project with the potential to expose existing or future sensitive receptors to substantial levels of TACs (such as DPM) would be deemed to have a potentially significant impact. More specifically, proposed projects that have the potential to expose the public to TACs in excess of the following PCAPCD thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million people for 70-year exposure.
- Ground-level concentrations of non-carcinogenic TACs would exceed a Hazard Index 16 greater than 1 for the MEI.

6.1.3 - ODORS

Odor impacts are addressed in a qualitative manner based on screening distances and odor complaints, as recommend in PCAPCD guidance. This includes a discussion of whether a project would result in excessive nuisance odors, or if proposed sensitive land uses would be exposed to substantial odors.

6.2 - Impact Analysis

Impact 3.3-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan and if the project implements all available and reasonably feasible air quality control measures. Air quality impacts are controlled through policies and provisions of the PCAPCD, the City of Lincoln General Plan, the AQMP, and the Triennial Progress Report.

The proposed Project was evaluated within the 2020 Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS), therefore, the Project is consistent with growth assumptions as projected by SACOG and supports policies contained within the MTP/SCS through its design. The Project contains design features that support the use of alternatives modes of transportation, thereby reducing the number of vehicle miles traveled within the general vicinity. This supports policies within the City of Lincoln General Plan, which in turn are consistent with the AQMP and PCAPCD's Triennial Progress Report. Some of these policies include:

Policy T-4.8 Neighborhood Electric Vehicles

Through the implementation of the Neighborhood Electric Vehicle Plan, the City shall support the use of Neighborhood Electrical Vehicles (NEV) and similar vehicles by providing, where possible, for street classifications that provide for their use and ensure connectivity throughout the City.

Policy T-5.1 Develop Bike Lanes

The City shall require bike lanes in the design and construction of major new street and highway improvements, and to establish bike lanes on those city streets wide enough to accommodate bicycles safely.

Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and the ***impact would be less than significant***.

Impact 3.3-2: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

According to Table 6-1 above, the proposed Project would not exceed any applicable thresholds of significance, therefore, the Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Impact 3.3-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

Although the build-out of the Project would result in an additional vehicle lane, the Project also promotes the reduction of automobile usage by adding additional lanes for electric vehicles, pedestrian sidewalks, and bicycle lanes. The Project itself would not produce substantial pollutant concentrations. The addition of the extra vehicle lane would allow for existing traffic to flow easier when coming in and out of the City of Lincoln. The construction phase would result in short-term, intermittent pollutants from construction equipment, and are not expected to expose any nearby sensitive receptors to long-term pollutant concentrations.

Impact 3.3-4: Would the project result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under any applicable national or State ambient air quality standards?

The Project area is in nonattainment for ozone, PM_{10} and $PM_{2.5}$. As previously mentioned, although the build-out of the Project would result in an additional vehicle lane, the Project also promotes the reduction of automobile usage by adding additional lanes for electric vehicle use, pedestrian sidewalks, and bicycle lanes. The addition of the extra vehicle land would allow for existing traffic to flow easier when coming in and out of the City of Lincoln. Therefore, the Project itself will not directly contribute to a cumulative, long-term significant net increase of any criteria pollutant.

Impact 3.3-5: Would the project create objectionable odors affecting a substantial number of people?

During the construction phase, the Project may result in minimal odors from the usage of construction equipment, however, any potential for odors would be short-term and limited to the construction phase only. Long-term, the Project itself is not expected to generate direct odors to the surrounding vicinity. The addition of the extra vehicle lane would not generate more vehicles trips but would rather allow for existing traffic to flow easier when coming in and out of the City of Lincoln.

If in a carbon monoxide (CO) and/or particulate matter ($PM_{2.5}$, PM_{10}) area, include results of "hot-spot" analysis with respect to conformity requirements. In 1997, EPA approved the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) for use as an alternative hot spot analysis method in California. Statewide and regional interagency consultation groups also reviewed the protocol and approved it for conformity use. The protocol provides a screening procedure for determining when a project may be of concern for CO violations and a standardized method of using the CALINE4 dispersion model for detailed analysis, if necessary.

According to the 2020 MTP/SCS, the analysis determined that the implementation of the 2020 MTP/SCS and the MTIP would result in less total regional on-road vehicle-related emissions (ROG and NOx) than the emissions budget found adequate by the EPA in the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, 2013 SIP Revisions. The proposed Project was included within this evaluation, therefore, it can be concluded that construction of the proposed Project, along with the other projects included within the MTP/SCS, would result in less total regional on-road vehicle-related emissions. Appendix D of the Conformity Analysis for the RTP/SCS lists the Transportation Control Measures applicable to the Sacramento region. Although the proposed Project is not listed as one of the TCMs, implementation of the Project will not interfere with any of the listed TCMs.

SECTION 7 - RESOURCES

2020 Metropolitan Transportation Plan/Sustainable Communities Strategy. Sacramento Area Council of Governments

Roadway Construction Emissions Model (version 9.0, April 2020)

APPENDIX A

ROAD CONSTRUCTION EMISSIONS MODEL VERSION 9.0.0

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> McBean Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.99	9.67	10.28	50.44	0.44	50.00	10.79	0.39	10.40	0.02	2,109.07	0.58	0.04	2,136.77
Grading/Excavation	5.15	46.04	62.91	52.60	2.60	50.00	12.60	2.20	10.40	0.15	14,563.43	2.87	0.90	14,903.83
Drainage/Utilities/Sub-Grade	3.02	29.19	31.87	51.42	1.42	50.00	11.67	1.27	10.40	0.07	6,890.69	1.19	0.28	7,003.32
Paving	1.33	17.21	13.05	0.72	0.72	0.00	0.63	0.63	0.00	0.03	2,757.78	0.74	0.05	2,792.11
Maximum (pounds/day)	5.15	46.04	62.91	52.60	2.60	50.00	12.60	2.20	10.40	0.15	14,563.43	2.87	0.90	14,903.83
Total (tons/construction project)	0.41	3.86	4.72	5.30	0.20	5.10	1.24	0.17	1.06	0.01	1,063.40	0.21	0.06	1,085.42

Notes:

Project Start Year ->	2022
Project Length (months) ->	12
Total Project Area (acres) ->	12
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	200	40
Grading/Excavation	855	0	1,290	0	800	40
Drainage/Utilities/Sub-Grade	0	219	0	330	560	40
Paving	0	0	0	0	400	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> McBean Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.12	0.12	0.61	0.01	0.60	0.13	0.00	0.12	0.00	25.31	0.01	0.00	23.26
Grading/Excavation	0.25	2.21	3.02	2.52	0.12	2.40	0.60	0.11	0.50	0.01	699.04	0.14	0.04	648.99
Drainage/Utilities/Sub-Grade	0.13	1.23	1.34	2.16	0.06	2.10	0.49	0.05	0.44	0.00	289.41	0.05	0.01	266.84
Paving	0.02	0.31	0.23	0.01	0.01	0.00	0.01	0.01	0.00	0.00	49.64	0.01	0.00	45.59
Maximum (tons/phase)	0.25	2.21	3.02	2.52	0.12	2.40	0.60	0.11	0.50	0.01	699.04	0.14	0.04	648.99
Total (tons/construction project)	0.41	3.86	4.72	5.30	0.20	5.10	1.24	0.17	1.06	0.01	1063.40	0.21	0.06	984.69

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

APPENDIX B

BIOLOGICAL RESOURCES

McBean Park Drive Bridge Replacement Project

Biological Assessment

McBean Park Drive Bridge Replacement Project
District 3, City of Lincoln, Placer County, Caltrans Bridge No. 19C0059
BRLO-5089 (021)
September 2022

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this Project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans.

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Biological Assessment

McBean Park Drive Bridge Replacement Project

District 3, City of Lincoln, Placer County, Caltrans Bridge No. 19C0059

BRLO-5089 (021)

September 2022

STATE OF CALIFORNIA
Department of Transportation

Prepared By: _____ Date: 8/23/2022
Curtis Uptain, Principal Biologist
(559) 449-2400
601 Pollasky Ave, Suite 301, Clovis, CA 93612
QK, Inc.

Prepared By: _____ Date: 09/08/2022
Danielle Temple, Senior Associate Biologist
(559) 449-2400
601 Pollasky Ave, Suite 301, Clovis, CA 93612
QK, Inc.

Recommended for
Approval By: _____ Date: _____
Enter reviewer's name and title
Enter phone number
Enter office name
Enter District/Region

Approved By: _____ Date: _____
Enter name and title
Enter phone number
Enter office name
Enter District/Region

TABLE OF CONTENTS

List of Figures

List of Tables

List of Abbreviated Terms

ACOE	Army Corps of Engineers
AFRP	Anadromous Fish Restoration Program
AMSL	above mean sea level
ARDR	Aquatics Resources Delineation Report
BLM	Bureau of Land Management
BMP	Best Management Practice
BSA	Biological Study Area
Caltrans	California Department of Transportation
CARP	County Aquatic Resources Program
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CVFPB	Central Valley Flood Protection Board
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
DFG	Department of Fish and Game
DOT	United States Department of Transportation
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ERP	Ecosystem Restoration Program
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
ESU	Evolutionarily Significant Unit
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Conservation
ITP	Incidental Take Permit
LGR	low gradient riffles
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base and Meridian
MOU	Memorandum of Understanding
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act

NHD	National Hydrology Dataset
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
PCA	Placer County Authority
PCCP	Placer County Conservation Program
PFMC	Pacific Fisheries Management Council
QK	Quad Knopf, Inc.
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps. Of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WRCC	Western Regional Climate Center

Executive Summary

The purpose of this Biological Assessment is to provide technical information and to review the Project in sufficient detail to determine to what extent the Project may affect threatened and endangered fishes or fish species proposed for listing. The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Biological Assessment under its assumption of responsibility at 23 United States Code (USC) 327(a)(2)(A). The Project is located within the Placer County Conservation Program (PCCP), a multi-component permitting vehicle comprised of a Habitat Conservation Plan (HCP), a Natural Communities Conservation Plan, and a County Aquatic Resource Program. This Biological Assessment was prepared to meet specific HCP requirements that are included in the PCCP. Those requirements are identified in Section 10(a)(2)(A) of the Endangered Species Act (ESA) and its implementing regulations of 50 CFR 17.22 (endangered species) and 17.32 (threatened species), and 50 CFR 222.25, 222.27, and 222.31.

The Community Development Department of the City of Lincoln is proposing to replace the existing two-lane bridge (Bridge No. 19C0059) at McBean Park Drive (which is also designated as State Route (SR) 193) and construct a new wider bridge at that location (Project). The Project includes the existing bridge, the area of the replacement bridge, clear water diversion structures (dam and conveyance pipe), additional right-of-way (ROW) south and north of the existing ROW for widened road approaches and relocation of utilities, and three laydown areas. The objective of bridge reconstruction is to replace the hydraulically inadequate bridge with a bridge that provides reliable general and emergency vehicle access along with other local pedestrian and automotive activities on McBean Park Drive with the intersections of Ferrari Ranch Road and East Avenue.

The new bridge will be longer and wider than the existing bridge to accommodate three travel lanes, road shoulders, and sidewalks. The existing bridge, guard rail, pier, and abutments will be removed and replaced with a cast-in-place, reinforced concrete slab bridge. The temporary diversion of water in Auburn Ravine is necessary to remove portions of the existing bridge and widen and construct the new bridge structure. Temporarily dewatering the Project site and diverting ravine flows through two culverts for controlled enclosed conveyance through the Project site will be necessary. A containment dam or bladder dam will be constructed within the channel banks of Auburn Ravine.

This Biological Assessment identifies and discusses adverse Project effects to State and federally threatened and endangered fish species, including Delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), and spring-, fall-, and winter-run chinook salmon (*Oncorhynchus tshawytscha*).

It was determined that the Action Area would not support the Delta smelt but could potentially be occupied, at least periodically, by Central Valley steelhead and spring-run chinook salmon. Winter- and fall-run chinook salmon would likely be absent because of low water flows. Conservation measures are included that would reduce the effects of the Project on these species.

A no-effect determination was made for the Delta smelt and winter- and fall-run chinook salmon. A may affect, likely to adversely affect determination was made for the spring-chinook salmon. A may affect, likely to adversely affect determination was made for the steelhead because they are known to be present in Auburn Ravine. The installation of the water diversion structure and the diversion of water could result in the need to relocate the migrating steelhead. Those structures could temporarily affect the functions of Critical Habitat for the steelhead.

Chapter 1. Introduction

The Community Development Department of the City of Lincoln (City) is proposing to replace the existing McBean Park Drive Bridge (Bridge No. 19C0059) over Auburn Ravine near downtown Lincoln in western Placer County, California (Figures 1 and 2). The Project is along the eastern edge of the City boundary, approximately 1.5 miles east of downtown Lincoln, between residential and commercial buildings to the west and open space and residential developments to the east (Figure 3).

1.1. Purpose and Need of the Proposed Action

The purpose of the Project is to replace the existing two-lane bridge at McBean Park Drive and construct a new wider bridge at that location (see Figure 2). The bridge currently becomes overtopped during storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The California Department of Transportation (Caltrans) has deemed the bridge "functionally obsolete." The objectives are to replace the bridge with a new bridge that provides reliable vehicle access during peak storm events, establish an enhanced river crossing, improve the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding, and link pedestrians, bicycles, and other vehicles using McBean Park Drive with the intersections of Ferrari Ranch Road to the east of the Project and East Avenue to the west of the Project.

Completion of the Project would provide a safe and reliable structure; support alternative modes of transportation, including bikes, pedestrians, and neighborhood electric vehicles; and be acceptable to the community with minimal impacts to traffic and the surrounding environment.

1.2. Species and Critical Habitats Assessed

A Threatened and Endangered Species List was provided by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service/National Oceanic Atmospheric Administration (NMFS/NOAA; NOAA 2021) for the Action Area of this Project (Appendix A).

Four federally and/or State-listed fish species were identified as potentially occurring within the Action Area (see Table 1). These included the Delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), and spring- and winter-run chinook salmon (*Oncorhynchus tshawytscha*). None of these federally listed species, except the Central Valley steelhead, are historically known to occur within the Action Area based upon California Natural Diversity Database (CNDDB) records (CNDDB 2021a).

Figure 1
Regional Location Map
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

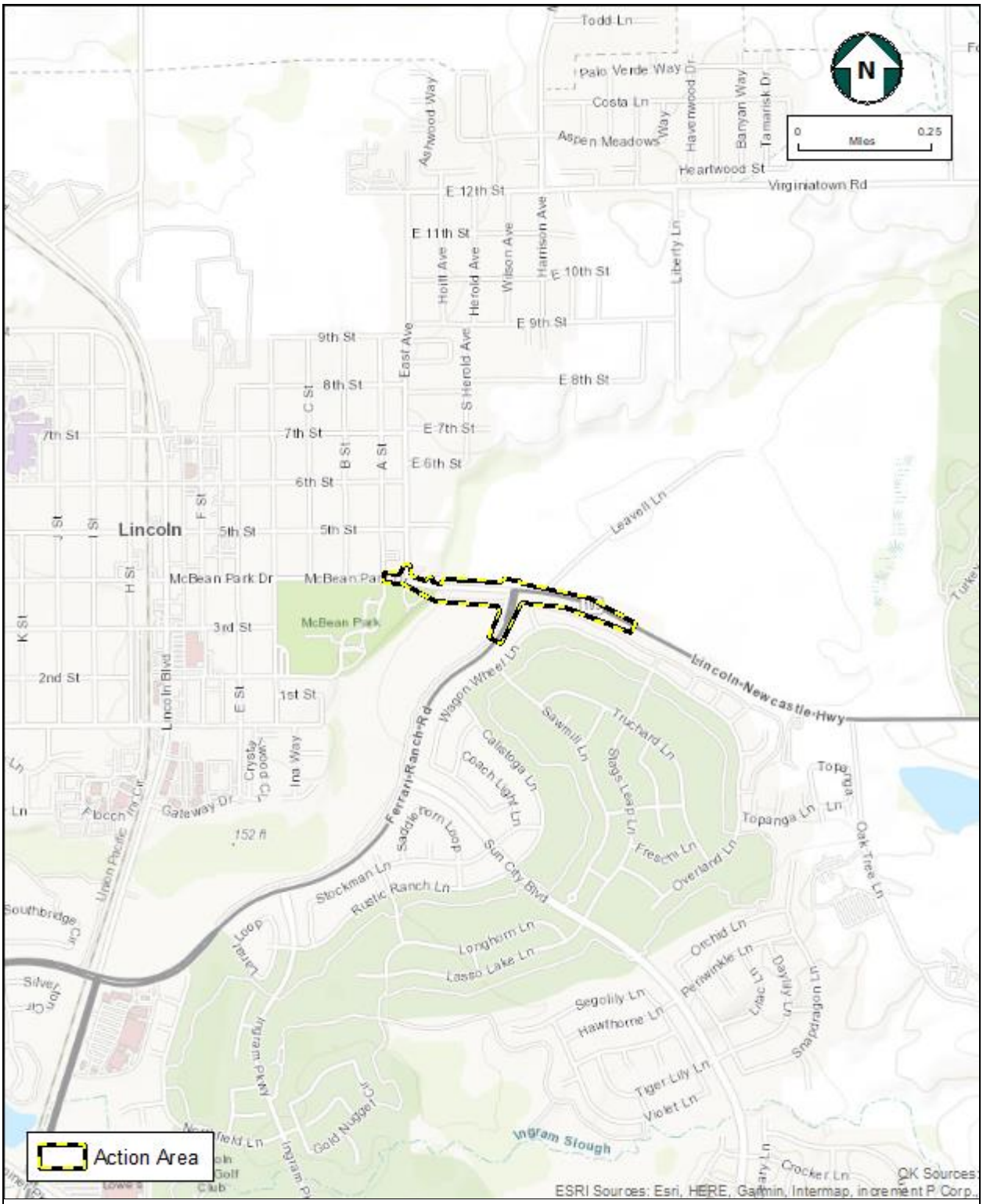


Figure 2
Local Vicinity Map
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

Figure 3
Project Area
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

Table 1
Threatened, Endangered, and Proposed Fish Species, Designated and Proposed Critical Habitat, and Effect Determinations
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Federal Listing Status	State Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
Central Valley steelhead	*Oncorhynchus mykiss*	Threatened	None	Yes	Yes	**May Affect, Likely to Adversely Affect**. Habitat that could support this species is present on the Project site. This species is known to occur in Auburn Ravine, and spawning and migration habitat is present. This species was not observed during field surveys.
Delta smelt	*Hypomesus transpacificus*	Endangered	Threatened	No	No	**No Effect**. Habitat that could support this species was absent from the Project site. The Project site is outside the known range of this species. This species was not observed during field surveys.
spring-run chinook salmon, Central Valley	*Oncorhynchus tshawytscha*	Threatened	Threatened	Yes	No, but there is an Essential Fish Habitat designation	**May Affect, Likely to Adversely Affect**. Habitat that could support this species is present on the Project site. The spring-run chinook salmon could be

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Federal Listing Status	State Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
						present in Auburn Ravine, and potential spawning and migration habitat is present. This species was not observed during field surveys.
winter-run chinook salmon, Sacramento River	*Oncorhynchus tshawytscha*	Endangered	Endangered	No	No, but there is an Essential Fish Habitat designation	**No Effect.** It is likely that water levels and water temperatures are not suitable to support fall- and winter-run chinook salmon. This species was not observed during field surveys.

Of the fishes listed above, only the Delta smelt was identified by the USFWS Information for Planning and Conservation (IPaC) system (USFWS 2021a; Appendix B). The fall-run and late fall-run chinook salmon are not federally or State listed, nor would they likely occur on the Project because of low water flows and high temperatures. Fall-run and late-fall run chinook salmon are not included in this Biological Assessment.

1.2.1. Federal and State Threatened and Endangered Fish Species

- Central Valley steelhead (*Oncorhynchus mykiss*) – Federally Threatened/No State listing
- Delta smelt (*Hypomesus transpacificus*) – Federally Endangered/State Threatened
- Spring-run chinook salmon (*Oncorhynchus tshawytscha*) – Federally Threatened/ State Threatened
- Winter-run chinook salmon (*Oncorhynchus tshawytscha*) – Federally Endangered/ State Endangered

1.2.2. Critical Habitat and Essential Fish Habitat

Critical Habitat is defined in Section 3(5)A of the Federal Endangered Species Act (FESA) as “the specific areas within the geographic area, occupied by the species at the time it was listed, that contain the physical or biological features that are essential to the conservation of the endangered and threatened species and that may need special management or protection.” Critical Habitat also includes specific areas outside the geographic area occupied by the species upon a determination that such areas are essential for the conservation of the species.

The Project is situated within a very broad area that is designated as Essential Fish Habitat for the chinook salmon by the NMFS. Designated Critical Habitat for Central Valley steelhead is present in Auburn Ravine, including in the Action Area (USFWS 2021b; CDFW 2021b; Figure 4). This Critical Habitat could be used by steelhead for spawning, migration, juvenile rearing, and juvenile migration.

1.2.3. Proposed Species

There are no federal candidate fish species that may become listed during Project development or implementation.

1.2.4. Proposed Critical Habitat

There is no proposed Critical Habitat for fishes within the Action Area.

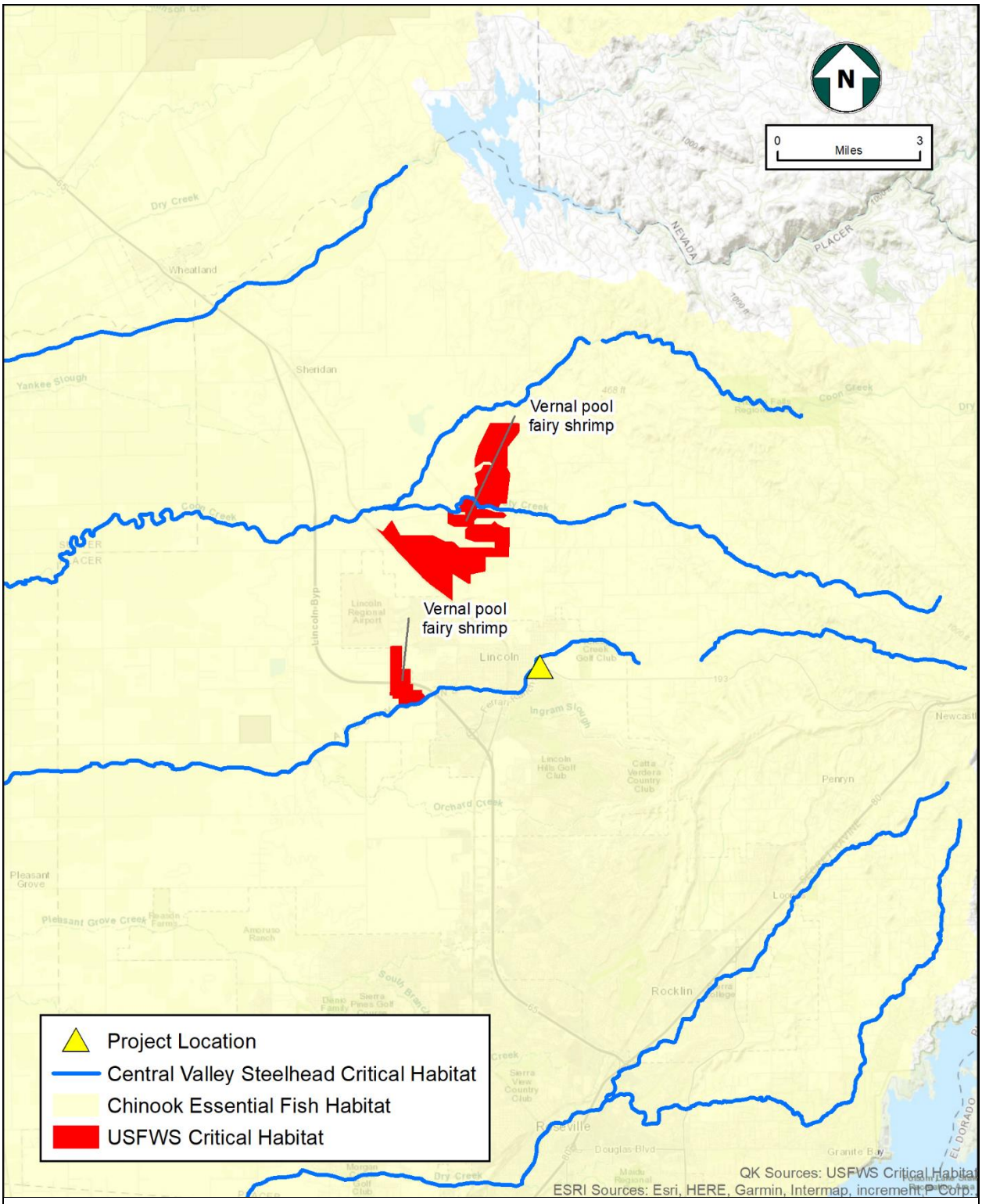


Figure 4
Critical Habitat and Essential Fish Habitat
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

1.3. Authorities and Discretion

This Project is located within the boundaries of the Placer County Conservation Program (PCCP), which is implemented through a Habitat Conservation Plan (HCP), Natural Communities Conservation Program (NCCP), and County Aquatic Resources Program (CARP). The PCCP guides public agencies whose secondary approvals may also be required (e.g., permits, financing approval, or participation agreement), which include the California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (USACE), USFWS, NMFS, Placer County, the City, and the Central Valley Flood Protection Board (CVFPB). A description of federal, State, and local authorities' policies and ordinances potentially affecting the proposed action is included below.

1.3.1. Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 (USC Title 16, Sections 1531–1543) is a federal law that applies to any action that is likely to jeopardize the continued existence of designated endangered or threatened species or result in the destruction or adverse modification of Critical Habitat. This act and subsequent amendments provide for the conservation of federally endangered and threatened species and the ecosystems they depend on. Section 7 of the Act requires federal agencies, in consultation with and with the assistance of the Secretary of the Interior or of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of Critical Habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the Act.

Section 9 of FESA prohibits activities that result in "take" of threatened or endangered species. "Take" generally includes killing, harming, or harassing listed species. "Harm" has been further defined to include killing or injuring an individual of a listed species by significant obstruction of essential behavior patterns (e.g., breeding, feeding, or sheltering) through significant habitat modification or degradation.

Section 7 contains provisions for allowing "take" that is incidental to otherwise lawful activities. Under Section 7, a federal agency that proposes to conduct, fund, or approve a discretionary action that may result in "take" of listed species is required to consult with the United States Fish and Wildlife Service or National Marine Fisheries Service, depending upon species and jurisdictions. The result of the formal consultation is a Biological Opinion, which includes either a jeopardy or a non-jeopardy decision. Included in the Biological Opinion is the possible issuance of authorization for "incidental take."

1.3.2. California Endangered Species Act

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that will result in a "take" of a State-listed species (or if the CDFW determines that a federal take permit is not consistent with State requirements), the applicant must apply for an Incidental Take Permit (ITP) under Fish & Game Code §2081(b). For projects that affect species that are both State and federally listed, compliance with the FESA may satisfy CESA if the CDFW determines that the federal incidental take authorization is "consistent" with CESA, which is referred to as a consistency determination that can be issued following Fish & Game Code §2080.1.

CESA provides protections for California-listed rare, threatened, or endangered species. Should any State-listed species be present within a project area and be subject to impacts from the project, the project proponent must apply for a 2081(b) Incidental Take Permit to the California Department of Fish and Wildlife (excluding occasions when a consistency determination applies). The resulting permit specifically defines the permitted activities and how the applicant must act to protect the affected species.

1.3.3. National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to assess the environmental effects of their proposed actions, document the analysis, and make this information available to the public for comment prior to implementation. Proposed actions include making federal permitting decisions, the adoption of federal land management actions, and the construction of highways and other publicly owned facilities.

1.3.4. California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes the State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State, County, or local lead agencies.

The purpose of CEQA is to identify the significant effects on the environment from a project or other action and then to identify lower/no impact alternatives to a project and indicate the manner in which significant effects can be mitigated or avoided. The mechanism to ensure protection is the preparation and review of an environmental document that identifies the existing environmental conditions, describes a proposed

action or project, assesses the types and significance of impacts on the environment, and identifies mitigation that would mitigate, reduce, or avoid impacts where feasible. If significant impacts cannot be mitigated, CEQA requires the lead agency to reject the project or make findings of fact and issue a statement of overriding considerations. Various responsible and trustee agencies provide a review, comments, and input into the decision-making process. Appendix G of the CEQA Guidelines identifies sensitive biological resources that must be addressed and fully analyzed, which include wetlands, sensitive natural communities, special-status plant and wildlife species, migratory corridors and nursery sites, and other biological resources of local, regional, State, and federal importance.

1.3.5. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, is a series of treaties that the United States has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA currently includes several hundred species and includes all native birds. The MBTA prohibits the destruction of all designated migratory bird species' nests, eggs, and/or young. With only a few exceptions, all birds within California are included in this prohibition.

1.3.6. California Fish and Game Code

Sections 1580, 1600–1616, 1900 et seq., 3503, 3513, 2800–2801, 3511, 4700, 5050, and 5515

Several sections of the California Fish and Game Code are applicable to the analysis of biological resource impacts that may be associated with the Project. The following paragraphs summarize these sections:

Section 1580

This section declares that the policy of the State is to protect threatened or endangered native plants, wildlife, and aquatic organisms and specialized habitat types, both terrestrial and non-marine aquatic, and large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves.

Sections 1600–1616

An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake without providing

notification to the CDFW. This notification may result in a Lake and Streambed Alteration Agreement between the project applicant and CDFW. Activities in intermittent streams and canals or within riparian zones associated with those streams and canals may require Lake and Streambed Alteration Agreements.

Section 1900, et seq.

This portion of the Fish and Game Code is known as the "Native Plant Protection Act." The purpose of this section is to preserve, protect, and enhance endangered or rare native plants of the State. Many species and subspecies of native plants are endangered because their habitats are threatened with destruction, drastic modification, or severe curtailment, or because of commercial exploitation or by other means, or because of disease or other factors. This portion designates California rare, threatened, and endangered plant taxa.

Section 3503

This section prohibits taking, possessing, or needlessly destroying the nest or eggs or any bird. Birds of prey are included in Section 3503.5.

Section 3513

California's migratory birds are protected under this section by making it unlawful to take or possess any migratory non-game bird (or any part of the such bird) as designated in the MBTA.

Sections 2800–2801, 3511, 4700, 5050, and 5515

Sections 3511, 4700, 5050, and 5515 prohibit take of animals that are classified as "Fully Protected" in California. Take of Fully Protected species is specifically prohibited. Sections 2800–2801, however, do permit take of Fully Protected species through the Natural Community Conservation Planning Act. Only through direct legislative action or the development of a Natural Community Conservation Plan can take of Fully Protected species occur. The Act effectively uses conservation planning to protect California's natural diversity and promote multispecies and multihabitat management and conservation. Its purpose is to sustain and restore those species and habitats that the CDFW identifies as necessary to maintain the continued viability of those biological communities impacted by human changes to the landscape.

1.3.7. California Code of Regulations (CCR) Title 14 - Sections 670.2, 670.5, and 15000

Sections 670.2, 670.5, and 15000

These sections list the wildlife species that are designated as threatened or endangered species in California.

CCR Section 15000 et seq.

This portion of the CCR prescribes the regulations to be followed by all local and State agencies in implementing CEQA.

1.3.8. Clean Water Act, Sections 401 and 404

The Clean Water Act (CWA) is a federal law that protects the chemical, physical, and biological integrity of the nation's waters by preventing pollutants, providing assistance for the improvement of wastewater treatment, and maintaining the integrity of wetlands. The Environmental Protection Agency defines the CWA as a law that "...establishes the basic structure for regulating discharges of pollutants into the Waters of the United States and regulating quality standards for surface waters."

The State of California regulates water quality related to the discharge of fill material into Waters of the State pursuant to Section 401 of the CWA. Section 401 compliance is a federal mandate implemented by the State. The RWQCB has jurisdiction over all those areas defined as jurisdictional under Section 404 of the CWA and regulates water quality for all Waters of the State. These waters may include isolated wetlands as defined under the California Porter-Cologne Water Quality Control Act (Porter-Cologne; Ca. Water Code, Div. 7, §13000 et seq.). Regulated discharges include those that can affect water quality, even if there is no significant nexus to a traditional navigable water body required for the U.S. Army Corps of Engineers (USACE) determination of jurisdiction over Waters of the U.S. A Waste Discharge Permit may be required to comply with the Porter-Cologne Water Quality Control Act even if the CWA (including Section 401 Water Quality Certifications or Section 404 permits) would not apply.

The USACE, under Section 404 of the CWA, regulates discharges of dredged or fill material in "Waters of the United States." In addition to designated and traditional navigable waters, this term includes “waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (2)

From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purpose by industries in interstate commerce." Tributaries to "Waters of the United States" and adjacent wetlands would also be included [33 California Federal Regulations (CFR) §328.3].

Some intermittent washes may be included in the defined "Waters of the United States," depending on connection or nexus to navigable waters. Both wetlands and non-wetland areas can be included within the regulated area. Within non-wetlands that are classified as Waters of the U.S., the USACE maintains jurisdiction up to the "ordinary high water mark." If wetlands are present that meet the criteria established by the USACE, the limit of jurisdiction is the ordinary high water mark or the limit of the adjacent or associated wetland, whichever is greater. If waters are determined to be under the jurisdiction of the USACE, the RWQCB would be the State permitting authority. At the discretion of the USACE, impacts to these areas could require a permit, depending on the type and size of the activity within USACE jurisdiction.

1.3.9. Executive Order 11988; Floodplain Management

Executive Order 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid the direct or indirect support of floodplain development whenever there is a practicable alternative. Each agency shall take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values floodplains serve in carrying out its responsibilities. Before taking an action, each agency shall determine whether the proposed action will occur in a designated floodplain. The generally established standard for risk is the flooding level that is expected to occur every 100 years. If an agency determines or proposes to conduct, support, or allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplains.

1.3.10. Executive Order 11990; Protection of Wetlands

Executive Order 11990 established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U.S. Department of Transportation (DOT) promulgated DOT Order 5660.1A in 1978 to comply with this direction. On federally funded projects, impacts on wetlands must be identified. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific Wetlands Only Practicable Alternative Finding. An additional requirement is to provide early public involvement in projects affecting wetlands. The

Federal Highway Administration (FHWA) provides technical assistance (Technical Advisory 6640.8A) and reviews environmental documents for compliance.

1.3.11. Executive Order 13112; Invasive Species

Executive Order 13112, issued on February 3, 1999, established the National Invasive Species Council, tasked with acting as an interdepartmental organization to centralize efforts across agencies and political boundaries toward addressing the impacts and ongoing threats of invasive species. Implementation of this Executive Order required, among other actions, limitation or exclusion of federal funding for projects that may result in promoting the introduction or spread of invasive species. Guidelines established by the FHWA stipulate that FHWA funding will not be allocated for projects that are not in compliance with the Executive Order, and FHWA California Division will not authorize National Environmental Policy Act (NEPA) compliance in the absence of analysis of invasive species for such projects.

1.3.12. National Wild and Scenic Rivers Act

Prohibits federal agencies from activities that would adversely affect the values for which a river was designated as a Wild and Scenic River. FHWA consults with the managing agencies during the NEPA process on projects that affect designated rivers or their immediate environments to reduce potential conflicts with wild and scenic river values that the Act protects.

1.3.13. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

1.3.14. Regional and Local Legislation

Placer County Conservation Plan

On September 1, 2020, the Placer County Board of Supervisors adopted the PCCP under Chapter 19, Article 19.10 to the Placer County Code, which established an HCP under FESA, an NCCP under the California Natural Community Conservation Act, a CARP, and an In-Lieu Fee Program to fulfill Clean Water Act Sections 401 and 404 aquatic resources

compensatory mitigation requirements. The PCCP covers approximately 201,000 acres of Western Placer County, with 50,000 to 60,000 acres set aside as permanently managed conservation areas. Most lands are located within the unincorporated Placer County and City areas.

Under the PCCP, any ground disturbance activities within the established Plan Area may be subject to fees and mitigation established through federal and State permitting processes. Impacts related to natural or semi-natural lands, including oak woodland, grasslands, and wetlands, may be subject to the PCCP requirements. The PCCP program is "designed to ensure that land will be managed to continue to support the survival and well-being of the covered species… by proactively addressing the long-term conservation and development needs of the County." Individuals seeking ground disturbance activities within the Plan Area that may impact special-status species would therefore not be required to apply for individual Incidental Take Permits (ITP) with the USFWS and CDFW agencies, as the established PCCP allows for a streamlined authorization process to support avoidance and minimization measures associated with project activities.

City of Lincoln 2050 General Plan

On October 27, 2020, the City Council approved Ordinance No. 1019B, which enacted Chapter 18.89 – Placer County Conservation Program of Title 18 of the City Zoning Code and adopted Resolution No. 2020-174, approving the Final Environmental Impact Report and consistency findings with the City 2050 General Plan. This action incorporates the Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) for the PCCP within the City boundaries to streamline compliance with State and federal environmental laws for both public and private projects while simultaneously providing a comprehensive local program that effectively protects natural resources within the City. This chapter outlines the applicability, responsibility, land conversion authorization requirements, application process, and development fees for the purpose of mitigating impacts to open space, habitat, and species covered by the HCP/NCCP, including aquatic resources. The chapter also outlines land dedication, wetland restoration, in-stream enhancement options, and options for in-lieu of fees. The chapter also identified potential enforcement authority and authorization of take associated with impacts to aquatic resources within Placer County.

The following measures excerpted from the City 2050 General Plan (City of Lincoln 2008) would designate, protect, and encourage natural resources, open space, and recreation lands in the City, protect and enhance a significant system of interconnected natural habitat areas, and provide opportunities for recreation activities to meet citizen needs. Goal OSC-1 is recommended to be implemented to avoid and minimize impacts.

Policy OSC-1.1 Protect Natural Resources

The City shall strive to protect natural resource areas, fish and wildlife habitat areas, scenic areas, open space areas, and parks from encroachment or destruction by incompatible development.

Policy OSC-1.2 Coordinate with Placer County for Open Space Preservation

The City shall coordinate with Placer County and their Placer Legacy program to ensure City issues are incorporated into future plans.

Policy OSC-1.3 Creation of Buffers

In new development areas, the City shall encourage the use of open space or recreational buffers between incompatible land uses.

Policy OSC-1.4 100-year Floodplains

The City will apply open space designations to all lands located within the 100-year floodway as shown on the FIRM panel or as determined by a project drainage plan and approved by the City Engineer/Director of Public Works. The City will also apply open space designations to all 100-year floodplain fringe areas and/or remaining floodplain fringe areas as determined by a project drainage plan identifying floodplain fringe encroachment areas and quantifying their impact along with other improvements to show a zero net impact to the upstream, downstream and adjacent properties. Open space designations will apply to all land located within a minimum of 50 feet from the center channel of all perennial and intermittent streams and creeks providing natural drainage and to areas consisting of riparian habitat. In designating these areas as open space, the City is preserving natural resources and protecting these areas from development.

Policy OSC-1.5 Protection of Minerals

The City will protect mineral resources such as groundwater, clay deposits, and groundwater recharge areas from urban development.

Policy OSC-1.6 Soil Erosion

The City shall require new development to implement measures that minimize soil erosion from wind and water related to construction. Measures may include, but not be limited to:

- Grading requirements that limit grading to the amount necessary to provide stable areas for structural foundations, street rights-of-way, parking facilities, or other intended uses.

- Construction techniques that utilize site preparation, grading, and best management practices that provide erosion and sediment control to prevent construction-related contaminants from leaving development sites and polluting local waterways.

Policy OSC-1.7 Soil Erosion and Site Planning

The City shall require all development to minimize soil erosion by maintaining compatible land uses, suitable building designs, and appropriate construction techniques. Contour grading, where appropriate, and revegetation shall be required to mitigate the appearance of engineered slopes and to control erosion.

The following measures excerpted from the City 2050 General Plan (City of Lincoln 2008) would preserve and enhance local streams, creeks, and aquifers (Goal OSC-4) and are recommended to be implemented to avoid and minimize impacts.

Policy OSC-4.1 Identify and Protect Aquifers

The City will protect local aquifers and water recharge areas.

Policy OSC-4.2 Develop Groundwater Management Plan

The City shall develop and periodically update a Groundwater Management Plan to protect local aquifers.

Policy OSC-4.3 Protect Surface Water and Groundwater

The City shall ensure that new development projects do not degrade surface water and groundwater.

Policy OSC-4.4 Protection and Management of Floodplains

The City shall encourage the protection of 100-year floodplains and, where appropriate, obtain public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access, and recreation.

Policy OSC-4.5 Use of Reclaimed Water

The City shall encourage the use of reclaimed water in place of treated potable water for landscaping and other suitable applications.

Policy OSC-4.6 Best Management Practices

The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect surface water and groundwater from the adverse effects of construction activities and urban runoff. Additionally, The City shall require, as part of its Stormwater NPDES Permit and ordinances, to implement the Stormwater Pollution Prevention Plan (SWPPP) during construction activities for any improvement projects, new development, and redevelopment projects for reducing pollutants to the maximum extent practicable.

Policy OSC-4.7 Landscape Irrigation

The City shall explore the possibility of using reclaimed water to irrigate new commercial developments and new areas with large landscape areas. In areas where reclaimed water can be provided in the future, the City shall require landscape irrigation to be installed so that the system can be used with reclaimed water. The City shall also explore the use of industrial process water for landscape irrigation, provided that it meets City standards for irrigation.

The following measures excerpted from the City 2050 General Plan (City of Lincoln 2008) would preserve and protect existing biological resources, including both wildlife and vegetative habitat (Goal OSC-5), and are recommended to be implemented to avoid and minimize impacts.

Policy OSC-5.1 Protect Significant Vegetation

The City shall support the preservation of heritage oaks and threatened or endangered vegetative habitat from destruction. A heritage oak shall be defined as a tree with a diameter of 36 inches measured at a point 4.5 feet above grade level (i.e., diameter at breast height).

Policy OSC-5.2 Management of Wetlands

The City shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats. Such communities shall be restored or expanded where possible and as appropriate.

Policy OSC-5.3 Placer Legacy Open Space and Conservation Program

The City will continue to coordinate with Placer County and the Placer Legacy Open Space and Conservation Program to protect habitat areas that support endangered species and other special-status species.

Policy OSC-5.4 Encourage Planting of Native Vegetation

The City shall encourage the planting of native trees, shrubs, and grasslands to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation, and ensure that a maximum number and variety of well-adapted plants are maintained.

Policy OSC-5.5 New Development in Sensitive Areas

The City shall require that new development in areas known to have particular value for biological resources be carefully planned and, where possible, avoided so that the value of existing sensitive vegetation and wildlife habitat can be maintained.

Policy OSC-5.6 No Net Loss of Wetlands

The City will maintain a policy of no net loss of wetlands on a project-by-project basis, which may include an entire specific Plan Area. For the purpose of identifying such wetlands, the City will accept a map delineating wetlands, which has been accepted by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act of 1972. The term “no net loss” may include mitigation implemented through participation in an off-site mitigation bank or similar mitigation mechanism acceptable to the City and permitting agencies.

Policy OSC-5.7 404 Permit Requirements

The City may require project proponents to obtain 404 permits and prepare mitigation plans for or provide for the avoidance, preservation, and maintenance of identified wetlands prior to submitting applications for land use entitlements.

Policy OSC-5.8 Corps of Engineers Disclaimers

The City may, but need not, accept a Corps of Engineers disclaimer of any jurisdiction over the project of a Corps of Engineers 404 permit as the City's own plan for the achievement of a project's no net loss of wetlands.

Policy OSC-5.9 Wetlands Dedication

All preserved wetlands shall be dedicated to the City or a non-profit organization acceptable to the City and preserved through perpetual covenants enforceable by the City or other appropriate agencies to ensure their maintenance and survival. With respect to areas dedicated to the City, acceptance shall be conditioned upon the establishment of a lighting and landscaping district or other public or private funding mechanisms acceptable to the City.

Policy OSC-5.10 Native Vegetation for Landscaping

The City shall develop a list of native vegetation to be used as a landscape pallet for use within open space/preserve areas. Native plants should also be incorporated into plant palettes used in developed areas by citizens and developers.

Policy OSC-5.11 Requirement for Biological Studies

Prior to project (i.e., specific plan or individual project) approval, the City shall require a biological study to be prepared by a qualified biologist for any proposed development within areas that contain a moderate to high potential for sensitive habitat. As appropriate, the study shall include the following activities: (1) inventory species listed in the California Native Plant Society Manual of California Vegetation, (2) inventory species identified by the USFWS and CDFG, (3) inventory special-status species listed in the California Natural Diversity Database, and (4) field survey of the project site by a qualified biologist.

Policy OSC-5.12 Appropriate Mitigation Measures

The City shall consider using appropriate mitigation measures for future projects (i.e., specific plans or individual projects) based on mitigation standards or protocols adopted by the applicable statute or agency (e.g., USFWS, CDFG, etc.) with jurisdiction over any affected sensitive habitats or special-status species.

Policy OSC-5.13 Minimize Lighting Impacts

The City shall ensure that lighting in residential areas and along roadways shall be designed to prevent artificial lighting from reflecting into adjacent natural or open space areas.

Recovery Plan for Upland Species of the San Joaquin Valley

The Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) covers 34 species of plants and animals that occur in the San Joaquin Valley. The Recovery Plan is limited to Upland Species and is not applicable to this Project.

Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring Run Chinook Salmon and Distinct Populations Segments of the Central Valley Steelhead

The goal of this Recovery Plan is to recover the endangered Sacramento River winter-run chinook salmon Evolutionarily Significant Unit (ESU), the threatened Central Valley spring-run chinook salmon ESU, and the threatened California Central Valley steelhead Distinct Population Segment (DPS). The purpose of this Recovery Plan is to guide the

implementation of recovery of the species by resolving the threats to the species and thereby ensuring viable chinook salmon ESUs and the steelhead DPS. Local water agencies and irrigation districts, municipal and County governmental agencies, watershed groups, and State and federal agencies have undertaken major habitat restoration efforts in many parts of the Central Valley and Delta. These actions include the addition of gravel below dams, removal of small dams, screening water diversions, fish passage improvements, riparian revegetation, bank protection, structural habitat enhancement, restoration of floodplain and tidal wetlands, development and implementation of new flow and water temperature requirements below dams, and operational constraints in the Delta. Major restoration efforts that impact salmon and steelhead recovery throughout the Central Valley include the programs established under the Anadromous Fish Restoration Program (AFRP) of the Central Valley Project Improvement Act (CVPIA) and the Ecosystem Restoration Program (ERP).

This Recovery Plan is applicable to the Project. It contains a substantial amount of relevant natural history information about these fish, and it provides recommendations for recovery that were used in evaluating the effects of this Project on these fishes and the development of conservation measures to ensure they are consistent with recovery actions for these species.

Central Valley Flood Protection Board

The CVFPB is the State regulatory agency responsible for ensuring that appropriate standards are met for the construction, maintenance, and protection of the flood control system that protects life, property, and wildlife habitat in California's vast and diverse Central Valley from the devastating effects of flooding. CVFPB issues encroachment permits and works with other agencies to improve the flood protection structures, enforces the removal of problematic encroachments, and keeps watch over the Central Valley's continually improving flood management system. The CVFPB's authority and procedures come from the California Water Code and Title 23 of the California Code of Regulations.

Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills

The Recovery Plan for the Gabbro Soil plants of the Central Nevada Foothills goals is to protect and restore sufficient habitat and numbers of populations and ameliorate both the threats that caused five of the gabbro soil plants to be listed and any other newly identified threats in order to delist and ensure the long-term conservation for species that are not currently considered de-listable. Recovery and long-term conservation tasks emphasized in this Recovery Plan are habitat protection and management, surveying and monitoring, research, public participation, outreach, and education. All species covered in the Recovery Plan are threatened by the loss and fragmentation of gabbro habitat. Approximately 656 acres within the Salmon Falls Preserve are in public ownership (BLM

and DFG) and are being managed for the protection of rare plants and other natural resources through a Memorandum of Understanding (MOU) between BLM, DFG, and the Bureau of Reclamation.

1.4. Consultation History

Consultation with the ACOE began in July 2022. An application for 404 permitting was submitted to the ACOE, and the permit was issued on August 17, 2022, pending issuance, which is pending Caltrans submittal. No other formal coordination with professional contacts at USFWS or other agencies has been conducted.

1.5. Resource Agency Coordination and Professional Contacts

There has been initial contact with the Placer County Authority (PCA), USACE, and CDFW to begin the permitting process through the PCCP HCP/NCCP framework. Consultation with the agencies will be completed by a combination of QK, Caltrans, the City of Lincoln, and the PCA. Permits through the RWQCB and approvals through USFWS and NOAA will be obtained through the PCCP. Permits issued by CDFW and USACE will be obtained separately from the PCCP, but the applications will meet the requirements of the PCCP and should be streamlined by the PCCP issuance. Coordination will need to occur with the following agencies.

- The Western Placer County PCCP/CARP Authorization Application Form will be submitted to the PCA.

- Central Valley Water Board Western Placer County Habitat Conservation Program/Natural Communities Conservation Plan Programmatic General Permit-Notice of Intent.

- A Notification of Lake and Streambed Alteration Agreement and requisite permit application, processing fee, and final environmental documents will be submitted to the CDFW. In addition, the CDFW will be consulted to discuss potential impacts to sensitive species.

- USACE has reviewed the Aquatics Resources Delineation Report (ARDR) and associated documents, and on August 17, 2022, a Preliminary Jurisdiction Determination concurring with the ARDR was issued (ACOE reference number SPK-2022-00381, QK 2022). Because the Project is within the PCCP, the Project has been issued the Western Placer County HCP/NCCP Programmatic General Permit 18 USACE to comply with 404 permitting. This permit is pending compliance with Section 106/Tribal Consultation.

- In accordance with the FESA, the USFWS and NMFS/NOAA will be consulted to discuss potential impacts to federally listed species.

1.6. Study Methods

A desktop analysis of the PCCP basic land cover layer was conducted to identify habitats on and within 300 feet of the Project and identify the PCCP Stream System where the Project occurs. Biological surveys were conducted by Quad Knopf, Inc (QK) Environmental Scientists to identify vegetative communities that occur on the site, to evaluate the site for the presence or absence of special-status species, including federally and State threatened and endangered species, and to evaluate the presence of other sensitive or important biological resources. Vegetative community classifications were based on the communities defined in the PCCP basic layer. The initial survey was conducted in March 2015, and follow-up surveys were conducted in January 2019 and February 2021 to verify documented site conditions. All areas within the Biological Study Area (BSA) were surveyed by walking transects at approximately 50-foot intervals, which provided 100 percent visual coverage. Surveys included a 500-foot buffer around portions of the Action Area that adjoined more natural communities such as riparian corridors and annual grassland habitat. A 50-foot survey buffer was examined around the Action Area for the presence of wetlands, and delineations of the Auburn Ravine were conducted 100 feet upstream and downstream of the McBean Park Drive Bridge. The fish habitat assessment was conducted 600 feet downstream from the bridge and 400 feet upstream from the bridge.

Potential Waters of the U.S. (including wetlands) were delineated by QK Environmental Scientists in March 2015 with a Trimble GeoXH GPS. Follow-up surveys were conducted in January 2019 and February 2021 to verify and document any new conditions using Environmental Systems Research Institute (ESRI) Collector for ArcGIS software installed on an iPad tethered to an EOS Arrow GPS unit with sub-meter accuracy. All water features, including the ordinary high water mark (OHWM) of Auburn Ravine, wetlands, and drainage ditches, were mapped within the Action Area and the surrounding 50-foot buffer. All observed wetland and water features were delineated using standard methods described in both the *1987 Army Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the most recent version of the *Arid West Regional Supplement Version 2.0* (USACE 2008a). Plant identification was determined using the *Jepson Manual: Vascular Plants of California of Higher Plants* (Baldwin et al. 2012). The wetland indicator status of each plant species was determined using *The National Wetland Plant List: 2016 wetland ratings* (Lichvar et al. 2016). The hydrologic soil and vegetative data recorded at the sample points were transcribed onto USACE Arid West Region Wetland Determination Data Forms. For non-wetland aquatic features, including the Auburn Ravine and drainages, the OHWM was delineated using methodologies and diagnostic

characteristics in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b).

A fishery resource assessment was conducted in August 2014 by A. A. Rich and Associates, Fisheries and Ecological Consultants, to assess fishery habitat conditions in Auburn Ravine and survey for sensitive fish species. A field verification survey and update of the original 2014 findings was conducted by QK Principal Environmental Scientist Curtis Uptain in February 2021. Both site examinations were conducted within Auburn Ravine 600 feet south of the bridge and 400 feet north of the bridge. The investigated area was divided into six stream reaches, each of approximately 200 feet in length, except for one at the bridge, which was approximately 50 feet long. In 2021, current stream characteristics information was gathered, and current photographs of each stream reach were taken (Appendix B).

All areas within the Biological Survey Area (see Figure 3), including potential temporary and permanent impact areas, staging areas, and the 500-foot buffer surrounding the Action Area, were surveyed on foot, and inventories of vegetation communities and plant species were recorded. All riparian areas within the Action Area and surrounding 50-foot buffer were mapped using ESRI Collector for ArcGIS software installed on an iPad tethered to an EOS Arrow GPS unit with sub-meter accuracy.

1.6.1. Personnel and Survey Dates

Field studies included biological surveys, fishery habitat assessments, and aquatic resources delineation surveys. The entire BSA was examined during most survey efforts, although in some cases, the examinations were focused on smaller areas (e.g., the fisheries assessments were conducted only within Auburn Ravine). The following biological surveys were conducted.

Table 2
Survey Dates, Personnel, and Survey Types
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Date	Personnel	Survey Type
August 15, 2014	A. A. Rich and Associates Fisheries and Ecological Consultant	Assessment of fisheries resources and habitat conditions.
March 5 and 6, 2015	Tyler Schade, QK Environmental Scientist	Biological survey and delineation of potential wetlands and Waters of the U.S. within the BSA.

Date	Personnel	Survey Type
January 11, 2019	Dylan Ayers, QK Environmental Scientist	Supplemental biological survey to verify previous survey findings and to evaluate existing conditions within the BSA.
February 4 and 5, 2021	Julie Hausknecht, Sarah Yates, Lisa Sandoval, and Danielle Temple, QK Environmental Scientists	Supplemental biological survey to verify previous survey findings and evaluate existing conditions within the BSA and delineation of potential wetlands and Waters of the U.S. within the Action Area and 50-foot buffer.
February 5, 2021	Curtis Uptain, QK Principal Environmental Scientist	Verification fishery survey to assess fishery resource and habitat conditions assisted with wetlands delineations.

1.6.2. Limitations and Assumptions that may Influence Results

No comprehensive, long-term fish studies have been conducted within this reach of the Auburn Ravine. Only a few days of visual site assessments and limited habitat assessments were conducted. Much of the on-site evaluation relied on previously recorded information from various sources.

Chapter 2. Proposed Agency Action

2.1. Proposed Action Location

The Public Services Department of the City of Lincoln (City) is proposing to replace the existing McBean Park Drive Bridge (19C0059) over Auburn Ravine near downtown Lincoln in western Placer County, California (see Figures 1 and 2). The Project is in the Lincoln 7.5-minute United States Geological Survey (USGS) quadrangle within Sections 14 and 15, Township 12N, Range 06E of the Mount Diablo Base and Meridian (MDB&M). The Project site is along McBean Parkway Drive from A Street in the west to approximately 1,220 feet east of Ferrari Ranch Road and south along Ferrari Ranch Road from McBean Parkway Drive for 485 feet (see Figure 3).

The Project is at the eastern edge of the City of Lincoln boundary, approximately 1.5 miles east of downtown Lincoln, between commercial and residential buildings to the west and open space and residential developments to the east.

2.2. Description of Proposed Action

The Project footprint includes the area occupied by the existing bridge, the replacement bridge, clear water diversion structures (dam and conveyance pipe), additional right-of-way (ROW) south and north of the existing ROW for widened road approaches, and three laydown areas (Figure 5). The banks of Auburn Ravine near the bridge will be cleared and grubbed to remove above-ground material, vegetation, non-salvageable trees, and other debris. The existing bridge, guard rail, piers, and abutments will be removed and replaced with a cast-in-place, reinforced concrete slab bridge. It is presumed that cast-in-drilled hole piles will be the supporting foundation at the abutments and piers. The bridge will require pile placement, abutment construction with wingwalls, and superstructure construction, followed by construction of the bridge sidewalks and barrier rails. The new bridge will be longer and wider than the existing bridge to accommodate three travel lanes, two shoulders, and two sidewalks. Large flow events under the bridge will be accommodated by raising the roadway and bridge profile. One lane of the bridge will remain open during the construction phase of the Project to avoid road closures.

2.3. Deconstruct the Proposed Action

The Project will be completed in two phases to allow traffic access through the Project. One lane of the bridge will remain open during each construction phase of the Project to avoid road closures and preclude the need for a low water crossing. The first phase will involve removing the southern side of the bridge and constructing the new southern

Figure 5
Project Footprint and Component Map
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

portion of the bridge while the north half of the existing bridge remains operational. Rock slope protection and or soft armoring would be installed in front of the bridge abutments on the sloped banks to a point approximately 10 feet from the abutments and along the ravine invert/thalweg approximately 40 feet upstream and downstream of the bridge. Once the south portion of the new bridge has been completed, both directions of traffic will be redirected across the completed portion. During the second phase, the north side of the bridge will be removed and replaced.

The approach roadway and bridge will be raised by approximately five feet to better accommodate flooding events. Excavated soils from the Project as well as imported soil, will be used for the fill needed to elevate the roadway profile. Typical construction equipment will include backhoes, excavators, graders, dump trucks, mulchers, cranes, boom and concrete trucks, drill rigs, pile drills, forklifts, air compressors, front loaders, smooth wheeled roller, vibrating roller, asphalt paver, striping truck, cutting torch and saw, chipping gun, and jackhammer.

Overhead and underground electrical and telecommunication, as well as a natural gas line, are contained within the McBean Park Drive right-of-way, and these facilities extend across the existing bridge. Existing overhead power and telecommunications will be relocated underground along the edge of the new roadway realignment and across the new bridge. An existing underground natural gas line in the westerly roadway approach may require vertical relocation to account for the raised roadway profile over Auburn Ravine.

Temporarily dewatering of the Project site and diverting ravine flows to two culvert pipes for controlled enclosed conveyance through the Project site will be necessary. The temporary diversion of water in Auburn Ravine will be necessary to remove portions of the existing bridge and widen and construct the new bridge structure. A containment dam or bladder dam will be constructed within the channel banks of Auburn Ravine and will consist of pipes, sandbags filled with clean crushed rocks, and impermeable plastic sheeting. The containment dam will be established in conformance with City specifications and requirements imposed by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service.

Three temporary staging areas will be used for the Project (see Figure 5). One staging area will be on the unused paved areas of McBean Park Drive and will not impact any habitat. The other two staging areas are south of McBean Park Drive. One is adjacent to the fire station southwest of the bridge, and the other is in riparian habitat west of the McBean Park Drive and Ferrari Ranch Road intersection. The two staging areas south of McBean Park Drive total 0.93 acres. All equipment and materials would be stored within these two staging areas. Soil excavated from the bridge work area may also be stored

within any of these three staging areas. Access to the two staging areas south of McBean Park Drive and the Project site would be directly from the existing roadway, so no temporary access roads would be necessary. After Project construction is completed, the two staging areas south of McBean Park Drive will be restored to pre-Project conditions.

The Action Area that was assessed for the Project included the bridge footprint, temporary construction easements and work areas, staging areas, additional right-of-way, roadway approaches, and clear water diversion. The total Action Area is 11.60 acres (see Figure 5). Temporary impacts will result from the staging areas, the work areas at the bridge, and the water diversion structure. Permanent impacts will result from the rock slope protection, the enlarged footprint of the bridge and road approaches, the realigned and widened portions of McBean Park Drive, and the widened portions of Ferrari Ranch Road (see Figure 5).

2.3.1. Construction Scenario Summary

The McBean Drive Bridge Replacement Project will replace an existing structurally deficient bridge by vegetation clearing and grubbing, removing fill from the floodway, new bridge construction, removing the existing bridge, installing and subsequently removing a temporary, clear water diversion structure, construction of roadway approaches, constructing sidewalks, erosion protection installation, right-of-way establishment, and utility relocation.

The existing bridge, guard rail, pier, and abutments will be removed and replaced with a cast-in-place, reinforced concrete slab bridge. The temporary diversion of water in Auburn Ravine will be installed prior to removing portions of the existing bridge. Temporarily dewatering the Project site and diverting ravine flows to two culverts for controlled enclosed conveyance through the Project site will be necessary. A containment dam or bladder dam will be constructed within the channel banks of Auburn Ravine. One-half of the bridge will be removed, while the other half will remain operational. Construction of the bridge will be conducted over two construction periods, one in late 2023 and the other in late 2024. The phasing of construction will allow for work in Auburn Ravine to be accomplished during the dry season. The height of the bridge will be increased, requiring fill to be imported to raise the height of the approaches. The approaches will be widened, which will require the acquisition of additional right of way.

Three temporary staging areas will be used for the Project (see Figure 5). One staging area will be on the unused paved areas of McBean Park Drive and will not impact any habitat. The other two staging areas are south of McBean Park Drive. One is adjacent to the fire station southwest of the bridge, and the other is in riparian habitat west of the McBean Park Drive and Ferrari Ranch Road intersection. The two staging areas south of McBean Park Drive total 0.93 acres. All equipment and materials would be stored within

these two staging areas. Soil excavated from the bridge work area may also be stored within any of these three staging areas. Access to the two staging areas south of McBean Park Drive and the Project site would be directly from the existing roadway, so no temporary access roads would be necessary. After Project construction is completed, the two staging areas south of McBean Park Drive will be restored to pre-Project conditions.

2.3.2. Project Operation and Maintenance

Once completed, operations and maintenance of the bridge and approaches will require landscape maintenance along the road shoulders and standard maintenance repairs to the approaches and bridge structure to reduce deterioration and extend operational life. Operations and maintenance activities are not anticipated to affect federally listed species.

2.3.3. Sequencing and Schedule

Construction of the Project will commence in the summer of 2023. The anticipated Project duration is two construction seasons, one in the summer/fall of 2023 and the other in the summer/fall of 2024. Construction activities would be permitted Monday through Friday between 7:00 a.m. and 7:00 p.m., with evening construction prohibited. However, extended work periods and weekend operations may be necessary. If extended work periods are necessary, work would be permitted on Saturdays and Sundays from 8:00 a.m. to 7:00 p.m.

2.4. Conservation Measures

Habitat in Auburn Ravine within, directly downstream, and directly upstream of the McBean Park Drive Bridge was generally less than ideal for supporting the spawning and rearing of salmon. There were scattered areas of cobbles and gravel that would be suitable for spawning, but most of the substrate was sand. There were no substantial pools or riffles, few large boulders, and few areas with undercut banks. Some overhanging vegetation and fallen logs would provide shade and protection. Because of degraded conditions, salmonids have been absent from Auburn Ravine until recently. Small numbers of salmons were first sighted in 2015 after management actions were implemented in upstream areas of Auburn Ravine. It is reasonable to assume that small numbers of steelhead, and perhaps an occasional spring-run chinook salmon, are present in Auburn Ravine and that the area of Auburn Ravine occurring within the Action Area supports migrating salmon, but it is unlikely that spawning occurs within the Action Area.

The potential negative impacts of the Project on chinook salmon and steelhead are expected to be short-term. Activities that could negatively affect fish include:

1. Collecting and relocating fishes prior to the installation of water diversion structures and while conducting fish rescue and relocation activities during the operation of the water diversion structures.
2. Noise caused by construction-related activities.
3. Reduced water quality (silt, other contaminants, debris) in Auburn Ravine caused by construction-related activities.

Any or all these potential impacts could negatively affect chinook salmon and steelhead.

The Project design incorporated a water diversion channel to be created during construction to allow for fish passage as part of the avoidance and minimization measures (see Figure 5). To minimize impacts on chinook salmon and steelhead, the following avoidance and minimization measures, which are excerpted from the PCCP for Central Valley Steelhead and Central Valley Fall/Late Fall-Run Chinook Salmon (Salmonids), will be implemented.

General Condition 1, *Watershed Hydrology and Water Quality*: All Covered Activities shall comply with the State of California General Construction Permit—including requirements to develop a project-based Stormwater Pollution Prevention Plan (SWPPP)—and applicable NPDES program requirements as implemented by the County and the City of Lincoln. The site design requirements, source control measures, and BMPs required by this Condition will cumulatively benefit Covered Species by:

a. Minimizing the potential impacts on Covered Species that are most likely to be affected by changes in hydrology and water quality.

b. Reducing stream pollution by removing pollutants from surface runoff before it reaches local streams.

c. Minimizing degradation of streams and maintaining or improving the hydrograph to maintain populations of Covered Species and enhance recovery.

d. Reducing the potential for scour at stormwater outlets to streams by controlling the rate of flow into the streams.

Community Condition 2.1, *Riverine and Riparian Avoidance:* Riparian vegetation and the surrounding buffer cannot be avoided, so Community Condition 2.2, Minimize Riverine and Riparian Effects, applies to this Project.

Community Condition 2.2, Minimize Riverine and Riparian Effects: Because riverine and riparian constituent habitat avoidance is not feasible, Covered Activities shall

minimize effects on riverine and riparian constituent habitat by following design, construction, and operations minimization measures.

Covered Activities that will occur within the riverine and riparian constituent habitat will adhere to avoidance measures, as applicable.

The design requirements and construction BMPs identified in Table 3 below reflect current and forthcoming regulations and guidelines for in-stream project design (e.g., the State Water Board's draft *Procedures for Discharges of Dredged or Fill Materials to Waters of the State* and NMFS's *Guidelines for Salmonid Passage at Stream Crossings).*

2.4.1. Types of Projects Subject to Condition

Covered Activities in the Stream System are subject to BMPs to reduce effects on streams. BMPs will apply to all Covered Activities in the Stream System in the Plan Area as well as to open canals.

2.4.2. BMPs

BMPs that are required by the PCCP and that apply to this Project are listed in Table 3. These BMPs are applied to Stream System projects and will decrease the potential for degradation of streams in the Plan Area.

Table 3
In-Stream and Stream System BMPs
Excerpted from the PCCP Western Placer County Habitat Conservation Plan/Natural Community Plan

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Planning and Design			
All Covered Activities shall minimize the area of disturbance in Stream System to the maximum extent practicable.	Stream System	Yes	Will be implemented as Project mitigation.
Prior to final Project design, site characteristics will be evaluated to determine if non-traditional designs, such as bioengineered bank treatments that incorporate live vegetation or other engineered habitat improvements, can be successfully utilized while meeting the requirements of the Project.	Stream System	Yes	Revegetation and bank stabilization are incorporated into the Revegetation Plan.
If structural changes to the channel bed are necessary as part of Project design, provisions for fish passage will be incorporated into the Project design.	Channel	Yes	Fish passage is incorporated into the Fish Relocation Plan.
To minimize the impact of new construction, existing access routes and levee roads shall be used.	Stream System	Yes	Temporary access routes will be needed for project activities within previously designated areas identified on the Project site plan. Use of existing access routes and

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
			roads will be used unless new routes are needed as part of the Project activities.
Removal of riparian vegetation shall be minimized, so the amount cleared will only be the amount necessary to accomplish the required activity and comply with public health and safety directives. Where riparian vegetation requires removal, removal will first be targeted in areas dominated by invasive vegetation.	Stream System	Yes	Some removal of vegetation is necessary, but those areas will be minimized and revegetated as part of the Revegetation Plan.
Maintenance of natural stream characteristics, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, woody debris, and a natural channel bed, will be incorporated into the Project design.	Channel	No	Project activities should not impact these features.
Stream bank repair design will first consider only use of compacted soil and will be re-seeded with native grasses or sterile non-native hybrids and stabilized with natural erosion control fabric. If compacted soil is not sufficient to stabilize the slope, bioengineering techniques must be used. No hardscape (e.g., concrete or any sort of bare riprap) or rock gabions may be utilized in streams not managed for flood control (i.e., streams where channel clearing, vegetation and debris removal, and conveyance maintenance activities are conducted) except in cases where infrastructure or human safety is threatened (e.g., undercutting of existing roads).	Stream System	Yes	Revegetation is included in the Revegetation Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Rock riprap may only be used to stabilize channels experiencing extreme erosion or posing a threat to public safety. When used, rock riprap must be large enough and installed to withstand a 100-year flow event and planted with native riparian species suitable for planting in such a manner.	Channel	No	No installation of riprap is planned within the OHWM.
Limit removal of instream woody material and vegetation in channels, on stream banks, and along levees and maintenance roads to only that necessary to meet the objective of the Covered Activity or to meet regulatory requirements or guidelines.	Stream System	Yes	WM will only be removed within the Project footprint as necessary to allow for construction as part of BMPs.
In streams not managed for flood control purposes (i.e., streams where channel clearing, vegetation and debris removal, and conveyance maintenance activities are conducted), woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure, impedes reasonable access, or is causing bank failure and sediment loading to the stream.	Channel	Yes	WM will only be removed within the Project footprint as necessary to allow for construction as part of BMPs.
If debris blockages threaten bank stability and may increase sedimentation of downstream reaches, debris will be removed. When clearing natural debris blockages (e.g., branches, fallen trees, soil from landslides) from the channel, only remove the minimum amount of debris necessary to maintain flow conveyance (i.e., prevent significant backwatering or pooling). Non-natural debris (e.g., trash, and shopping carts) will be fully removed from the channel.	Channel	Yes	Removal of blockages or debris is only planned to occur within the Project footprint and will be determined by current conditions during construction. BMPs

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
			will be implemented to minimize the amount of debris necessary to maintain flow conveyance and remove non-natural debris fully from the channel.
To minimize the effect of increased local erosion due to in-channel vegetation removal, the top of the bank shall be protected by leaving vegetation in place to the maximum extent possible.	Stream System	Yes	Vegetation removal will be necessary for bridge construction within the Project footprint. Revegetation after construction is complete will be conducted in temporarily disturbed areas as part of the Revegetation Plan.
Avoid access routes on slopes of greater than 20 percent used to access upland areas adjacent to streams and riparian areas. Any upland access across sloped areas shall be examined for evidence of instability and either revegetated or filled to prevent future landslide or erosion.	Stream System	Yes	Established access routes during construction activities will be temporary, and a Revegetation Plan along slopes is

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
			included in the project design.
Avoid activities in the active (i.e., flowing) channel to the maximum extent practicable, especially during the migration, spawning, and egg incubation season for listed fish species or before amphibians have undergone metamorphosis. If activities must be conducted in the active channel, limit the use of equipment for in-water work to hand tools to the extent practicable.	Channel	Yes	In-water activities will be minimized and timed to reduce impacts to fish. In-water work with heavy equipment will be necessary for bridge construction. A Fish Relocation Plan will be implemented to avoid impacts to sensitive species.
Bank stabilization site design shall evaluate hydraulic effects immediately upstream and downstream of the work area to minimize downstream erosion caused by changes in water velocity. Design of bank stabilization projects shall incorporate similar roughness and characteristics of the bank surrounding the Project area.	Channel	Yes	Hydraulic reports were generated and used in Project design (see Appendix C).
Trails will be sited and designed with the smallest footprint necessary to cross through the Stream System. Trail crossings of streams will be aligned perpendicular to the channel and be designed to avoid any potential for future erosion.	Stream System	No	No trail system crossing will be built apart from the bridge replacement.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Trail crossings of freshwater streams and drainages will adhere to the BMP above regarding the preference of bridges, or other overwater structures, to minimize disturbance. Culverts may also be used if that is the least environmentally damaging design.	Channel	No	No trail system crossing will be built apart from the bridge replacement.
Trail design shall minimize the need for drainage structures. At the outfalls of drainage structures, erosion control measures shall be taken to prevent erosion.	Channel	No	No new trail designs are incorporated into the Project.
Whenever possible, the span of bridges will also allow for upland habitat beneath the bridge to provide undercrossing areas for wildlife species that will not enter the creek. Native plantings, natural debris, or scattered rocks will be installed under bridges to provide wildlife cover and encourage the use of crossings.	Stream System	Yes	Riprap and native vegetation will be used to restore impacted areas to prior conditions as part of the Revegetation Plan.
While in-stream work is performed, the entire streamflow shall be diverted around the work area by a barrier, except where it has been determined by a qualified biologist that the least environmentally disruptive approach is to work in a flowing stream, and fish and amphibian passage is not a concern at that time. Where feasible, water diversion techniques shall allow stream flows to gravity flow around or through the work site.	Channel	Yes	Water will be diverted around the Project. A containment dam or bladder dam will be used to divert water as part of the Water Diversion Plan included in Section 2.3 as part of the Fish Passage Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Dewatering			
Cofferdams for isolating in-channel activities shall be installed both upstream and downstream not more than 100 feet from the extent of the work areas to prevent seepage into or from the work area when dewatering of the entire channel is necessary; otherwise, cofferdams shall affect no more of the stream channel than is necessary to support completion of the work. All water shall be discharged in a non-erosive manner (e.g., through gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices) provided that it first has been properly treated to eliminate contaminants, including raw concrete. Treated water discharged to the channel shall be consistent with ambient conditions, including temperature and pH. Turbid water or water contaminated with other pollutants pumped out of cofferdams shall be discharged to upland areas (e.g., grassy fields) providing overland flow and infiltration and not allowed to re-enter the channel, or pumped to containers (e.g., baker tanks) for disposal.	Channel	Yes	A containment dam or bladder dam will be used to divert water. A Water Diversion Plan is included in Section 2.3 as part of the Fish Passage Plan.
In channels with low flows, small in-channel berms constructed of imported, Channel non-erosive materials (e.g., washed, rounded, spawning-sized gravel between 0.4 and 4.0 inches [10 to 100 millimeters] in diameter) or other temporary structures (gravel-filled sandbags, inflatable rubber cofferdams) that deflect water to one side of the channel during Project implementation may be built. Following berm removal, the channel shall be restored to its original condition; gravel in contact with	Channel	Yes	A containment or bladder dam will be used to divert water flow as part of the Water Diversion Plan for this Project. The stream channel will be restored to its original condition

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
flowing water shall be left in place and allowed to disperse naturally by high winter flows.			or improved to enhance fish spawning and migration as included in the Revegetation Plan.
Sumps or basins may be used to collect water, where appropriate (e.g., in channels with low flows). If pumps are used, a fish screen must be installed to prevent the entrapment of small fish.	Channel	No	No sump or basin is planned. Water should be fully diverted around the Project, and no pumps will be used as identified in the Water Diversion Plan.
To prevent increases in temperature and decreases in dissolved oxygen, properly sized bypass pipes shall be used (i.e., larger diameter pipes to better pass the flows). The creation of a low-flow channel or other methods to isolate the work area may be used to avoid the use of bypass pipes.	Channel	Yes	The Project site will be dewatered by diverting ravine flows through two culverts as described in Section 2.3 as part of the Water Diversion Plan.
Diversions shall not diminish the quantity or degrade the quality of the discharged water and shall maintain ambient stream flows below the diversion. When the work is completed, all de-watering materials placed in the channel shall be removed, and normal flows shall be	Channel	Yes	This will be enacted as included in the Water Diversion Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
restored to the affected stream as soon as feasible and safe. To the extent feasible, all temporary diversion structures and the supportive material shall be removed no more than 48 hours after work is completed; clean gravel in contact with flowing water shall be left in place and allowed to disperse naturally by high winter flows.			
Construction			
The applicant shall maintain a copy of Project conditions as determined by the local jurisdiction and/or PCA at the site. Site supervisors shall be familiar with all permit conditions.	Stream System	Yes	Project conditions and associated plans will be provided to the site supervisor.
A qualified biologist will train all personnel working within or adjacent to the Stream System (i.e., those people operating ground-disturbing equipment) regarding these avoidance and minimization measures and the permit obligations of Project applicants working under this Plan.	Stream System	Yes	A biologist will prepare and present a Worker Environmental Awareness Training.
Personnel shall utilize equipment that minimizes the area and degree of disturbance, such as appropriately-tired vehicles (either tracked or wheeled, depending on the situation) or avoidance of vehicles if possible.	Channel	Yes	Avoidance of vehicles is not possible, but equipment will be appropriately sized. Standard BMPs for vehicle use and maintenance will be enacted.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
No vehicles other than necessary construction equipment shall be allowed within the Stream System.	Stream System	Yes	Stream entrance will be limited to equipment necessary to complete work. Standard BMPs for vehicle use and maintenance will be enacted.
All wetlands, other waters, and Stream Systems that are adjacent to a Covered Activity project site and that will be avoided shall be marked with bright construction fencing. Temporary fencing shall be removed upon completion of the Project.	Stream System	Yes	This will be accomplished as part of the BMPs.
Deep pools located outside and adjacent to the construction footprint shall be fenced or blocked with barriers to prevent encroachment of equipment and personnel from affecting deep-pool habitats, which are used as refuge for fish and wildlife.	Channel	Yes	This will be accomplished as part of the BMPs.
When practicable, avoid maintenance and construction activities at night. When night work cannot be avoided: • Minimize use of temporary lighting. • Shield and focus lights on work areas. • Use the lowest intensity lighting necessary to complete the work.	Stream System	Yes	No night work is anticipated for this Project.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Wildlife entering the construction site shall be allowed to leave the area unharmed or shall be flushed or herded humanely in a safe direction from the site.	Stream System	Yes	This will be accomplished as part of the BMPs.
All utility pipe sections shall be capped or inspected for wildlife before being placed in a trench. Pipes within a trench shall be capped at the end of each day to prevent entry by wildlife.	Stream System	Yes	This will be accomplished as part of the BMPs.
At the end of each workday, all open trenches will be provided with a ramp of dirt or wood to allow trapped animals to escape	Stream System	Yes	This will be accomplished as part of the BMPs.
Staging and storage areas for equipment, stockpiled materials, fuels, lubricants, and solvents shall be located outside of the Stream System. If site conditions prevent locating staging areas outside the Stream System, at a minimum, they shall be located outside the top of the bank, ideally on an existing disturbed area (e.g., access road) or other area that can be readily returned to pre-Project conditions at the conclusion of the activity.	Stream System	Yes	Two staging areas will be placed within areas that are graded and void of vegetation. One staging area will be located within riparian vegetation and will be restored to pre-Project conditions. These are detailed as part of the BMPs and Revegetation Plan.
Handle and dispose of invasive plant species removed during Covered Activity implementation in such a manner as to prevent further spread of the invasive species.	Stream System	Yes	This will be accomplished as part of the BMPs.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
To minimize the spread of pathogens, all staff working in aquatic systems (i.e., streams, ponds, and wetlands), including site monitors, construction crews, and surveyors, will adhere to the most current guidance for equipment decontamination provided by the Wildlife Agencies at the time of activity implementation.	Channel	Yes	This will be accomplished as part of the BMPs.
Only herbicides registered with the California Department of Pesticide Regulation shall be used in streams, ponds, and lakes and shall be applied in accordance with label instructions. A list of all pesticides that may be used in the Project area shall be submitted to the PCA before use. The USFWS and NMFS do not issue Incidental Take Permits for pesticide and rodenticide use; pesticide and rodenticide use, and resultant "take" of ESA-listed species, are not covered under this Plan for the federal permits.	Stream System	No	No herbicides are anticipated to be needed for this Project.
Avoid or minimize the amount of fertilizer used during hydroseeding to minimize introducing these materials into waterways.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan.
Post-Construction			
Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan.
The stream bed will be returned to as close to pre-Project condition considering such characteristics as elevations, profile, and gradient-as appropriate.	Channel	Yes	Hydraulic studies (Appendix C) were conducted and

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Ecologically improved conditions shall be incorporated into the Project design when appropriate.			incorporated into the Project design.
Any disturbed soils will be revegetated with native plants, non-invasive species, or non-reproductive (i.e., sterile hybrids) plants suitable for altered soil conditions.	Stream System	Yes	Revegetation with native seed will be conducted as part of the Revegetation Plan design.
Projects that cross beneath streams must provide a post-construction summary of any unanticipated effects (e.g., stream channel disturbance due to a frac-out) resulting from the implementation of the Project. Additional fees may be owed (as required by General Conditions 3 and 4, *Land Conversion and Temporary Effects*, respectively) based on the actual effects of the Project.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan design.
Operations and Maintenance			
For stream maintenance activities, only in-stream work that is necessary to maintain the channel consistent with designated management purposes (e.g., flood control and groundwater recharge) will be conducted.	Channel	Yes	This will be accomplished as part of the Water Diversion Plan.
When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade producing and bank stabilizing vegetation.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Vegetation thinning and removal in streams managed for flood control will be phased to ensure that some riparian habitat remains at all times. Projects will be planned so that the least amount of riparian vegetation will be removed while still meeting the desired flood control needs.	Stream System	Yes	This will be accomplished as part of the BMPs and Water Diversion Plan.
If a project alters the stream bed during stream maintenance, the stream low flow channel shall be returned to its approximate prior location with appropriate depth for fish passage without creating a potential future bank erosion problem.	Channel	Yes	Hydraulic studies of the channels have been drafted (see Appendix C) and can be referred to and will be implemented as part of the Water Diversion and Revegetation Plans.
Sediment removal in the stream channel shall use the approach with the least impact, such as phasing of removal activities or only removing sediment along one half of the channel bed, allowing the other half to remain relatively undisturbed.	Channel	Yes	Methods to reduce sediment quantities from being released after construction activities are completed. Will be considered and included in Water Diversion and Revegetation Plans.
Maintenance and operation of pumps and generators placed in stream will minimize impacts to water quality and aquatic species.	Channel	No	This equipment is not expected to be needed.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Temporary crossings shall be installed no earlier than April 15 and shall be removed no later than October 15. This work window could be modified at the discretion of the County, City, and Wildlife Agencies.	Channel	Yes	Should temporary crossings be used, installation, and removal as required by mitigation and incorporated in BMPs and relevant plans.
Work in Stream Systems shall not disturb active bird nests until young birds have fledged. To avoid effects to nesting birds in Stream Systems, trees and shrubs shall be removed outside of the nesting season, approximately between August 15 and February 1. Tree and shrub removal at other times is at the PCA's discretion and will require surveys by a qualified biologist to determine the absence of nesting birds.	Stream System	Yes	This will be accomplished as part of the Project mitigation.

2.4.3. Guidelines for Salmonid Passage at Stream Crossings

All Covered Activities within salmonid habitat will adhere to the NMFS Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001) where feasible. The California Salmonid Stream Habitat Restoration Manual (CDFW 2011) will be consulted for specific in-stream design features and protocols to enhance habitat for salmonids. Guidelines from these documents that are applicable to this Project are:

1. The new bridge is designed to accommodate the 100-year peak flood flow with appropriate clearance to prevent structural damage to the crossing, where feasible. In the Valley, the 100-year floodplain can be thousands of feet wide on some Stream Systems, so it may not be feasible to build stream crossings to accommodate the 100-year peak flood flow. Unless culverts are intentionally designed to be undersized for stormwater detention or retention, culverts must, at a minimum, accommodate the 100-year flood without causing any adjacent flooding around the crossing that could result in mass erosion of the bank or the structural support of the crossing. (Note: State or local requirements may require that the 200-year floodplain be considered for stream crossings. The standards contained in this section do not supersede those more stringent requirements). This requirement will reduce the risk of channel degradation, stream diversion, and failure that may lead to adverse effects on salmonids over the lifespan of the crossing (National Marine Fisheries Service 2001).

2. A free-span bridge is not feasible, so bridge piers and footings were designed to have minimum impact on the stream. A hydraulic analysis, including a Hydraulic Analysis Report, a Location Hydraulic Study Form, and a Preliminary Hydraulic Study, was prepared to show piers or footings will not cause significant scour or channel erosion (Appendix C). Native plantings, natural debris, or large rocks (not riprap) will be installed under bridges to provide wildlife cover and encourage the use of crossings.

3. The bridge will be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing (see Appendix C).

The PCCP includes additional applicable measures that the Project will follow during water diversion and Project activities:

Salmonid 1. Fish Passage Design. Streamflow through new and replacement culverts, bridges, and over stream gradient control structures must meet the velocity, depth, and other passage criteria for salmonid streams as described by NMFS and CDFW guidelines or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions *(Guidelines for Salmonid Passage at Stream Crossings* [National Marine

Fisheries Service 2001]). This measure has been met with the Project design and is incorporated in the hydraulic reports included in Appendix C.

Salmonid 2. Fish Passage During Construction. Fish passage through dewatered channel sections shall be maintained at all times during the adult and juvenile migration season on streams with Covered Species to allow for unimpeded passage of migrating adults and juveniles (smolts). In addition, fish passage shall be maintained during summer on streams supporting summer rearing of Covered Species to allow for seasonal movement of resident (over-summering) fish when the natural channel segment within the vicinity of work areas also supports the movement of resident fish.

To allow for fish passage, the diversion shall:

- Maintain continuous flows through a low flow channel in the channel bed or an adjacent artificial open channel.
- Present no vertical drops exceeding six inches and follow the natural grade of the site.
- Maintain water velocities that shall not exceed 1.5 feet per second and provide velocity refugia, as necessary.
- Maintain adequate water depths consistent with normal conditions in the Project reach.
- Be lined with cobble/gravel to simulate stream bottom conditions.
- Be checked daily to prevent accumulation of debris at diversion inlet and outlet.

A closed conduit pipe shall not be used for fish passage. Pipes may be used to divert flow through dewatered channel segments on streams that do not support migratory species or during low flow conditions when the channel segment within the vicinity of work areas at the time of construction does not support the movement of fish.

Salmonid 3. Pre-construction Relocation. Prior to the start of work or during the installation of water diversion structures, if fish Covered Species are present and it is determined that they could be injured or killed by construction activities, a qualified biologist will first attempt to gently herd fish Covered Species away from work areas and exclude them from work areas with nets, if practicable. If herding is not practicable or ineffective, a qualified biologist shall capture fish Covered Species and transfer them to another appropriate reach. In considering the relocation, the qualified biologist will determine whether relocation is ecologically appropriate using a number of factors, including site conditions, system carrying capacity for potential relocated fish, and flow

regimes (e.g., if flows are managed). If fish Covered Species are to be relocated, the following factors will be considered when selecting release site(s):

- Similar (within 3.6°F [2 degrees Celsius (°C)]) water temperature as capture location. In addition, fish must be held in water that is at the same temperature as release sites at the time of release. If raising or lowering of water temperature in the holding apparatus is required, water temperatures in the holding apparatus containing fish should not be changed at a rate that exceeds l.8°F (1°C) every two minutes and should not exceed 41°F (5°C) per hour.

- Ample habitat availability prior to the release of captured individuals.

- Presence of others of the same species so that relocation of new individuals will not upset the existing prey/predation function.

- Carrying capacity of the relocation location.

- Potential for the relocated individual to transport disease.

- Low likelihood of fish reentering work site or becoming impinged on exclusion net or screen.

Capture and relocation of fish Covered Species is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment or when the safety of the biologist conducting the capture may be compromised.

Salmonid 4. Spawning Gravel Cleaning. Spawning gravel cleaning and replacement activities should be timed to occur during the dry season and after fry have emerged from the gravel (generally July 1 through October 1). Based on the Project time frame, a request may be submitted to the PCA for review by CDFW and NMFS if an extension of this work window is necessary. Spawning gravel cleaning and replacement activities should be timed to occur when stream flows are at a minimum to minimize the need for site dewatering (if needed) and to minimize the potential for downstream turbidity and sedimentation effects. If dewatering is needed, other applicable avoidance and minimization measures shall be implemented prior to commencing spawning gravel cleaning and replacement activities. Gravel to be placed in streams shall be washed (to remove fines), rounded (i.e., non- angular), and spawning-sized (between 0.4 and 4.0 inches [10 to 100 millimeters] in diameter). If gravel augmentation is needed, gravels should be placed such that high flows naturally sort and distribute the material.

Salmonid 5. Use of Riprap When Necessary. Riprap is not planned to be placed within the OHWM of the Project. If it is required to be placed below the OHWM at a later date, it shall have a cleanliness value of no less than 85 percent and shall be covered with clean, uncrushed rock consistent with NMFS spawning gravel size requirements (currently 98 to 100 percent of the clean, uncrushed rock must pass through a 4-inch sieve, and 60 to 80 percent must pass through a 2-inch sieve). Of the total volume of rock placed, 50 percent shall consist of clean, uncrushed rock. This measure may be updated with more current standards.

To protect Critical Habitat for Central Valley steelhead and avoid/minimize potential Project effects, the avoidance and minimization measures for Central Valley steelhead described above will be implemented.

2.5. Compensation

The Project may affect, likely to adversely affect the chinook salmon and steelhead. Loss of chinook salmon and steelhead will be temporary and will occur when dry conditions prevail when the species are most likely absent from the Auburn Ravine. Avoidance and minimization measures will be in place to protect these species. Projects affecting riverine constituent habitat in a salmonid stream will be assessed a special habitat fee based on linear feet of impact through the PCCP fee schedule. This will apply to both permanent and temporary impacts.

Chapter 3. Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated Critical Habitat in the Action Area, without the consequences to the listed species or designated Critical Habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, State, or private actions and other human activities in the Action Area, the anticipated impacts of all proposed federal projects in the Action Area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated Critical Habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR §402.02).

3.1. Summary of Environmental Baseline

The findings of the database and literature search, biological survey, fishery resources assessment, and wetland delineation are presented to support the evaluations of sensitive biological resource occurrences, potential occurrences, and impacts resulting from the Project.

3.2. Description of the Action Area

The Action Area is approximately 11.60 acres, including the footprint of the existing bridge, staging areas, water diversion structures, rock slope protection, and portions of McBean Park Drive to the west and east of the bridge. Average annual temperatures for Rocklin, California, which is the nearest NOAA Cooperative Station (COOP Station 047516), vary from an average maximum temperature of 96.5 degrees Fahrenheit in July to an average low temperature of 34.9 degrees Fahrenheit in December (WRCC 2015). The climate is classified as Mediterranean. Precipitation in the region occurs mainly between October and April, with an average annual rainfall of 22.80 inches (WRCC 2015). The wettest month of the year is usually January, with an average rainfall of 4.89 inches (WRCC 2015).

Land Use

Parcels within and adjacent to the BSA include private, commercial, City, and County owned. The Project includes existing ROW, private land to the north, public land to the south and west, and additional ROW south on Ferrari Ranch Road. An easement consisting of an open space preserve, the McBean Park Expansion Preserve, is south of the Project site and occurs within the BSA. The McBean Park Expansion Preserve was created in 2004 for on-site mitigation of residential development, which impacted

wetlands and Waters of the U.S. (City of Lincoln 2004; Placer County 2020). The McBean Park Expansion Preserve is approximately 66 acres and includes created wetlands and wetland marshes and enhanced emergent vegetation and streams.

Topography

Auburn Ravine is a semi-perennial or seasonal stream that includes natural flows generated by fall/winter rains and snowmelt from the Sierra Nevada range to the east. Auburn Ravine is at an elevation of approximately 170 feet above mean sea level (AMSL) (Figure 6). The banks of Auburn Ravine are relatively steep along most of the northern portion within the BSA. The banks along the southern portion of Auburn Ravine within the BSA are less steep and include washed-out areas of the bank. Outside of Auburn Ravine, most of the area is topographically flat with a gentle slope from north to south. The open space areas are slightly undulating, especially in those areas where wetlands have been created, restored, or enhanced.

Soils

Soils in the BSA are predominantly (61.5 percent of the Project site) categorized as Xerofluvents, frequently flooded (NRCS 2021), and consist of Ramona sandy loam, Cometa-Ramona sandy loams, and San Joaquin sandy loams (Figure 7). The Ramona sandy loam soils are located on the east side of the BSA and make up approximately 25.9 percent of the BSA. On the west portion of the BSA, Cometa-Ramona sandy loams make up 10.9 percent of the BSA, and San Joaquin sandy loams make up just 1.6 percent of the Project site. The BSA is underlain by five soil types: San Joaquin sandy loam, Ramona sandy loam, Cometa-Ramona sandy loams, Xerofluvents, and Xerorthents (Figure 7).

The San Joaquin series consists of well and moderately well-drained soils formed in alluvium derived from mixed but dominantly granitic rock sources and are moderately deep to a duripan (NRCS 2021a). This soil type occurs on undulating low terraces with slopes of 0 to 9 percent. San Joaquin soils are on hummocky, nearly level to undulating terraces at elevations of about 20 to 500 feet. Some areas have been leveled. They formed in alluvium from mixed but mainly granitic rock sources. The climate is dry with hot, dry summers and cool, moist, and foggy winters. These soils are well and moderately well drained. Some areas are subject to rare or occasional flooding. It is used for cropland and livestock grazing. This is a hydric soil (NRCS 2021b).

The Ramona series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs (NRCS 2021a). The Ramona soils are nearly level to moderately steep. They are on terraces and fans at elevations of 250 to 3,500 feet. They formed in alluvium,

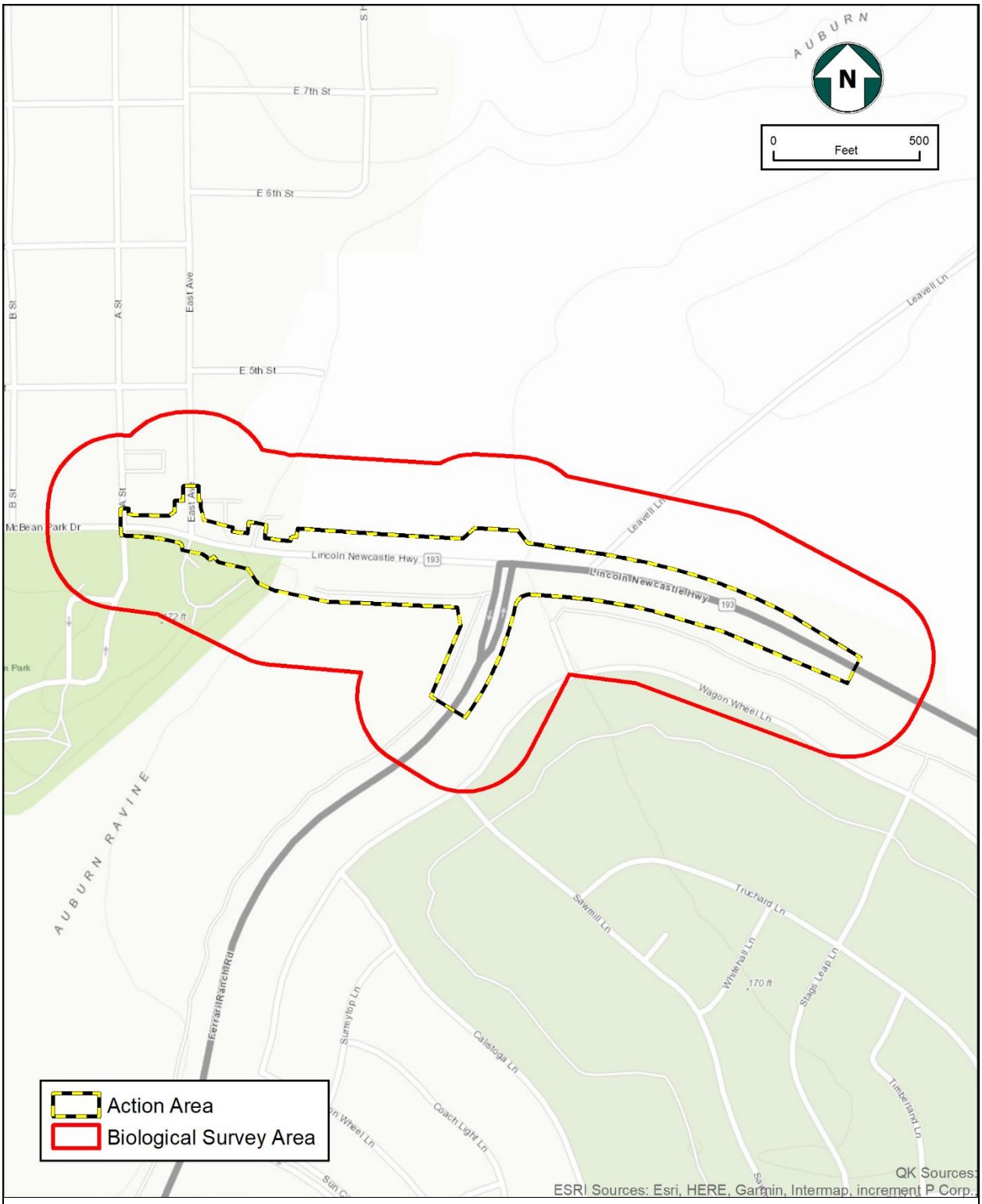


Figure 6
Topographic Map
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

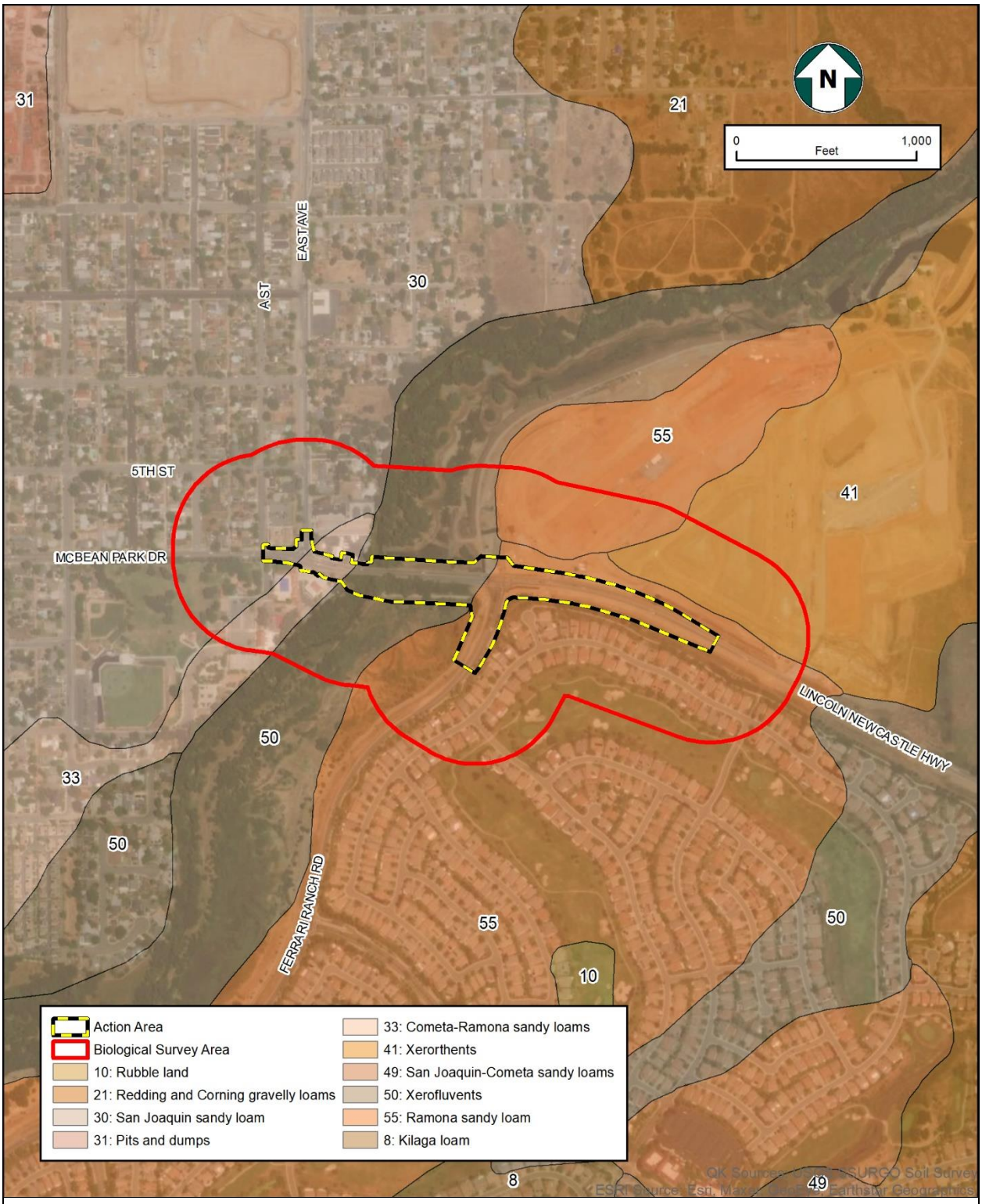


Figure 7
Soils Map
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

derived mostly from granitic and related rock sources. The climate is dry subhumid mesothermal with warm, dry summers and cool, moist winters. Mean annual precipitation is 10 to 20 inches. Used mostly for the production of grain, grain-hay, pasture, irrigated citrus, olives (*Olea europaea*), truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, forbs, chamise, or chaparral. This is a hydric soil (NRCS 2021b).

The Cometa soil series consists of moderately deep and moderately well-drained soils (NRCS 2021a). These soils formed in alluvium derived from granitic rock sources. These soils occur on gently sloping, slightly dissected older stream terraces. They have very slow permeability and slow to medium runoff. This soil type is used for growing rice (*Oryza sativa*), vineyards, orchards, and dry-farmed grain. Vegetation consisting of annual grasses, forbs, and weedy species grow in uncultivated areas of this soil type. This soil is hydric (NRCS 2021b).

Xerofluvents and Xerorthents are groups consisting of Entisols, which exhibit little to no soil horizon development (NRCS 2021a). Some Entisols have steep, actively eroding slopes, and others are on floodplains. This is due to repeated inundation and deposition of alluvial materials. These soils are typically found in valleys or river systems. This soil type is hydric (NRCS 2021b).

Hydrological Resources

The National Wetlands Inventory (NWI) and National Hydrologic Dataset (NHD; Figure 8) list the Auburn Ravine as an intermittent Riverine system, but because of nearly year-long flows, it is more likely a semi-perennial or seasonal stream. The Auburn Ravine carries natural flows generated by fall/winter rainfall events and augmented flows generated from irrigation water from other sources, such as the Middle Fork American River and snowmelt from the Sierra Nevada to the east. The water in the ravine flows from north to south and ultimately into the Sacramento River. Winter flow peaks of Auburn Ravine can range from a few hundred cubic feet per second (cfs) to an estimated 100-year flow event exceeding 17,000 cfs (Placer County 2002). During dry periods, parts of Auburn Ravine may be dry or have flows as low as 1 to 2 cfs with only a few inches of water in the stream (Placer County 2002).

The NHD depicts one blue-line drainage, the Auburn Ravine, documented as an intermittent stream river occurring within the Action Area (USGS 2021; see Figure 8). The NWI database shows one water feature, the Auburn Ravine, documented as a riverine within the Action Area (USFWS 2021c; see Figure 8). The NHD and NWI refer to Auburn Ravine as intermittent or riverine, but because a few inches to zero flow can occur within parts of the stream during dry periods, Auburn Ravine within the Action Area is a semi-perennial or seasonal water feature.

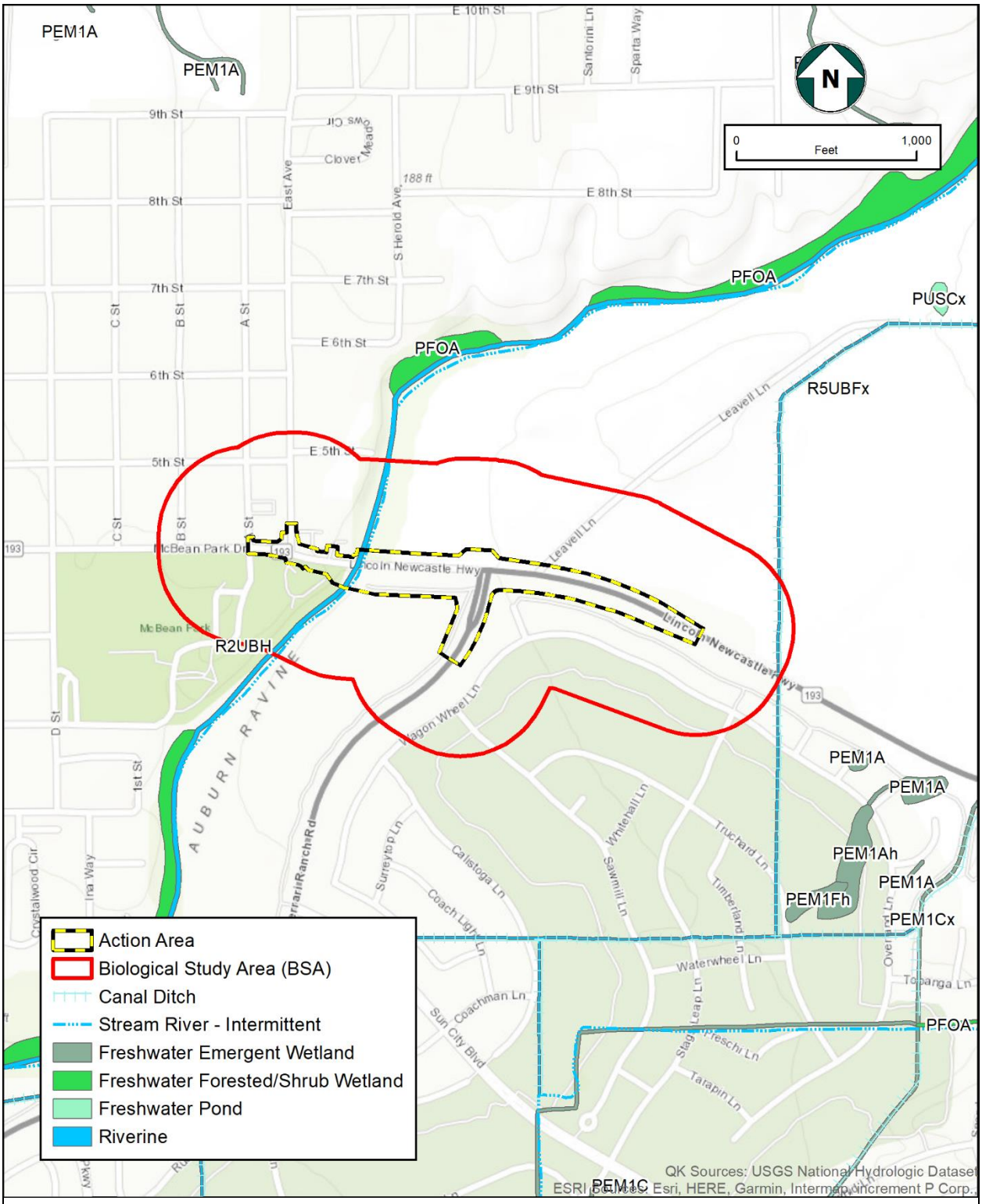


Figure 8
NHD and NWI Wetland and Water Resources
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

There is one record of an R5UBFx feature in the east portion of the BSA. This feature is described as an unknown perennial riverine system with an unconsolidated bottom that is semi-permanently flooded and has been excavated by humans. The nearest records are for Freshwater Forested/Shrub Wetland (PFOA), which occurs outside of the BSA, approximately 858 feet north and 1,170 feet south of the Project, and the Freshwater Emergent Wetland (PEM1A, PEM1Ah, and PEM1Fh) records, which occurs approximately 1,085 feet to the southeast of the Project (see Figure 8).

During the 2021 surveys, Auburn Ravine, two wetlands, and three drainage ditches were present within the BSA (Figure 9). Auburn Ravine is the major feature occurring on the west side of the Action Area and BSA. Auburn Ravine originates north of the Project and crosses the Project in a north-south direction, and continues flowing southwest, eventually flowing into the Sacramento River. Auburn Ravine is a seasonal stream with a dense riparian corridor and occasionally steep banks. Small areas of both wetlands are within the Action Area. One wetland is east of the bridge but south of McBean Park Drive (see Figure 9). This wetland is fully established and is present within the protected McBean Park Expansion Preserve. The other wetland is east of the bridge and to the north of McBean Park Drive (see Figure 9). That wetland is currently in the process of being enhanced. It is lined with small boulders and contains little mature vegetation other than clusters of unidentifiable desiccated vegetation. A manmade rocky berm separates this wetland from Auburn Ravine, but the berm has slightly eroded away and allows water from the wetland to flow into the ravine. Three manmade intermittently wet drainage ditches are present within the Action Area (see Figure 9). The first ditch is north of McBean Park Drive, east of the bridge. That ditch consisted of little to no vegetation and was mainly used for erosion control, with straw wattles and jute netting installed within the feature. The second ditch is south of McBean Park Drive, east of the bridge. That ditch consisted of dense ruderal vegetation with areas of flowing water. On the western section of this ditch, water was being diverted through a PVC pipe, and the ditch was mostly dry. The third ditch flows from a drainage culvert under McBean Park Drive into Auburn Ravine west of the bridge and south of McBean Park Drive. At the time of the survey, this ditch consisted of low-flowing water that was surrounded by riparian vegetation.

The BSA, except for the most western and eastern portions along McBean Park Drive, occurs within a regulatory floodway (Figure 10). That regulatory floodway follows the Auburn Ravine and extends to the east of Auburn Ravine and the north and south of McBean Park Drive (see Figure 10). Most of the northern and southern portion of the BSA is within a 1 percent annual chance of flood hazard (see Figure 10). A small portion of the BSA located northwest and northeast of the PIA occurs within a 0.2 percent annual chance of flood hazard. The western and eastern portions of the BSA and PIA are within minimal flood hazard (see Figure 10).

Figure 9
Wetlands and Waters
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

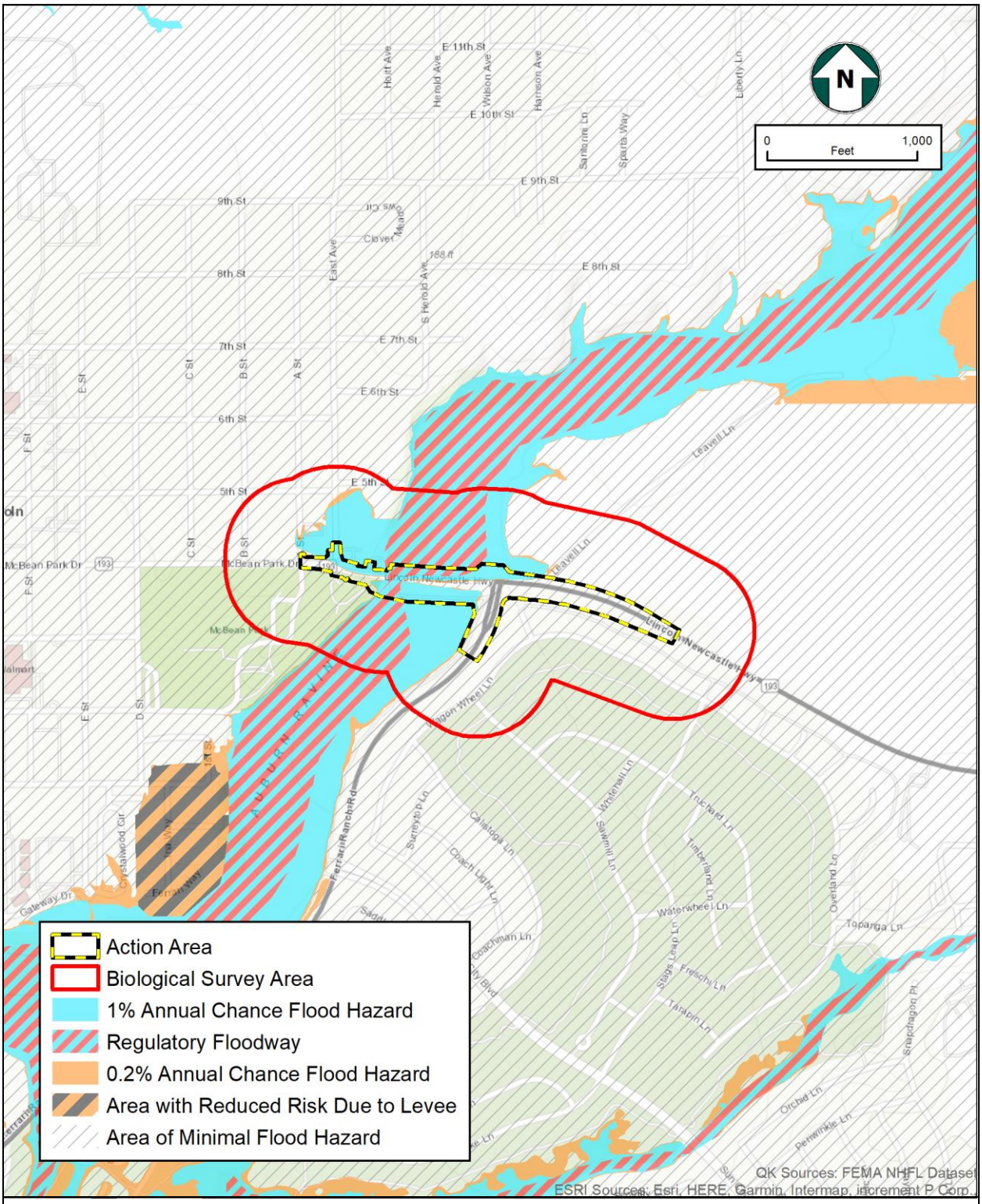


Figure 10
Flood Zones within the Biological Survey Area
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

Sensitive Natural Communities

No sensitive plant community occurs within the BSA. Other natural communities that are considered sensitive and are present within the BSA are valley oak, riparian habitat along Auburn Ravine, and wetlands and Waters of the U.S. State agencies, such as CDFW, consider riparian vegetation to be sensitive. Oak trees in oak woodlands are protected by CEQA Section 21083.4, and wetlands and Waters of the U.S. are considered sensitive by federal and State agencies.

Vegetation Communities Identified During Field Surveys

During field verification, five vegetation communities were identified within the BSA: Valley Foothill Riparian, Fresh Emergent Wetland, Urban, Riverine, and Annual Grassland. Areas south of McBean Park Drive are mostly a mixture of Valley Foothill Riparian and Annual Grassland habitats (Figure 11).

- Valley Foothill Riparian

Mayer and Laudenslayer (1988) describe Valley Foothill Riparian as a mostly winter deciduous tree-dominated community consisting primarily of winter deciduous riparian trees providing 20 to 80 percent cover, a sub-canopy tree layer, an understory shrub layer, and about one percent herbaceous vegetation. The dominant species in the canopy layer are cottonwood, California sycamore (*Platanus racemosa*), and valley oak. Subcanopy trees typically include white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), and Oregon ash (*Fraxinus latifolia*). Typical understory shrub and herbaceous layers consist of wild grape (*Vitis* spp.), wild rose (*Rosa* spp.), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus nigra* ssp. *cerulea*), poison oak (*Toxicodendron diversilobum*), buttonbrush (*Cephalanthus occidentalis*), willows, sedges (*Carex* sp.), rushes (*Juncus* sp.), grasses, miner's lettuce (*Claytonia perfoliata*), mugwort (*Artemisia douglasiana*), poison hemlock (*Conium maculatum*), and stinging nettle (*Urtica dioica*).

Valley Foothill Riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife, many of which are permanent residents, while others are transient or temporal visitors.

At least 50 amphibians and reptiles, 55 mammal species, and over 140 bird species are known to use riparian communities. This habitat is generally associated with low velocity flows, floodplains, and gentle topography. Valleys provide deep alluvial soils and a high-water table. The substrate is coarse, gravelly or rocky soils more or less permanently moist but probably well aerated. Valley Foothill Riparian habitats occur in the Central

Figure 11
Vegetation Communities Within the BSA
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

Valley and the lower foothills of the Cascade, Sierra Nevada, and Coast ranges, in the lower slopes of the Peninsular and Transverse ranges, and in a few locations of lower elevation on the desert side of the Southern California mountains. They range in elevation from sea level to 3,000 and sometimes occur as high as 5,000 on south-facing slopes.

There are approximately 6.29 acres of this habitat within the BSA, which includes areas adjacent to Fresh Emergent Wetlands and Riverine habitats. Valley Foothill Riparian is directly south and north of McBean Park Drive and east and west of Auburn Ravine (see Figure 11). Common plants in the Valley Foothill Riparian habitat within the BSA include Fremont cottonwood (*Populus fremontii*), black walnut (*Juglans nigra*), valley oak, blue oak (*Q. douglasii*), willow, stinging nettle, and Himalayan blackberry.

- Fresh Emergent Wetland

Mayer and Laudenslayer (1988) describe Fresh Emergent Wetland as a community that is characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation generally consists of perennial monocots up to 6.6 feet tall, which may include sedges, rushes, cattail (*Typha* spp.), and arrowhead (*Syngonium podophyllum*). Fresh Emergent Wetlands provide food, cover, and water for more than 160 species of birds, and numerous mammals, reptiles, and amphibians. Many species rely on Fresh Emergent Wetlands for their entire life cycle. The endangered Santa Cruz long-toed salamander (*Ambystoma macrodactylum*) and rare black toad (*Bufo exsul*) require pond water for breeding, while the rare giant garter snake (*Thamnophis gigas*) use these wetlands as its primary habitat. The endangered Aleutian Canada goose (*Branta hutchinsii leucopareia*), bald eagle (*Haliaeetus leucocephalus*), and peregrine falcon (*Falco peregrinus*) use fresh emergent wetlands as feeding areas and nesting sites. This habitat occurs in various exposures and slopes provided saturation, or periodic flooding occurs in a basin or depression. Soils are predominantly silt and clay, although coarser sediments and organic material may be intermixed, and Fresh Emergent Wetlands occur at all elevations but are typically below 7,500 feet.

Fresh Emergent Wetland occurs in approximately 7.39 acres of the BSA, south and north of McBean Park Drive east of Auburn Ravine. There is a wetland to the south of McBean Park Drive that is an established protected wetland. There is a wetland to the north of McBean Park Drive that is currently in the process of being enhanced (see Figure 9). Common plants in the Fresh Emergent Wetland habitat of the BSA include common cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), valley sedge (*Carex barbarae*), rushes, rabbitsfoot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*). The Pacific treefrog (*Pseudacris regilla*) was also present within the wetland areas.

- Urban/Suburban

Mayer and Laudenslayer (1988) describe Urban as a developed habitat with five types of vegetative structures, including tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Common in city parks, green belts, and cemeteries, tree groves vary in height, tree spacing, crown shape, and understory conditions depending on species planted and landscape design. Street tree strips show variation in the spacing of trees, depending upon species and design considerations, and are typically planted in grass. Shade trees/lawns are typical of residential areas and reminiscent of natural savannas. Lawns are structurally the most uniform vegetative units of the Urban habitat, and shrub cover, including hedges, is more limited in distribution. Species composition in Urban habitats varies with planting design and climate, and monoculture is commonly observed in tree groves and street tree strips. Three urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. Downtown has the lowest diversity, comprised of over 90 percent avian density and biomass, including rock dove (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Wildlife that utilizes Urban includes scrub jay (*Aphelocoma* sp.), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and California slender salamander (*Batrachoseps attenuatus*). Wrentit (*Chamaea fasciata*), bushtit (*Psaltriparus minimus*), plain (oak) titmouse (*Baeolophus inornatus*), chestnut-backed chickadee (*Poecile rufescens*), California quail (*Callipepla californica*), black-tailed deer (*Odocoileus hemionus*), ringtail (*Bassariscus astutus*), black-tailed jackrabbit (*Lepus californicus*), gopher snake (*Pituophis catenifer*), and western fence lizard (*Sceloporus occidentalis*) typically occur in suburban areas. Urban habitat is the result of modifying pre-settlement vegetation and introducing new species. They are not limited to any particular physical setting and occur throughout California.

There are approximately 79.17 acres of Urban within the BSA, including paved roads, existing residential areas, and residential development under construction on the east of the BSA. There are commercial and residential areas and public park west of Auburn Ravine (see Figure 11). The Action Area consists of existing paved roads with soft shoulders, sidewalks, and drainages containing mostly ruderal vegetation. The residential and commercial areas and the public park within the BSA are vegetated with a variety of ornamental plant species. Common plants in the Urban habitat within the BSA include ripgut brome (*Bromus diandrus*), redstem filaree (*Erodium cicutarium*), yellow starthistle (*Centaurea solstitialis*), Bermuda grass (*Cynodon dactylon*), magnolia (*Magnolia grandiflora*), iris (*Iris* sp.), rosemary (*Salvia rosmarinus*), and other ornamental and ruderal shrubs and trees.

- Riverine

Mayer and Laudenslayer (1988) describe Riverine as intermittent or continually running water that distinguishes rivers and streams originating from an elevated source such as a spring or lake and flows downward at a rate relative to the slope. Some streams and pools can be warm, cold, deep, shallow, swirl or churn, and have slow or high-velocity waters. They occur in association with many terrestrial habitats. Riparian habitats could be found adjacent to many rivers and streams as well as lacustrine and fresh emergent wetland habitats. Depending on the temperature and speed of the water, it could contain various wildlife species. Fast flowing areas of streams or rivers and quiet pools could be inhabited by nymphs of mayflies (*Ephemeroptera*), caddisflies (*Trichoptera*), stoneflies (*Plecoptera*), as well as dragonflies (*Anisoptera*), damselflies (*Zygoptera*), and water striders (*Hemiptera*). Open waters of large rivers and near shore waters provide resting, cover, and food for many species of waterfowl, as well as shorebirds, herons, flycatchers, gulls, swallows, swifts, osprey (*Pandion haliaetus*), bald eagle, belted kingfisher (*Megaceryle alcyon*), and American dipper (*Cinclus mexicanus*). The more common mammals that may use Riverine habitat include river otter (*Lontra canadensis*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*). Many streams at some time experience very low flow and nearly dry up, and some even dry up seasonally every year. The constant swirling and churning of high-velocity water over riffles and falls result in greater contact with the atmosphere and have a high oxygen content. In polluted waters, deep holes or low velocity flows, dissolved oxygen is lower. Riverine habitat occurs statewide, mostly between sea level and 8,000 feet.

There is 0.93 of Riverine habitat within the BSA, which is limited to Auburn Ravine (see Figure 9). Because of the relatively steady, moderately swift flow within the main channel, little to no vegetation was present within the ravine, and it mostly consisted of a sandy and gravelly creek bed. Two areas on the north side of the bridge and a small area south of the bridge near the eastern bank of Auburn Ravine consisted of areas of slow flow consisting of very little moss and algae growth.

- Annual Grassland

Mayer and Laudenslayer (1988) describe Annual Grassland as composed primarily of annual plant species, many of which occur as understory plants in valley oak woodland and other habitats. It is dominated by introduced annual grasses that include wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), red brome (*B*. *madritensis* ssp. *rubens*), wild barley (*Hordeum spontaneum*), and foxtail fescue (*Vulpia myuros*). Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Species associated with this community include

western fence lizard, common garter snake (*Thamnophis sirtalis*), rattlesnake (*Crotalus* sp.), burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), black-tailed jackrabbit, California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), badger (*Taxidea taxus*), coyote (*Canis latrans*), and San Joaquin kit fox (*Vulpes macrotis mutica*). This habitat also provides important foraging habitat for the turkey vulture (*Cathartes aura*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), prairie falcon (*F. mexicanus*), and black-shouldered kite (*Elanus axillaris*). Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Common soil orders include Entisols and Alfisols. This habitat occurs in various sized patches throughout California.

There were 1.13 acres of Annual Grassland habitat present within the BSA, but most of that is outside of the Action Area near the Fresh Emergent Wetland south of McBean Park Drive and east of Auburn Ravine. Small areas of Annual Grassland are also present along the west side of Ferrari Ranch Road and north of the residential area in the eastern part of the BSA (see Figure 11). Common plants in the Urban habitat of the BSA include ripgut brome (*Bromus diandrus*), redstem filaree (*Erodium cicutarium*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), deergrass (*Muhlenbergia rigens*), cutleaf geranium (*Geranium dissectum*), and Italian ryegrass (*Festuca perennis*).

- Valley Foothill Riparian - Annual Grassland Complex

A mosaic of Valley Foothill Riparian and Annual Grassland habitat is present within the BSA, south of McBean Park Drive and east of Auburn Ravine. There were 3.24 acres of this mixed habitat within the BSA. This complex consists of scattered stands of riparian trees consisting of cottonwoods, valley oak, and Oregon ash with an understory of grassland species including wild oat (*Avena fatua*), sweet fennel (*Foeniculum vulgare*), ripgut brome, redstem filaree, common groundsel (*Senecio vulgaris*), cutleaf geranium, turkey mullein (*Croton setigerus*), and Italian ryegrass (see Figure 11).

Vegetation Communities Within Stream Buffer

The stretch of Auburn Ravine that is located within the Project site is classified by the PCCR as Stream Identification #23 and identified as Auburn Ravine between Lincoln Boulevard and Fowler Road (Figure 12). A 300-foot buffer from the OHWM is established for this stretch of the Auburn Ravine. Multiple vegetation communities are located within the 300-foot buffer surrounding the OHWM: Valley Foothill Riparian (3.32 acres), Riverine (0.60 acres), Annual Grassland (0.48 acres), Fresh Emergent Wetland (1.53 acres),

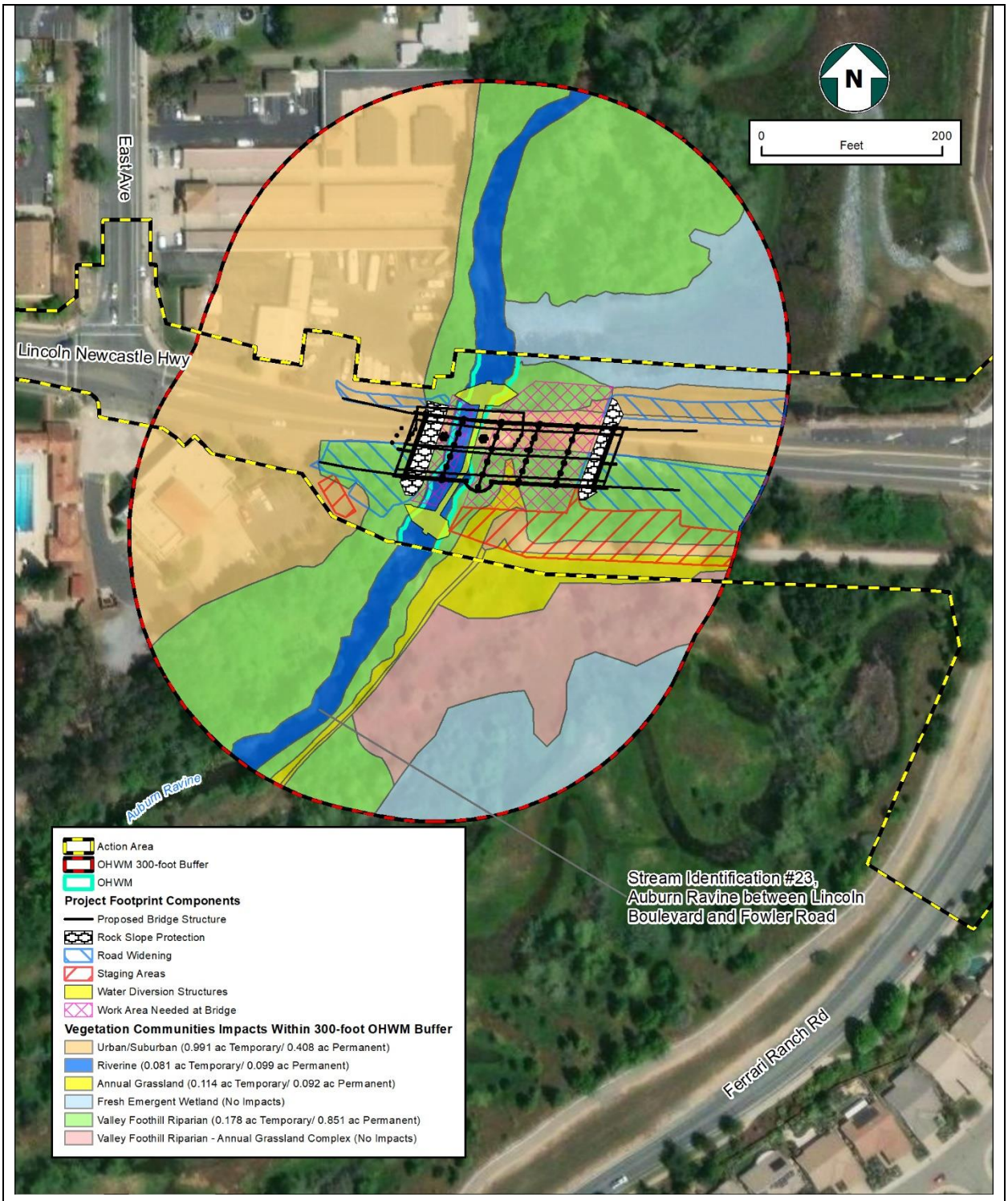


Figure 12
Vegetation Communities Within 300 feet of the Ordinary High Water Mark
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Urban/Suburban (3.70 acres), and Valley Foothill Riparian-Annual Grassland Complex (0.88 acres; see Figure 12). The existing bridge is slated for removal, and the existing approaches are classified as Road and Urban/Suburban, but sections of the replacement bridge and the expansion of the roadway are located within Urban/Suburban, Valley Foothill Riparian, and Annual Grassland.

Dominant Plant Species

There were 94 common plant species found within and near the BSA (Table 4). Riparian vegetation within the BSA includes valley oak, Pacific willow (*Salix lucida*), sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), black cottonwood, Fremont's cottonwood, black walnut, Himalayan blackberry, mugwort (*Artemisia douglasiana*), Oregon ash, box elder, common cattail, deergrass, bracken fern (*Pteridium aquilinum*), white alder, and curly dock. A stand of black cottonwood trees occurs within the BSA to the north of the Project site, east of Auburn Ravine. Herbaceous vegetation near the OHWM of Auburn Ravine included sedge, tall flatsedge, rush, mint (*Mentha* spp.), water smartweed (*Polygonum amphibium*), and Himalayan blackberry.

Table 4
Plant Species Observed during the 2021 Survey
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Scientific Name	Common Name
Acer negundo	boxelder
Alnus rhombifolia	white alder
Ambrosia artemisiifolia	ragweed
Artemisia douglasiana	mugwort
Arum italicum	Italian lords and ladies
Asteraceae	unknown aster
Avena fatua	wild oat
Azolla filiculoides	American water fern
Baccharis pilularis	coyote brush
Brassica spp.	mustard
Briza minor	little quaking grass
Bromus diandrus	ripgut brome
Capsella bursa-pastoris	Shepherd's purse
Carex barbarae	valley sedge
Carex sp.	sedge
Catalpa speciosa	northern catalpa
Ceanothus cuneatus	buck brush
Centaurea solstitialis	yellow starthistle
Claytonia perfoliata	miner's lettuce
Conium maculatum	poison hemlock
Coreopsis tinctoria	golden tickseed
Cortaderia selloana	pampas grass

Scientific Name	Common Name
Croton setigerus	turkey mullein
Cynodon dactylon	Bermuda grass
Cyperus eragrostis	tall flatsedge
Daucus carota	wild carrot
Digitaria sanguinalis	large crabgrass
Dittrichia graveolens	stinkwort
Elymus caput-medusae	medusahead
Elymus glaucus	blue wildrye
Equisetum laevigatum	smooth horsetail
Eriogonum baileyi	buckwheat
Erodium cicutarium	redstem filaree
Festuca perennis	Italian ryegrass
Foeniculum vulgare	sweet fennel
Frangula californica	California coffeeberry
Fraxinus latifolia	Oregon ash
Geranium dissectum	cutleaf geranium
Hedera helix	English ivy
Hirschfeldia incana	short-pod mustard
Hordeum murinum ssp. *leporinum*	foxtail barley
Hordeum spp.	foxtail
Hydrocotyle sp.	water pennywort
Iris sp.	iris
Juglans californica var. *hindsii*	Northern California black walnut
Juglans nigra	black walnut
Juncus drummondii	Drummond's rush
Juncus sp.	rush
Lactuca serriola	prickly lettuce
Ligustrum lucidum	glossy privet
Magnolia grandiflora	magnolia
Marrubium vulgare	white horehound
Mentha spp.	mint
Morus alba	white mulberry
Muhlenbergia rigens	deergrass
Paspalum distichum	Dallisgrass
Persicaria amphibia	smartweed
Phacelia imbricate	imbricate phacelia
Phalaris arundinacea	reed canarygrass
Phyllostachys aurea	golden bamboo
Pinus ponderosa	ponderosa pine
Plantago lanceolata	English plantain
Polygonum amphibium	water smartweed
Polypogon monspeliensis	rabbitsfoot grass
Populus fremontii	Fremont cottonwood
Populus sp.	cottonwood
Populus trichocarpa	black cottonwood
Pteridium aquilinum	bracken fern
Quercus douglasii	blue oak

Scientific Name	Common Name
Quercus kelloggii	black oak
Quercus lobata	valley oak
Quercus wislizeni	interior live oak
Raphanus raphanistrum	wild radish
Rosa californica	California wild rose
Rosa sp.	rose
Rubus armeniacus	Himalayan blackberry
Rumex crispus	curly dock
Salix exigua	narrowleaf (sandbar) willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Salix lucida	Pacific willow
Salix prolix	Mackenzie's willow
Salix sp.	willow
Salvia rosmarinus	rosemary
Senecio vulgaris	common groundsel
Sequoia sempervirens	coast redwood
Silybum marianum	milk thistle
Solidago velutina	goldenrod
Trifolium hirtum	rose clover
Typha latifolia	common cattail
Ulmus sp.	elm
Urtica dioica	stinging nettle
Verbena hastata	swamp verbena
Vicia villosa	winter vetch
Vinca major	periwinkle
Xanthium orientale	common cocklebur

Vegetation within the non-native annual grassland community included winter vetch (*Vicia villosa*), miner's lettuce, mustard (*Brassica* sp.), yellow starthistle, redstem filaree, ripgut brome, wild oat, Bermuda grass, and medusahead (*Elymus caput-medusae*). Ruderal vegetation such as medusahead, foxtail barley, little quaking grass (*Briza minor*), rose clover (*Trifolium hirtum*), sweet fennel, cutleaf geranium, Italian ryegrass, redstem filaree, mustard, and milk thistle, dominated vegetation along the roadside (including the roadside ditches) and in other disturbed areas.

The two staging areas south of McBean Park Drive are located within riparian and non-native annual grassland habitat. A row of riparian trees and Himalayan blackberry thicket occurs along the east and southern border of the eastern staging area.

Migratory Corridors and Habitat Connectivity

Wildlife movement corridors also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that

connect regionally important habitats that support wildlife, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges. They can also be small-scale movement corridors such as riparian zones that provide connectivity and cover to support the movement at a local scale.

The Project is not within any identified wildlife linkages or corridors identified by the California Essential Habitat Connectivity Project (Spencer et al. 2010; CDFW 2021b; Figure 13). The most prominent movement corridor in the BSA is Auburn Ravine and the open space to the east of Auburn Ravine. This corridor provides foraging habitat for migratory birds and raptors, and these species could use these areas as stopover sites during migrations or movement between local areas. Other species, such as beavers, frogs, and toads, could move through the aquatic resources and associated riparian habitat.

Auburn Ravine consists of suitable habitat that may support numerous aquatic species, including steelhead (*Oncorhynchus mykiss*) and chinook salmon (*Oncorhynchus tshawytscha*). Steelhead is a federally listed species, and chinook salmon is a federally and State-listed species. The Project will not permanently restrict, eliminate, or significantly alter the use of Auburn Ravine from fish species. The Project will not substantially impede the movements of fish species, and impacts will be temporary.

Aquatic Resources

Auburn Ravine is a tributary of the Sacramento River, which receives water from snowmelt from the Sierra Nevada, runoff, and numerous smaller tributaries throughout the region. It is at its highest levels during the winter and spring months. Neither Auburn Ravine nor the Sacramento River is a Wild and Scenic River (USFWS 2021b). The Project is not within or adjacent to a Wild and Scenic River System.

During the 2015, 2017, 2019, and 2021 survey periods, the stream was low but flowing. The flow was likely lower than average for the time of year the surveys were completed because of extended periods of drought in the region. Most of the fish known to occur in Auburn Ravine are warm-water, non-native species (Table 5), but four native species, including hitch (*Lavinia exilicauda*), Sacramento pikeminnow (*Ptychocheilus grandis*), Mosquitofish (*Gambusia affinis*), and Sacramento sucker (*Catostomus occidentalis*) (see Table 5), as well as three special-status species including Central Valley fall/late-fall run chinook salmon (*Oncorhynchus tshawytscha*), Central Valley steelhead (*Oncorhynchus mykiss*), and Sacramento River winter-run chinook salmon (*Oncorhynchus tshawytscha*) have the potential to occur in Auburn Ravine within the BSA (A.A. Rich and Associates 2017).

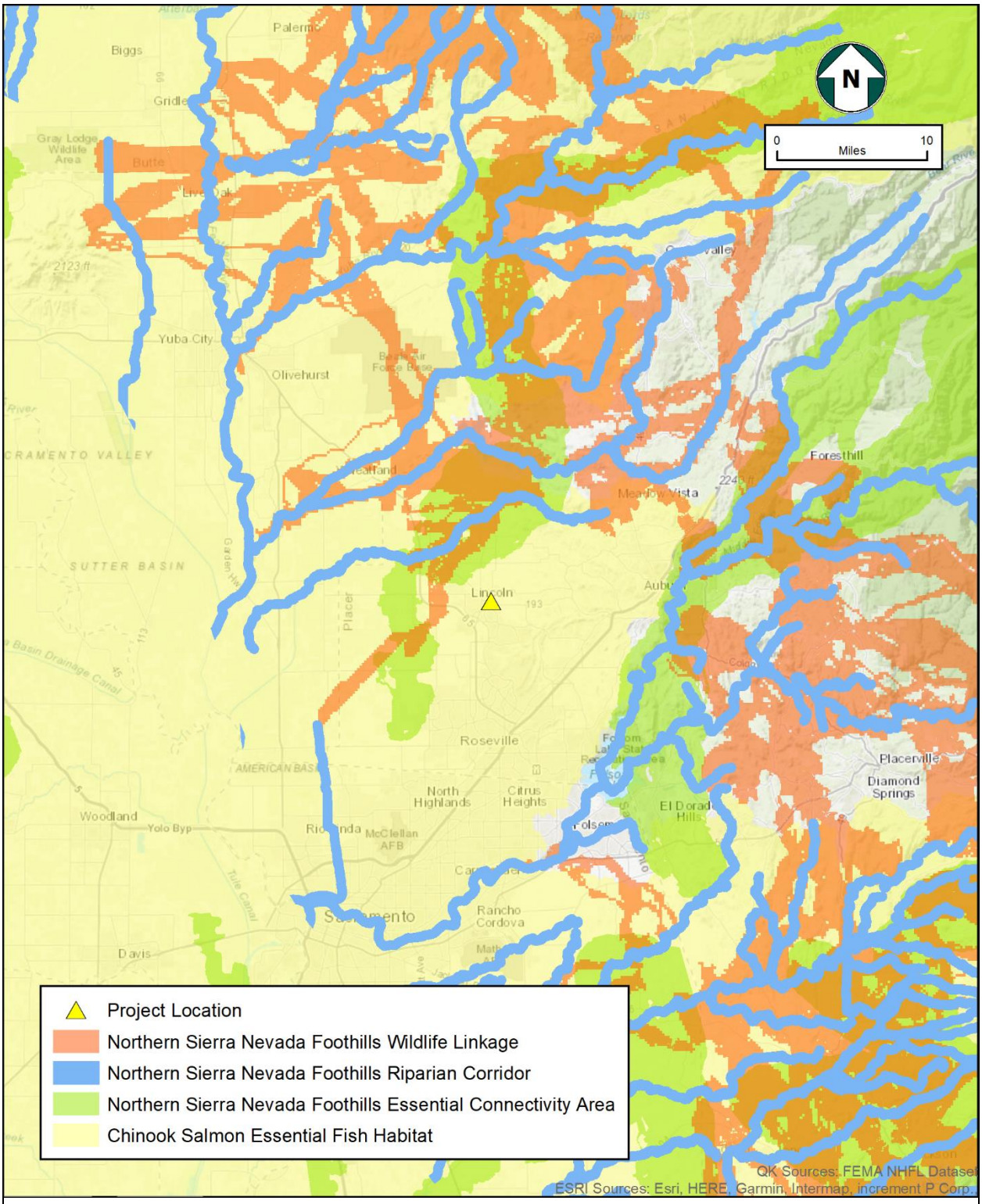


Figure 13
Movement Corridors and Habitat Connectivity
McBean Park Drive Bridge Replacement Project,
City of Lincoln, California

Table 5
Fish Species Known to Occur in Auburn Ravine
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Common Name	Scientific Name	Native or Introduced
Bass and Sunfish Family-Centrarchidae		
Largemouth Bass	*Micropterus salmoides*	Introduced
Smallmouth Bass	*Micropterus dolomieui*	Introduced
Spotted Bass	*Micropterus punctatus*	Introduced
Bluegill	*Lepomis macrochirus*	Introduced
Green Sunfish	*Lepomis cyanellus*	Introduced
Catfish Family-Ictaluridae		
Brown Bullhead Catfish	*Ictalurus nebulosus*	Introduced
Black Bullhead Catfish	*Ictalurus melas*	Introduced
Minnow Family-Cyprinidae		
Common Carp	*Cyprinus carpio*	Introduced
hitch	*Lavinia exilicauda*	Native
goldfish	*Carassius auratus*	Introduced
golden shiner	*Notemigonus crysoleucas*	Introduced
Sacramento pikeminnow	*Ptychocheilus grandis*	Native
fathead minnow	*Pimephales promelas*	Introduced
Mosquitofish Family-Poecilidae		
mosquitofish	*Gambusia affinis*	Introduced
Salmon Family-Salmonoids		
Central Valley fall/late-fall run chinook salmon*	*Oncorhynchus tshawytscha*	Native
Central Valley steelhead*	*Oncorhynchus mykiss*	Native
Sacramento River winter-run chinook salmon*	*Oncorhynchus tshawytscha*	Native
Sucker Family-Catostomidae		
Sacramento sucker	*Catostomus occidentalis*	Native
Lamprey and Hagfish Family-Petromyzontidae		
Pacific lamprey	*Lampetra tridentata*	Native

*Special-Status Species

The northeast bank of Auburn Ravine was moderately steep with a wide riparian corridor. The northwest bank of Auburn Ravine was very steep, with a narrow riparian corridor that abutted the fence along commercial development. It is likely that the riparian corridor on the northwest side once extended much farther west but was removed for urban development. Occasional organic debris (fallen trees, logs, roots) and non-organic debris (broken concrete with rebar, tires, trash) occurred near the extreme banks of the stream. The south banks were shorter with more gentle slopes than the northern banks. The southeast bank (and, to some extent, the northeast) contained the greatest amount of Himalayan blackberry within the BSA. Erosion control netting was present along small lengths of the southeast bank. A pedestrian trail atop a berm just east of the southeast bank appeared to terminate approximately 450 feet south of the bridge. The southwest bank contained a wide riparian corridor consisting of Oregon ash, box elder, cottonwoods, and significant amounts of willow trees. This bank was gentle, but there were several

areas that were washed out, flat banks. Debris on this southwest side of the stream was rare and, when present, consisted of fallen trees. Auburn Ravine and an adjacent wetland marsh support the riparian habitat surrounding the stream.

There were 0.26 acres of OHWM and 0.09 acres of bank habitat of Auburn Ravine delineated within the Action Area and the 50-foot buffer. The Action Area encompasses 0.18 acres within the OHWM of Auburn Ravine (Table 6). There will be 0.09 acres of ordinary high water permanently impacted by the installation of the rock slope protection and areas needed for widening the road and bridge. The Action Area encompasses 0.09 acres of bank habitat beyond the OHWM within Auburn Ravine, which will be impacted, including 0.04 acres of permanent impacts and 0.05 acres of temporary impacts.

Besides Auburn Ravine, two wetlands and three drainage ditches occur within the Action Area. Approximately 0.28 acres of OHWM of the three ditches were delineated within the Action Area and the 50-foot buffer. The OHWM of Ditch 1 is 0.15 acres, the OHWM of Ditch 2 is 0.114 acres, and the OHWM of Ditch 3 is 0.013 acres (see Table 6). Ditches 1 and 2 are mostly within the Action Area, with only a small area (0.04 acres) within a 50-foot buffer on the east side of the Project. Ditch 3 is mostly within the Project footprint, southwest of the bridge, and will need to be moved to accommodate the widening of the western road approach. All of Ditch 3 (0.013 acres) will be permanently impacted. The Action Area encompasses a total of approximately 0.4587 acres of all water features, including the three ditches and Auburn Ravine.

Table 6
Delineated Water Features
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Waters	ID	Description	Acreage/Linear Feet Temporarily Impacted by Project	Acreage/Linear Feet Permanently Impacted by Project	Total Acreage/Linear Feet Delineated
Stream	Auburn Ravine	Seasonal stream with a dense riparian corridor and occasionally steep banks that run through the Project site and eventually feed into the Sacramento River.	0.178/ 232	0.0024 / 185	0.260 / 341
		Total Stream	**0.178/ 232**	0.0024/ 185	0.260/ 341
Drainage Ditch	Ditch 1	Intermittently wet ditch located east of the bridge. Runs along the north border of McBean Park Drive and south of active residential	0	N/A	0.15 / 1,306

Waters	ID	Description	Acreage/Linear Feet Temporarily Impacted by Project	Acreage/Linear Feet Permanently Impacted by Project	Total Acreage/Linear Feet Delineated
		development and stops before the Ferrari Ranch Road intersection. Contains erosion control measures (straw wattles and jute matting).			
	Ditch 2	Intermittently wet ditch located east of the bridge. Runs along the south border of McBean Park Drive west and stops before Ferrari Ranch Road.	0	N/A	0.114 / 989
	Ditch 3	Intermittently wet ditch located west of Auburn Ravine and south of McBean Park Drive. Flows from a culvert into Auburn Ravine.	0	0.013 / 91	0.013 / 114
		Total Drainage Ditch	**0/0**	0.013 / 91	0.277 / 2,409
Bank	Bank 1	Located on the western side of the Auburn Ravine.	0.013/111	0.027/124	0.04/235
	Bank 2	Located on the eastern side of the Auburn Ravine.	0.051/240	0/0	0.051/240
Wetland	Wetland 1	Wetland located southeast of the Action Area. A manmade established wetland feature in a Preserve area. Dense cattails and willows occur within and near wetland.	0 / N/A	0	0.112 / N/A
	Wetland 2	Wetland located northeast of the Action Area. An ongoing wetland restoration project. Limited, new vegetation growth and drains into Auburn Ravine.	0 / N/A	0	0.41 / N/A
		Total Wetland	**0/N/A**	**N/A**	**0.522 / N/A**
		Total Delineated Water Features	**0.178/ 232**	**0.0154 / 461**	**1.059 / 2,750**

Two wetland features that were not included in the NWI are present within the BSA and are partially within the Action Area. A very small area (0.0007 acres) of Wetland 1, which is an established wetland within the protected McBean Park Expansion Preserve, is present east of the bridge and south of McBean Park Drive (see Table 6). This wetland is just south of the temporary staging area south of McBean Park Drive. The perimeter of that wetland was delineated, and paired sample points on either side of the feature boundary were taken to collect information describing both wetland and associated upland conditions. At each sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was analyzed. Wetland 1 is not expected to be directly or indirectly impacted by the Project. A small area (0.04 acres) of Wetland 2, which is currently being enhanced, is present within the Action Area east of the bridge and north of McBean Park Drive (see Table 6; Figure 10). This wetland is directly adjacent to Auburn Ravine north of the bridge, with a manmade rocky berm separating the two water features. That berm has slightly eroded away to allow water from Wetland 2 to flow into Auburn Ravine. Wetland 2 is lined with small boulders and contains little mature vegetation other than clusters of unidentifiable desiccated vegetation. Wetland 2 will not be impacted by the Project, and no formal delineation was conducted.

A total of 1.28 acres of riparian habitat was delineated, including 1.24 acres within the Action Area. Impacts to the riparian habitat caused by the widening of the bridge, road approaches, water diversion, rock slope protection, staging, and grubbing will be 1.00 acres, including 0.56 acres of riparian habitat expected to be cleared and grubbed. Only 0.18 acres of riparian habitat is expected to be temporarily disturbed.

The area of greatest potential impact will be at the southeastern end of the bridge, where fill will be used to stabilize the widened road shoulder. The OHWM of Auburn Ravine and associated drainages is under the jurisdiction of the USACE and the RWQCB. The bed, bank, and riparian habitat of Auburn Ravine are under the jurisdiction of the CDFW. USACE has reviewed the Aquatics Resources Delineation Report (ARDR) and associated documents, and on August 17, 2022, a Preliminary Jurisdiction Determination concurring with the ARDR was issued (ACOE reference number SPK-2022-00381, QK 2022).

Table 7
Delineated Riparian Features
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Upland Habitat	Description	Total Acreage/Linear Feet (ARSA)	Temporary Impacts (Acres/Linear Feet)	Permanent Impacts (Acres/Linear Feet)
Riparian 1	Located to the northwest of the McBean Bridge adjacent to Auburn Ravine.	0.039/62	0.02/51	0.005/11
Riparian 2	Located to the northeast of the McBean Bridge adjacent to the Auburn Ravine.	0.125/213	0.61/110	0.056/103
Riparian 3	Located adjacent to the southwestern intersection of Ferrari Ranch Road and Lincoln Newcastle Highway	0.078/150	0.051/76	0.02/74
Riparian 4	Located southeast of the McBean Bridge and approximately 50 feet east of Auburn Ravine.	0.708/517	0/0	0.707/517
Riparian 5	Located to the southeast of the McBean Bridge adjacent to Auburn Ravine. A bike path is located in this area.	0.079/119	0.011/24	0.058/95
Riparian 6	Located to the southwest of the McBean Bridge adjacent to the Auburn Ravine	0.249/254	0.038/119	0.155/135
	Total Riparian	**0.09**	**0.064**	**0.027**

3.3. Habitat Conditions in the Action Area

The BSA is located at an elevation of approximately 170 feet AMSL in the City of Lincoln within a residential area and commercial area to the west of the McBean Park Drive Bridge and open space area and residential areas to the east of the bridge. Historically, SR 193 began in downtown Lincoln at the intersection of Old Highway 65/Lincoln Boulevard and would head east, where it passes through the BSA toward Roseville. The portion of the road between the Old Highway 65/Lincoln Boulevard intersection and McBean Park Drive Bridge is known as McBean Park Drive.

Most of the BSA is nearly flat outside of Auburn Ravine, with a gentle slope south of the Project site into Wetland 1. A riparian assemblage of tall black cottonwoods, valley oaks, and Himalayan blackberries occurs southeast of the Project site in a depression between SR 193 to the north and a walking path to the south.

Auburn Ravine is a semi-perennial or seasonal stream that includes natural flows generated by fall/winter rainfall events and augmented flows generated from irrigation water from other sources, such as the Middle Fork American River. The banks of Auburn Ravine are relatively steep along most of the northern portion within the BSA. The banks along the southern portion of Auburn Ravine within the BSA are less steep and include washed-out areas of the bank. Winter flow peaks of Auburn Ravine can range from a few hundred cubic feet per second (cfs) to an estimated 100-year flow event exceeding 17,000 cfs (Placer County 2002). During dry periods, parts of Auburn Ravine may go completely dry, with some portions having flows of 1 to 2 cfs with only a few inches of water in the stream (Placer County 2002).

Habitat conditions within Auburn Ravine vary. The depth of the ravine in 2014 was somewhat lower than in 2021, but that is likely because the depth in 2014 was measured during the summer, while the depths in 2021 were measured during the winter soon after rains had occurred. There were some differences in the quantity and distribution of substrate types and other factors by stream reach.

Stream Reach 1

Beginning from about 600 feet downstream of the bridge and proceeding upstream to the bridge, the habitat in Auburn Ravine consisted of a variety of habitat types, including low gradient riffles (LGRs), a side channel and backwater pool at the lower end, braided channel mid-way up towards the bridge, and alternating lateral scour pools (associated with large woody debris, boulders, and cut banks) and LGRs. Depths ranged from 1 to 20 inches in the summer of 2014, and the width of the channel ranged from 8 to 65 feet. The width of this reach was unchanged in 2021, but the water depth was substantially higher

at average depths of 6 to 30 inches, which is expected because sampling in 2021 was conducted in the winter when there is greater water runoff. Similarly, the temperature in this reach was substantially lower in the winter (average of approximately 50 degrees) than in the summer (average of approximately 70 degrees). There was some spawning substrate in this reach, although not much. Most substrate consisted of silt and sand, although there was some gravel and cobble in the LGRs. Some of the rocks had algae growing on them. In summary, the habitat consisted of a lot of structure (providing escape and food items for rearing salmonids and other fishes), oxygen-producing riffles, and overhanging and in-stream vegetation for shade and cover.

Stream Reach 2

Under the existing bridge, Auburn Ravine was about 32 feet wide and ranged from only about 3 inches to over 18 inches in depth during the summer of 2014. During the winter of 2021, the depth was from about 12 to 24 inches. The habitat consisted of a glide and some LGR areas. Substrate consisted of gravel. The stream banks under the bridge consisted of concrete walls, and there were large blocks of concrete at the upstream abutments. The rocks and turbulence from the riffles under the bridge would provide cover for fishes.

Stream Reach 3

Beginning at the upstream end of the bridge, there was a long lateral scour pool that extended about 200 feet upstream from the bridge. In 2014, a half-submerged log would have provided cover and food for young and small fishes near the bridge end of the pool. This log was not present in 2021. In 2014, the pool ranged in width from 21 to 39 feet, and the depth ranged from 3 inches to over 22 inches. The width remained unchanged in 2021, but the depth varied from about 8 inches to 30 inches. Substrate consisted of sand and silt primarily, although there were some small patches of gravel.

These conditions provide some areas suitable for rearing salmonids and certainly provide conditions suitable for use as a migration corridor for emigrating juvenile salmonids and immigrating spawning adults. The less suitable habitat includes areas with sand and silt substrate that could be used as a corridor for migration. Existing water quality in Auburn Ravine is affected by stormwater runoff and urban land uses that could contain harmful contaminants that would affect fish health and habitat quality. Hatching success and fry survival in this section of the ravine are likely to be poor because of the limited habitat conditions. Therefore the population of chinook salmon and steelhead at this site is likely limited and most likely limited to migrating individuals.

From the late winter through the spring, stream flows would be greater and could possibly result in a somewhat more abundant rearing habitat in Auburn Ravine near the Action Area. During the spring, when smoltification would be occurring, the Auburn Ravine would serve as a migration route and perhaps a rearing area. During the spring and early summer, there would be more water in the ravine for rearing salmonids, although high water temperatures during late summer (July and August) would probably preclude salmonids from remaining in this area (A.A. Rich and Associates 2017).

During the two survey periods, the stream was low but flowing, and the stream was flowing at a higher level during the 2021 survey period than during the 2014 survey period. The flow was likely lower than average during the 2014 surveys because that survey was conducted during a third continuous year of drought in the region.

3.3.1. Federally Listed or Proposed Animal Species

Habitat capable of supporting three State and/or federally threatened or endangered fish have the potential to occur within the BSA. These are the Central Valley steelhead, Central Valley spring-run chinook salmon, and Sacramento River winter-run chinook salmon.

3.3.2. Discussion of the Central Valley Steelhead and Central Valley/ Sacramento River Chinook Salmon

Status

The Central Valley steelhead and Central Valley spring-run chinook salmon are federally threatened species, and the Sacramento River winter-run chinook salmon is a federally and State endangered species. The *Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead* (NMFS 2014) was prepared to guide the recovery of these species using appropriate management and protection.

Life History

Chinook salmon is the most important commercial species of anadromous fish in California (NMFS 2014). Chinook salmon have evolved a broad array of life history patterns that allow them to take advantage of diverse riverine conditions throughout the year. This species has been divided into two basic types of life history strategies: (1) stream-type and (2) ocean-type (Healy 1991). Stream-type chinook salmon have adults that swim up streams in spring or summer before they have reached full maturity. Chinook salmon adults spawn in summer and fall soon after entering freshwater, and juveniles

spend a relatively short time (3–12 months) in freshwater before migrating to the Pacific Ocean. Four principal life history variants are recognized and are named for the timing of their upstream migration: fall-run, late fall-run, winter-run, and spring-run (NMFS 2014).

Young salmonids (e.g., chinook salmon and steelhead) require clean water, low water temperatures, abundant food, natural cover (shade), submerged and overhanging large woody material, log jams, aquatic vegetation, substrate consisting of large rocks and boulders, side channels, and undercut banks. Both spawning areas and migratory corridors provide rearing habitat for juvenile salmonids, which feed and grow before and during their emigration out to sea (parr-smolt transformation or smoltification). The Sacramento River supports all four runs of chinook salmon. The larger tributaries to the Sacramento River (American, Yuba, and Feather rivers) and rivers in the San Joaquin Basin also provide habitat for one or more of these runs (NMFS 2014). Winter-run chinook salmon are unique because they spawn during summer months when air temperatures usually approach their yearly maximum (NMFS 2014). As a result, winter-run chinook salmon require stream reaches with cold water sources that will protect embryos and juveniles from the warm ambient conditions in summer (NMFS 2014).

Steelhead are the anadromous counterpart to the resident rainbow trout. However, similar to other California steelhead, the Central Valley steelhead population has non-anadromous rainbow trout in their population (Moyle 2002).

> *"Steelhead typically migrate to marine waters after spending two years in freshwater. They reside in marine waters for typically two or three years prior to returning to their natal stream to spawn as four- or five-year-old [fish]. Unlike Pacific salmon, steelhead are capable of spawning more than once before they die. However, it is rare for steelhead to spawn more than twice before dying, and most that do so are females. Currently, Central Valley steelhead are considered "ocean-maturing" (also known as winter) steelhead, although summer steelhead may have been present prior to construction of large dams. Ocean maturing steelhead enter freshwater with well-developed gonads and spawn shortly after river entry. Central Valley steelhead enters fresh water from August through April. They hold until flows are high enough in tributaries to enter for spawning. Steelhead adults typically spawn from December through April, with peaks from January through March in small streams and tributaries where cool, well-oxygenated water is available year-round. Depending on water temperature, steelhead eggs may incubate in redds for over one month before hatching as alevins. Following yolk sac absorption, alevins emerge from the gravel [spawning sites] as young juveniles or fry and begin actively feeding"* (NMFS 2014).

Winter-run steelhead were once distributed widely throughout the Sacramento-San Joaquin River System. The primary remaining wild populations are in Deer and Mill creeks in Tehama County and a population of unknown size in the Yuba River (Moyle 2002). Wild steelhead are found elsewhere in the Sacramento system, primarily in the cold tailwaters of dams, but their identity is confused by the presence of hatchery fish (of Eel River origin in the American and Mokelumne rivers) and by the presence of various strains of rainbow trout of hatchery origin.

Survey Results

No salmonid species were observed during fish habitat assessment surveys. Habitat in Auburn Ravine within, directly downstream, and directly upstream of the McBean Park Drive Bridge was generally characterized as being poor for salmonids. There were minimal scattered areas of cobbles and gravel that would be suitable for spawning, but most of the substrate was sand. There were no substantial pools and few glide riffles, few large boulders, and few areas with undercut banks or overhanging vegetation that would provide shade and protection. Salmonids have been absent from Auburn Ravine in the past because of severely disturbed conditions, but recent management actions have improved conditions, and small numbers of salmons are now present in upstream areas, first sighted in 2015 after extensive management actions were implemented. It is reasonable to assume that small numbers of salmonids are present in Auburn Ravine and that the area of Auburn Ravine occurring within the Action Area supports migrating salmon. It is not likely that spawning occurs within the Action Area.

During the spring, when smoltification would be occurring, the Action Area would serve as a migration route and rearing area. During the spring and early summer, there would be more water in the ravine for rearing salmonids, although high water temperatures during late summer (July and August) would potentially preclude salmonids from remaining in this area. Two CNDDB records of Central Valley steelhead occurred within 10 miles of the BSA (CDFW 2021a), one of which occurs within the Auburn Ravine. There are no CNDDB records of the Central Valley and Sacramento River chinook salmon within the BSA. There is a potential for steelhead and Central Valley spring-run chinook salmon to be present in Auburn Ravine, but it is not likely that Sacramento winter-run chinook salmon would be present.

Auburn Ravine is designated by the USFWS as Critical Habitat for Central Valley steelhead (USFWS 2021b; CDFW 2021b; see Figure 4). This habitat can be utilized for adult spawning, migration, juvenile rearing, and juvenile migration (USFWS 2021b). Local records indicate that adult steelhead have been observed, and juvenile steelhead have been collected from Auburn Ravine.

3.4. Status of Designated Critical Habitat in the Action Area

Federally designated Critical Habitat for the Central Valley steelhead overlaps the Project (see Figure 4). This habitat can be utilized for adult spawning, migration, juvenile rearing, and juvenile migration. Temporary Project impacts will occur within the Critical Habitat, but to minimize effects to the Central Valley steelhead, avoidance and minimization measures including requiring a biological monitor to be present on-site during clearing and grubbing activities, implementation of construction best management practices (BMPs) including erosion control measures, exclusion or construction fencing, obtaining the appropriate permits, preparing a Fish Collection and Relocation Plan, conducting in-water construction activities during a protective window for sensitive species (June 15 and October 15), maintaining water quality standards, and storing equipment and materials in temporary staging areas away from Auburn Ravine will be implemented.

Chapter 4. Effects of the Action

Effects of the action are all consequences to listed species or Critical Habitat caused by the proposed action, including consequences of other activities caused by the proposed action. The analysis of effects of the action first identifies stressors from Project actions, then exposure to stressors, and finally, the response to exposure to stressors to determine consequences. The effects of the action are used to make determinations for each listed species and Critical Habitat.

The entire reach of Auburn Ravine within the Action Area would be temporarily affected by the temporary water diversion around the proposed Project site during bridge demolition and construction. No Waters of the U.S. would be permanently affected, as the ravine would be diverted around the Project area, and fish would be relocated prior to bridge demolition and construction.

4.1. Stressors from the Action

Stressors induce an adverse response in an organism by any physical, chemical, or biological alteration of the environment (or resource) that can lead to a response from the individual. Stressors can act directly on an individual or indirectly through effects to a resource. Two listed species could be exposed to stressors caused by Project actions, the Central Valley steelhead and Central Valley spring-run chinook salmon.

Sensitive Fish Species

The potential negative impacts of the proposed Project on Central Valley steelhead and Central Valley chinook salmon are expected to be short-term. The activities that could negatively affect the fish include:

- Collecting and relocating fishes prior to the water diversion activities.
- Construction-related noise.
- Construction-related activities could affect water quality (silt, other contaminants, debris) in Auburn Ravine.

Without mitigation measures, any or all these potential stressors could negatively affect aquatic organisms within the ravine, including the Central Valley steelhead and chinook salmon.

Avoidance and minimization measures will be implemented to reduce the effects of the Project to protected fish species. All in-water construction activities, including the installation of water diversion structures, will be conducted within a protective window for sensitive fish species. That protective window where operations are allowed is from June

15 to October 15. Fish in Auburn Ravine will be collected and relocated prior to installing dewatering structures, and fish relocation around the water diversion structures should be conducted during periods when fish are migrating and while the diversion structures are operational. Fish will be relocated into suitable habitat upstream or downstream of the water diversion structures, depending upon the time of year and the direction of migratory movements. Relocation sites should be far enough away that construction-related activities would not affect salmonids.

4.2. Exposure to Stressors from the Action

Exposures are defined as the interaction of the species, their resources, and the stressors that result from the Project action.

Central Valley Steelhead and Central Valley Spring-run Chinook Salmon

There is some potential for steelhead and chinook salmon to be present during portions of the construction period, and there is a possibility of collecting and relocating some individuals of those species. The stress of handling and transporting fish has been demonstrated to cause some mortality. Electrofishing, using a backpack shocker, would be the most efficient method of collecting the fishes prior to the installation of the diversion and during the period when the diversion structure is in place. The extent of immediate and delayed stress and mortality from electrofishing has been a concern for fisheries biologists for years. Using high voltages and amperages can result in stressing the fish, burning them, breaking their backs, and killing them (Hudy 1985, Carline 2001, Gatz et al. 1986, Smith 1988, Hollender and Carline 1994). In contrast, in some studies, high voltages have resulted in few injuries (Hudy 1985, Carline 2001). Whether a fish is harmed or killed is directly related to the skill and knowledge of the fish biologists conducting the handling and electrofishing.

Noise generated from construction activities, including excavation, heavy vehicle operations, and other construction-related activities, could negatively affect the chinook salmon and steelhead that may occur within the Action Area of Auburn Ravine. In any discussion on the effects of noise and vibrations on fishes, it is important to note that, despite concerns raised about the effects of sound and vibration on fishes and other aquatic organisms, scientists are still in the “learning phase” (Hastings and Popper 2005). The types of noise that could be generated from the Project can be divided into two general categories:

- Loud-Level Noise: associated with vibrating hammers.
- Moderate-Level Noise: associated with hauling trucks, excavation, and other construction-related activities that generate less noise.

Vibrating hammers result in noise levels that have been demonstrated to be harmful to fishes (Hastings and Popper 2005). Noise associated with hauling trucks, use of cranes, bulldozers, and excavation generates much less noise (Federal Highway Administration website: http://www.fhwa.dot.gov). Other noise-generating activities have resulted in high mortalities, hearing loss, tissue damage, and exploded swim bladders in a variety of fish species. Sublethal responses of fish to noise include (1) avoidance and (2) release of stress hormones. Increased blood stress hormones can negatively affect the fish, either in the short- or long-term (Hastings and Popper 2005). Construction-related activities, such as hauling trucks and excavation, generate less noise, and it is assumed that, without mitigation, the former type of activity would have greater effects on the salmonids than the latter.

A diversion pipe will be installed to divert water around the Project area. This diversion would be installed once the ravine is dewatered. Because of low flows at the time of installation of the diversion structure and low flows at the time of construction, there would be minimal effects on water quality and no effects on the water temperature to fishes caused by the Project.

4.3. Response to Exposures

Exposure is a result of the co-occurrence of both the species and any stressors resulting from the action. The response to stressors is the anticipated way animals would react to the presence of stressors.

Central Valley Steelhead and Central Valley Spring-run Chinook Salmon

There is the potential for exposure of Central Valley steelhead and Central Valley spring-run chinook salmon to direct and indirect stressors. Central Valley steelhead and chinook salmon could be exposed to direct mortality or injuries from electrofishing, fish relocation, and noise. Using high voltages and amperages during electrofishing can result in stress, fish burning, back-breaking, and death. Construction noise may directly affect the fish by causing mortality, hearing loss, tissue damage, exploded swim bladders, and release of stress hormones. Indirect impacts may include exposure to contaminants and habitat loss. The Central Valley steelhead and chinook salmon response to contaminants in the water predominantly concern physiological changes. Contaminants may impair reproduction, suppress the immune system, or reduce the growth rates in the fish. Other contaminants may cause premature death, and other contaminants may cause the fish to avoid the contaminated area. As such, the fish may get sick more often, have less reproductive success, and have less success competing or thriving. The number of fish exposed to stressors depends on how many toxic contaminants enter the stream, the quantity of water present and the stream's ability to dilute the contaminants, the time when

contaminants enter the stream, and the number of fish present at the time contaminants entered the stream.

The Sacramento River winter-run chinook salmon have not historically been present in the Action Area and are not likely to occur, and these species have a low probability of being exposed to any stressors. The Central Valley steelhead is known to occur in the Action Area, and the Central Valley spring-run chinook salmon could be present. These two species could be exposed to the described stressors.

4.4. Effects of the Action

Effects of the action are all consequences to listed species or Critical Habitat caused by the proposed action, including consequences of other activities caused by the proposed action. The analysis of effects of the action first identifies stressors from Project actions, then exposure to stressors, and finally, the response to exposure to stressors to determine consequences. The effects of the action are used to make determinations for each listed species and Critical Habitat.

Central Valley Steelhead and Central Valley Spring-run Chinook Salmon

Sensitive fish species were not observed within the Action Area, but the Central Valley steelhead and the Central Valley spring-run chinook salmon could be present. With the implementation of the avoidance measures, adverse impacts to these species would be reduced to the maximum extent possible. There would be temporary effects to Critical Habitat and Essential Fish Habitat caused by installing a water diversion structure and dewatering a small portion of the Auburn Ravine.

4.5. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the Action Area described in this BA. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of FESA. There is a potential for the Project to affect Central Valley steelhead and Central Valley spring-run chinook salmon, and there is a potential for the Project to contribute to cumulative effects.

4.6. Determination

Habitat containing the necessary primary constituent elements for only two species occurs within the Action Area, which are the Central Valley steelhead and the Central Valley spring-run chinook salmon. Central Valley steelhead and the Central Valley spring-run chinook salmon were identified as potentially occurring within the Action Area,

especially during periods of migration. Implementation of avoidance measures and BMPs will ensure that the Project, and stressors from the Project, would be reduced to a level that would result in the Project having either no effect or may affect, but not likely to adversely affect the four federally listed species.

4.6.1. Species and Critical Habitat Determination

1) No Effect

A no-effect determination was made for two federally listed species: the Delta smelt and the Sacramento River winter-run chinook salmon. No consultation is required for these species.

Designated Critical Habitat was identified to occur within the Project Action Area for the Central Valley steelhead. Project actions will not adversely affect Critical Habitat of Central Valley steelhead.

2) May Affect, Not Likely to Adversely Affect

A may affect, not likely to adversely affect determination was not made for any listed fish species.

3) May Affect, Likely to Adversely Affect

A may affect, likely to adversely affect determination was made for the Central Valley steelhead because they are known to be present in Auburn Ravine for the Central Valley spring-run chinook salmon because they could potentially be present. The installation of the water diversion structure and the diversion of water could result in the need to relocate migrating steelhead and Central Valley spring-run chinook salmon, possibly resulting in the mortality of individuals and other adverse effects. Adverse effects to these species could include entombment, poisoning, indirect effects caused by the degradation of habitat, and indirect effects due to increased noise and human presence. Many of these potential effects can be eliminated with the implementation of standard avoidance measures. These measures include conducting pre-construction surveys to determine presence or absence, avoiding construction within Auburn Ravine during periods when the steelhead and salmon could potentially be present, and avoiding these species if present. Implementation of other avoidance measures would also help eliminate adverse effects. These measures would include constructing exclusion fencing, employing a biological monitor during ground-disturbing activities and activities within the Auburn Ravine, using BMPs to reduce exposure to contaminants, establishing a worker awareness program, and monitoring during vegetation clearing and removal.

Chapter 5. Essential Fish Habitat Assessment

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) takes immediate action to conserve and manage fishery resources found off the coasts of the U.S., and the anadromous species and Continental Shelf fishery resources of the U.S., by exercising sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone of the U.S., and exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources and fishery resources in the special areas.

5.1. Essential Fish Habitat

5.1.1. Essential Fish Habitat Background

Public Law 104-297, the Sustainable Fisheries Act of 1996, amended the MSFCMA to establish new requirements for Essential Fish Habitat (EFH) descriptions in federal Fisheries Management Plans. In addition, the MSFCMA established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal Fisheries Management Plan. Pursuant to the MSFCMA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency that may adversely affect EFH.
- NOAA Fisheries must provide conservation recommendations for any federal or state action that would adversely affect EFH.
- Federal agencies must provide a detailed response in writing to the NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the effect of the activity on EFH. In the case of a response that is inconsistent with the NOAA Fisheries' EFH conservation recommendations, the federal agency must explain its reasons for not following the recommendations.

EFH has been defined for the purposes of the MSFCMA as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NOAA Fisheries has further added the following interpretations to clarify this definition:

- "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include areas historically used by fish where appropriate.

- “Substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities.
- “Necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem.
- “Spawning, breeding, feeding, or growth to maturity” covers the full life cycle of a species.

Adverse effect means any effect that reduces quality and/or quantity of EFH and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), or site-specific or habitat-wide effects, including individual, cumulative, or synergistic consequences of actions.

EFH consultation with the NOAA Fisheries is required regarding any federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action may adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH. Under Section 305(b)(4) of the MSFCMA, NOAA Fisheries is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that may adversely affect EFH. Wherever possible, NOAA Fisheries utilizes existing interagency coordination processes to fulfill EFH consultations with federal agencies. For the proposed action, this goal is being met by incorporating EFH consultation into the FESA Section 7 consultation, as represented by this Essential Fish Habitat Assessment.

5.2. Managed Fishery Habitats with Potential to Occur in the Action Area

The MSFCMA requires that EFH be identified for all federally managed species, including all species managed by the Pacific Fisheries Management Council (PFMC). The PFMC is responsible for managing commercial fisheries resources along the coast of Washington, Oregon, and California. Managed species that have a potential to occur in the Action Area are described in a Fishery Management Plan.

This Act takes immediate action to conserve and manage fishery resources found off the coasts of the U.S., and the anadromous species and Continental Shelf fishery resources of the U.S., by exercising sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone, anadromous species, Continental Shelf fishery resources, and fishery resources in the special areas. Compliance with the MSFCMA requires federal agencies to consult NMFS on all actions

or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH or federally listed fish species.

The database query of the nine USGS quadrangles encompassing and surrounding the Project site reported two federally listed fish species, the Central Valley steelhead, and Sacramento River spring and winter-run chinook salmon. The Central Valley steelhead occurs within the Sacramento River and the Action Area. There is EFH within the Action area that could support this species. The Sacramento River winter-run chinook salmon was not identified within the Action Area, but according to NOAA Fisheries, the spring-run chinook salmon might inhabit the proposed Project area at some time during the year (Rae 2014). There is EFH present within the Action Area that could support chinook salmon.

Chapter 6. Literature Cited

A.A. Rich and Associates. 2017. Preliminary Draft Fishery Resources Biological Assessment (incomplete). Replacement of the McBean Park Drive Bridge Replacement Project, Lincoln. California.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California. 2nd ed. University of California Press, Berkeley, California. 1600pp.

California Department of Fish and Wildlife (CDFW). 2021a. California Natural Diversity Database (CNDDB) RareFind 5, California Department of Fish and Wildlife. Sacramento, CA.

California Department of Fish and Wildlife (CDFW). 2021b. Biogeographic Information and Observation System (BIOS). Retrieved from www.wildlife.ca.gov/data/BIOS.

Carline, R. F. 2001. Effects of high-frequency pulsed-DC electrofishing on a wild brown trout population. *North American Journal of Fisheries Management* 21: 571-579.

City of Lincoln. 2004. Preserve Management Plan for Rodeo Ground Preserve and the McBean Park Expansion.

City of Lincoln. 2008. City of Lincoln 2050 General Plan, Adopted 2008. Available at http://www.lincolnca.gov/city-hall/departments-divisions/community-development/planning/general-plan-2050

Gatz, A. J. Jr., J. M. Loar, and G.F. Cada. 1986. Effects of repeated electrofishing on instantaneous growth of trout. North American Journal of Fisheries Management 6: 176-182.

Hastings, M.C. and A. Popper. 2005. Effects of sound on fish. Prepared for California Department of Transportation, Sacramento, California. January 28, 2005. 85 pages.

Healy, M.C. 1991. Life history of Chinook salmon (*Oncorhynchus tshawytscha*). In: Groot, C., Margolis, L., editors. Pacific Salmon Life Histories. 311-394.

Hollender, B. A. and R. F. Carline. 1994. Injury to wild brook trout by backpack electrofishing. North American Journal of Fisheries Management 14: 643-649.

Hudy, M. 1985. Rainbow trout and brook trout mortality from high voltage electrofishing in a controlled environment. 1985. North American Journal of Fisheries Management 5: 475-479.

Lichvar, R.W. et al. 2014. Arid West 2014 Regional Wetland Plant List To Determine Plant Wetland Status.

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

Moyle, P. A. 2002. Inland fishes of California. University of California Press, Berkeley. 502 pages.

National Marine Fisheries Service (NMFS). 2014. *Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead*. California Central Valley Area Office. July 2014.

National Oceanic and Atmospheric Administration (NOAA). 2021. NOAA Fisheries West Coast. “California Species List Tools.” NOAA Fisheries West Coast Region, October 22, 2012. https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html

Placer County. 2020. Placer County Conservation Program Final Environmental Impact Statement/ Environmental Impact Report.

Placer County. 2002. Auburn Ravine/Coon Creek Restoration Plan.

Quad Knopf, Inc. (QK). 2021. United States Fish and Wildlife Service Biological Assessment. McBean Park Drive Bridge Replacement Project.

Quad Knopf, Inc. (QK). 2022. Aquatics Resources Delineation Report. McBean Park Drive Bridge Replacement Project.

Rae. 2014. Personal communication with Alice Rich.

Smith, G. E. 1988. Effects of electrofishing and handling on fish: an annotated bibliography and additional references. California Department of Fish and Game, Environmental Services Division. Administrative Report No. 88-2. 20 pages.

Spencer, W.D., et al. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

United States Army Corps. of Engineers (USACE). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Army Corps. of Engineers (USACE). 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western Unites States: A Delineation Manual. U.S. Army Engineer Research and Development Center. Published August 2008.

United States Army Corps. of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual. Wetlands Research Program, Technical Report Y-87-1. Waterways Experiment Station, Vicksburg, Mississippi.

United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2021a. Web Soil Survey. Soil Survey Area: Lincoln, California. Soil Survey Data: Version 8, April 9, 2019. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2021b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Retrieved from: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

United States Fish and Wildlife Service (USFWS). 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California.

United States Fish and Wildlife Service (USFWS). 2021a. Information for Planning and Consultation (IPaC) online project planning tool. Available at: https://ecos.fws.gov/ipac/

United States Fish and Wildlife Service (USFWS). 2021b. Critical Habitat Portal. Available at: https://ecos.fws.gov/ecp/report/table/critical-habitat.html

United States Fish and Wildlife Service (USFWS). 2021c. National Wetlands Inventory Wetlands Mapper. https://www.fws.gov/wetlands/data/mapper.html.

United States Geological Survey (USGS). 2021. National Hydrography Dataset. https://www.usgs.gov/core-science-systems/ngp/national-hydrography.

Western Regional Climate Center (WRCC). 2015. Cooperative Climatological Data Summaries, NOAA Cooperative Station California.

Appendix A Representative Photographs

Photograph 1: View of the northside of the existing McBean Park Drive bridge.
38.89046111 N°, -121.28284444 W° facing south, southwest.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 2: View of the southside of the existing McBean Park Drive bridge.
38.889821 N°, -121.283272 W° facing north.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 3: View of the southern portion of Auburn Ravine from the McBean Park Drive bridge.
38.89018888 N°, -121.28303611 W° facing south, southwest.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 4: View of the northern portion of Auburn Ravine from the McBean Park Drive bridge.
38.89026388 N°, -121.28299444 W° facing north.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 5: View of the established wetland south of McBean Park Drive, east of Auburn Ravine. 38.88978 N°, -121.28124 W° facing southwest.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 6: View of the wetland restoration project north of McBean Park Drive, east of Auburn Ravine. 38.89051944 N°, -121.28282777 W° facing east.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 7: View of eastern drainage with standing water south of McBean Park Drive.
38.88894444 N°, -121.27633333 W° facing east.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 8: View of eastern drainage with erosion control measures north of McBean Park Drive.
38.88920833 N°, -121.27616388 W° facing east.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 9: View of drainage ditch that flows into Auburn Ravine southwest of bridge.
38.890152 N°, -121.283468 W° facing southeast.
Photograph taken by Danielle Temple on February 5, 2021.

Photograph 10: View of the northern section of Auburn Ravine with the steep western bank.
38.89046111 N°, -121.28133333 W° facing northwest.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 11: View of representative riparian habitat proposed for removal south of McBean Park Drive. 38.89008055 N°, -121.28205555 W° facing west.
Photograph taken by Sarah Yates on February 5, 2021.

Photograph 12: View of soil pit and core from the delineation of the wetland south of McBean Park Drive. 38.88973611 N°, -121.28133333 W° facing southwest.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 13: View of potential burrow/tunnel near Auburn Ravine north of the Project site. 38.89042500 N°, -121.28285000 W° facing south.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 14: View of migratory bird nest (in red) in a valley oak south of the staging area within the Action Area. 38.889664 N°, -121.281073 W° facing west, southwest.
Photograph taken by Danielle Temple on February 4, 2021.

Photograph 15: View of stick nest (in red) in a cottonwood west of Auburn Ravine within the southern Action Area. 38.89008055 N°, -121.28363611 W° facing north.
Photograph taken by Danielle Temple on February 5, 2021.

Photograph 16: View of cavity nests (in red) in a cottonwood east of Auburn Ravine, north of the Action Area. 38.89097222 N°, -121.28231944 W° facing southeast.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 17: View of remnant mud nests (in red) on the underside of the bridge over the main channel. 38.890331 N°, -121.283007 W° facing east.
Photograph taken by Danielle Temple on February 4, 2021.

Photograph 18: View of t-post at southwest location of bat acoustic monitoring and flyout survey. 38.890060 N°, -121.283181 W° facing northeast.
Photograph taken by Danielle Temple on February 4, 2021.

Appendix B Threatened and Endangered Species Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2021-SLI-0741
Event Code: 08ESMF00-2021-E-02155
Project Name: McBean Park Drive Bridge Replacement Project

January 18, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2021-SLI-0741
Event Code: 08ESMF00-2021-E-02155
Project Name: McBean Park Drive Bridge Replacement Project
Project Type: BRIDGE CONSTRUCTION / MAINTENANCE
Project Description: McBean Park Drive bridge replacement.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.9375011,-121.31250097499681,14z

Counties: California

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
El Dorado Bedstraw *Galium californicum ssp. sierrae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5209	Endangered
Layne's Butterweed *Senecio layneae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4062	Threatened
Pine Hill Ceanothus *Ceanothus roderickii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3293	Endangered
Pine Hill Flannelbush *Fremontodendron californicum ssp. decumbens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4818	Endangered
Stebbins' Morning-glory *Calystegia stebbinsii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3991	Endangered

Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* https://ecos.fws.gov/ecp/species/498#crithab	Final
Vernal Pool Tadpole Shrimp *Lepidurus packardi* https://ecos.fws.gov/ecp/species/2246#crithab	Final

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lincoln (3812183) OR Wheatland (3912114) OR Camp Far West (3912113) OR Wolf (3912112) OR Sheridan (3812184) OR Pleasant Grove (3812174) OR Roseville (3812173) OR Gold Hill (3812182) OR Rocklin (3812172))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Andrena subapasta An andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hydrochara ricksecker Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Wolffia brasiliensis Brazilian watermeal	PMLEM03020	None	None	G5	S2	2B.3

Record Count: 40

Commercial Version -- Dated February, 28 2021 -- Biogeographic Data Branch

Page 2 of 2

Report Printed on Friday, March 05, 2021

Information Expires 8/28/2021

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

Home | About the Inventory | CNPS Home | Join CNPS | Simple Search | Advanced Search

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

17 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3611987, 3611986, 3611985, 3611977, 3611976, 3611975, 3611967 3611966 and 3611965;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S2	G2
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4? T2T3
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	1B.1	S1	G1
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	2B.1	S3	G4
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	Apr-May	1B.1	S2	G2
Leptosiphon serrulatus	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	1B.1	S2	G2
Pseudobahia peirsonii	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	1B.1	S1	G1
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 02 March 2021].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

NOAA Fisheries Database Search Results

Quad Name **Lincoln**
Quad Number **38121-H3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Wheatland**
Quad Number **39121-A4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Camp Far West**
Quad Number **39121-A3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Wolf**
Quad Number **39121-A2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Sheridan**
Quad Number **38121-H4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Gold Hill**
Quad Number **38121-H2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Pleasant Grove**
Quad Number **38121-G4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Roseville**
Quad Number **38121-G3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Rocklin**
Quad Number **38121-G2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

McBean Park Drive Bridge Replacement Project

Natural Environment Study

McBean Park Drive Bridge Replacement Project
City of Lincoln, District 3
Placer County, California
FEDERAL PROJECT NO. BRLS-5089(021)
October 2022

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Natural Environment Study

McBean Park Drive Bridge Replacement Project
City of Lincoln, District 3
Placer County, California
FEDERAL PROJECT NO. BRLS-5089(021)
October 2022

STATE OF CALIFORNIA

Department of Transportation
District 3

Prepared By: _____ Date: _____

Danielle Temple, Senior Environmental Scientist
(559) 449-2400
601 Pollasky Avenue, Suite 30, Clovis, CA 93612
QK, Inc.

Prepared By: _____ Date: _____

Title
Phone Number
Office Name and address
Authorized Local Agency Representative

Recommended
for Approval By: _____ Date: _____

District Biologist:
Phone Number
Office Name
District/Region

Approved By: _____ Date: _____

District Environmental Branch Chief:
Phone Number
Office Name
District/Region

TABLE OF CONTENTS

List of Figures

List of Tables

List of Abbreviated Terms

AMSL	above mean sea level
ARDR	Aquatics Resources Delineation Report
BMP	Best Management Practice
BSA	Biological Survey Area
Cal-IPC	California Invasive Plant Inventory
Caltrans	California Department of Transportation
CARP	County Aquatic Resources Program
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	California Federal Regulations
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
DBH	diameter at breast height
DOT	Department of Transportation
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
FHWA	Federal Highway Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FP	Fully Protected
GPS	Global Positioning System
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Consultation
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act
NHD	National Hydrology Dataset
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
PCA	Placer County Authority
PCCP	Placer County Conservation Program

PFOA	perfluorooctanoic acid
PIA	Project Impact Area
QK	Quad Knopf, Inc
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Services

Summary

The City of Lincoln, Community Development Department (City), in cooperation with the California Department of Transportation (Caltrans), is proposing to replace the existing two-lane McBean Park Drive Bridge (19C0059) over Auburn Ravine near downtown Lincoln, California. The bridge currently becomes overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. Caltrans has deemed the bridge "functionally obsolete." The existing bridge, which will be removed and replaced, includes reinforced concrete girders with reinforced concrete floor beams and slab, three reinforced concrete "T"-Beams, closed-end, bin-type abutments, and the bridge pier, which consists of reinforced concrete walls founded on spread footings and piles. The existing bridge was built in 1923, widened in 1963, and includes five spans for a total length of approximately 148 feet and a width of 43 feet.

The new bridge will be longer and wider than the existing bridge to accommodate three travel lanes, two shoulders, and two sidewalks. The bridge type will be a cast-in-place, reinforced concrete slab bridge. It is presumed that cast-in-drilled hole piles will be the supporting foundation at the abutments and piers. One lane of the bridge will remain open during the construction phase of the Project to avoid road closures. Three temporary staging areas have been proposed for use throughout the duration of the Project. One staging area will be along unused portions of State Route 193 (McBean Park Drive), the second staging area will be southwest of the bridge, adjacent to the fire station, and the third staging area is located east of the bridge, south of McBean Park Drive and west of Ferrari Ranch Road.

The bridge and roadway reconstruction would be funded with Highway Bridge Program and local matching funds. The proposed Project would consist of the following activities:

- Removal of some of the constricting earthen fill prism from the floodway.
- Removal of the hydraulically inadequate and functionally obsolete (as classified in 2012 when programmed in the Highway Bridge Program) bridge.
- Construct a longer bridge.
- Replace the bridge with a wider bridge to accommodate three travel lanes, two shoulders, and two sidewalks.
- Raise the roadway and bridge profile.
- Relocate overhead power and telecommunications as well as underground electrical and telecommunication facilities. Gas pipelines may also require relocation in the westerly roadway approach.

The Project is in the Lincoln 7.5-minute United States Geological Survey quadrangle within Sections 14 and 15, Township 12 North, Range 6 East of the Mount Diablo Base and Meridian.

Purpose and Need

The five primary goals for the reconstruction of the bridge will include replacing the hydraulically inadequate existing bridge to provide reliable general and emergency vehicle access during peak storm events, establishing an enhanced river crossing, improving the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding, improving McBean Park Drive between the intersections of Ferrari Ranch Road and East Avenue to provide improved multi-modal connectivity for pedestrians, bicycles, and neighborhood electric vehicles, and maintaining traffic on McBean Park Drive during construction.

Completion of the Project would provide a safe, reliable structure, support alternative modes of transportation involving bikes, pedestrians, and neighborhood electric vehicles, and be acceptable to the community with minimal impacts to traffic and the surrounding environment.

Biological Survey Area and Potential Impact Area

The Biological Survey Area (BSA) assessed for the Project was approximately 98.14 acres. It included the footprint of the existing bridge, staging areas along unused portions of McBean Park Drive and to the south of McBean Park Drive adjacent to the Project, and a 500-foot buffer around each of these Project components. The Project Impact Area (PIA) is 11.60 acres that include the footprint of the existing bridge, staging areas, water diversion structures, rock slope protection, portions of McBean Park Drive to the west and east of the bridge, and a portion of Ferrari Ranch Road. The PIA includes areas where temporary impacts may occur, including vehicle, equipment, and materials staging and storage and placement of fencing, erosion control, and other measures to delineate Project boundaries. Quad Knopf, Inc. (dba QK) Environmental Scientists have conducted several surveys of the BSA, the most recent of which was on February 4 and 5, 2021, to develop an inventory of plant and wildlife species, characterizing vegetation associations and habitat conditions within the BSA, assessing the potential for federally- and State-listed species and other special-status plant and wildlife species to occur on and near the Project, and assessing the potential for migratory birds and raptors to nest on and near the Project.

Summary of Impacts to Sensitive Natural Communities

The BSA does not include any State- or federally-listed Sensitive Natural Communities. The Project site is located within a riparian habitat, and the BSA includes riparian with scattered valley oak (*Quercus lobata*) and a mosaic of non-native annual grassland and wetland features. Though not tracked by the California Natural Diversity Database or considered a listed community, riparian and wetland habitats can be considered sensitive. The riparian corridor that extends along Auburn Ravine includes valley oak, willows (*Salix* sp.), cottonwood (*Populus* sp.), black walnut (*Juglans nigra*), and other species characteristic of riparian habitat. Vegetation communities within the BSA include Urban (79.17 acres), Riverine (0.93 acre), Annual Grassland (1.13 acres), Aquatic Marshland Complex (7.39 acres), and Valley Foothill Riparian (9.53 acres). Temporary and permanent impacts due to Project activities will occur within Valley Foothill Riparian (0.579 acre temporary and 1.297 acres permanent), Urban (7.505 acres temporary and 1.618 acres permanent), Riverine (0.178 acre temporary and 0.0024 acre permanent), and Annual Grassland

0.225 acre temporary and 0.203 acre permanent). These impacts will be caused by the bridge widening, road approaches, water diversion, rock slope protection, staging, and grubbing.

Summary of Impacts to Trees

There is a total of 169 trees on or overhanging the site, including 65 protected trees that are four inches or greater in diameter at breast height (DBH). These trees include four blue oaks, 11 interior live oaks, and 50 valley oaks. Two of the protected trees are recommended to be removed because of poor health and/or structure. There will be 70 trees removed, 30 of which are protected trees, with 28 of those requiring compensation.

Impacts to trees will be mitigated through compensatory plantings or conservation easements. The oak trees that will not be removed will be avoided by installing exclusion fencing. A qualified biological monitor will oversee the installation of the Environmentally Sensitive Areas fencing and will ensure routine maintenance of the fencing during construction.

Summary of Impacts to Special Status Plant Species

There were 21 special-status plant species identified from database searches as potentially occurring within 10 miles of the BSA. The BSA includes potential habitat for two of these species: Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) and Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*). These two species were not observed during the biological surveys of the site. The most recent survey was conducted outside the blooming period for Ahart's dwarf rush (March to May) and Red Bluff dwarf rush (March to June). It is not likely that these species would occur within the PIA because of limited habitat. However, it is recommended that prior to construction, pre-construction surveys be conducted during the appropriate blooming periods for Ahart's dwarf rush and Red Bluff dwarf rush. If seasonal constraints for the surveys cannot be met, all rush species can be identified at a higher taxonomic level because they are perennial, and all rush species will be avoided.

Presence of Invasive Species

There were 23 invasive plant species present within the BSA. Invasive species are species that are non-native to the ecosystem into which they have invaded or been introduced and whose presence may cause economic, environmental, or human health harm. Invasive species can spread into natural ecosystems, displace native species, hybridize with native species, and alter natural communities and ecosystem processes. To prevent the introduction and spread of invasive plants in the BSA, standard avoidance and minimization measures should be implemented. Some of these measures include cleaning vehicles, tools, personal gear, clothing, and footwear prior to and after visiting the site. Only weed-free material should be imported.

Summary of Impacts to Special Status Wildlife Species

There were 33 special-status wildlife species identified from the database search that potentially occurred within 10 miles of the BSA. The BSA includes potential habitat for 18 of these wildlife species. The Central Valley steelhead (*Oncorhynchus mykiss irideus*), Central Valley spring-run

chinook salmon (*Oncorhynchus tshawytscha*), and Sacramento River winter-run chinook salmon could be present in Auburn Ravine during migrations, spawning, or rearing periods.

The western pond turtle (*Emys marmorata*) and foothill yellow-legged frog (*Rana boylii*) could be present within Auburn Ravine, primarily during dry periods or within adjacent wetlands and upland habitat. Limited habitat for the giant garter snake (*Thamnophis gigas*) could be present within the ditches and riparian habitat within the Project site. Limited nesting and foraging habitat within the grassland habitat for burrowing owl (*Athene cunicularia*) was present within the BSA. The riparian habitat present within the BSA could provide nesting habitat for western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), but it is unlikely that this species would nest and breed within the BSA. Nesting and foraging habitat for Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), grasshopper sparrow (*Ammodramus savannarum*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), the Modesto population of the song sparrow (*Melospiza melodia mailliardi*), black rail (*Laterallus jamaicensis*), and yellow warbler (*Setophaga petechia*) occurs within the BSA. Foraging and limited roosting habitat for the pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*) are present within the BSA. These species were determined to be absent from the BSA during surveys but could potentially move into the BSA prior to or during construction.

Impacts to these species will be precluded through avoidance and minimization measures. Consultations and project-specific permits should be obtained from regulatory agencies for all protected species that may be impacted by Project activities, including fish. A pre-construction survey for the western pond turtle should be conducted within 14 days of ground-disturbance activities and shall include an examination of Auburn Ravine and the two wetlands that encroach into the PIA. To reduce project-related impacts to active Swainson's hawk nests and active burrowing owl burrows and to reduce the potential for construction activities to interrupt breeding, nesting, and rearing behaviors of all birds and raptors, pre-construction surveys, protocol surveys, and establishing avoidance zones, if detected, shall be implemented prior to and during construction activities. Avoidance of potentially sensitive areas, worker environmental awareness training, installation of exclusion fencing, and other measures will be implemented.

Summary of Impacts to Raptors and Migratory Birds

Habitat within the BSA may support nesting for a wide variety of native bird species, which are protected by the Federal Migratory Bird Treaty Act and the California Fish and Game Code. There were 36 bird species, 20 inactive nests, and no active nests present during the surveys of the BSA. Pre-construction surveys should be conducted within 500 feet of the Project site if construction begins during the nesting season (February 15 to September 30). The survey should be conducted within 14 days of construction. Protocol level surveys for Swainson's hawk, black rail, tricolored blackbird, and burrowing owl will be conducted during the year of construction but before construction starts. Based on the finding of the surveys, avoidance buffers or monitoring by a qualified biologist might need to be established around active bird nests and/or colonies as described in PCCP mitigation measures.

Critical Habitat

Federally designated Critical Habitat for the Central Valley steelhead overlaps the Project. This habitat can be utilized for adult spawning, migration, juvenile rearing, and juvenile migration. Temporary Project impacts will occur within the Critical Habitat, but to minimize impacts on the Central Valley steelhead, avoidance and minimization measures including requiring a biological monitor to be present on-site during clearing and grubbing activities, implementation of construction Best Management Practices (BMPs), including erosion control measures, exclusion or construction fencing, obtaining the appropriate permits, preparing a Fish Collection and Relocation Plan, conducting in-water construction activities during a protective window for sensitive species (June 15 and October 15), maintaining water quality standards, and storing equipment and materials in staging areas away from Auburn Ravine are recommended.

Wetlands and Waters

A portion of the BSA occurs on the McBean Park Expansion Preserve, managed by the Wildlife Heritage Foundation, which is an open space preserve. The McBean Park Expansion Preserve is a 66-acre wetland that was dedicated to the City by Del Webb in fee for mitigation of the Sun City Project. It carries a perpetual conservation easement (Placer Legacy Program 2000) and is bounded by Ferrari Ranch Road to the south and east, Auburn Ravine to the north and west, Highway 65 to the west, and State Route 193 to the north. Two wetlands occur within the BSA. One is east of the bridge and to the north of McBean Park Drive, while the other is east of the bridge but south of McBean Park Drive. Both these wetlands are outside of the Project footprint and will not be directly or indirectly impacted by the Project. Auburn Ravine, a seasonal stream that connects with the Sacramento River, is the major feature within the PIA and BSA. Three manmade drainage ditches are present with the PIA. One ditch flows into Auburn Ravine west of the bridge and south of McBean Park Drive, and the other two ditches run parallel to McBean Park Drive on the east side of the PIA. These two ditches are outside the Project footprint and can be avoided by Project-related activities. Project impacts will occur within the ordinary high water of the ditch west of the bridge and south of McBean Park Drive and Auburn Ravine. The PIA encompasses approximately 0.4587 acres of water features, including the Auburn Ravine, three ditches, and two wetlands. Temporary and permanent impacts will occur to the Auburn Ravine (0.0024 acres permanently impacted and 0.178 acres temporarily impacted) and Ditch 3 (0.013 acres permanently impacted). Impacts will be mitigated by installing exclusion fencing, using BMPs, and acquiring permits listed below.

Required Permits and Consultation

The Project is within the Placer County Conservation Program (PCCP), a multi-component permitting vehicle comprised of a Habitat Conservation Plan (HCP), a Natural Communities Conservation Plan, and a County Aquatic Resource Program. This Biological Assessment was prepared to meet specific HCP requirements that are included in the PCCP. Those requirements are identified in Section 10(a)(2)(A) of the Endangered Species Act (ESA) and its implementing regulations of 50 CFR 17.22 (endangered species) and 17.32 (threatened species), and 50 CFR

222.25, 222.27, and 222.31. In addition to the permitting that will be issued under the PCCP, the Project will require the acquisition of additional permits, including:

- A Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife.
- A Section 401 Water Quality Certification from the Regional Water Quality Control Board.
- A 404 Nationwide Permit from the United States Army Corps of Engineers.

Beneficial Impacts

The new bridge constructed by the Project will improve public safety by providing a structurally sound bridge to replace the current 97-year-old bridge deemed functionally obsolete and hydraulically inadequate by Caltrans. The new three-lane bridge with standard shoulders and sidewalks will accommodate vehicles, neighborhood electric vehicles, golf carts, bicycles, and pedestrians. Raising the bridge profile will reduce adverse long-term traffic noise and visual impacts. Beneficial impacts to common and special-status species include improved habitat conditions for amphibian and reptile species, such as the western pond turtle and the foothill yellow-legged frog, by increasing shaded areas created by the new wider bridge. Two trees that are in poor condition are recommended for removal to provide improved safety and habitat conditions.

Mitigation Agreements

Mitigation for this Project will be handled under the fee schedule and avoidance and mitigation that is part of the PCCP.

Chapter 1 – Introduction

The Community Development Department of the City of Lincoln (City), in cooperation with the California Department of Transportation (Caltrans), is proposing to replace the existing two-lane McBean Park Drive Bridge (19C0059) over Auburn Ravine near downtown Lincoln, California (Figures 1 and 2). The bridge currently becomes overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. Caltrans has deemed the bridge "functionally obsolete."

1.2. Project History

The existing bridge was built in 1923, widened in 1963, and includes five spans for a total length of 148 feet and a width of 43 feet. The original bridge superstructure consists of two reinforced concrete girders with reinforced concrete floor beams and slab. The superstructure for the widened portion consists of three reinforced concrete "T"-Beams. The bridge piers consist of reinforced concrete walls founded on spread footings (original portion) and piles (widened portion). The abutments are closed-end, bin-type abutments.

1.2.1. Project Purpose and Need

Reconstruction of the bridge will replace the hydraulically inadequate bridge and improve general reliability and emergency vehicle access during peak storm events, establish an enhanced river crossing, improve the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding, and link pedestrians, bicycles, neighborhood electric vehicles, and golf cart facilities on McBean Park Drive with the intersections of Ferrari Ranch Road and East Avenue (City of Lincoln 2018).

The existing bridge is an "on-system" bridge and is hydraulically inadequate, with a history of frequent flooding events. Due to the poor integrity of the deck and superstructure, the bridge has a sufficiency rating of 58.6. Caltrans Structures Maintenance and Investigations Division's latest routine inspection report for this bridge, dated April 4, 2017, reported a moderate size vertical crack with a few edge spalls in one of the original girders in span 4, scaling and rock pockets in the floor beams of the original portion, scaling along the left overhang and the outside of girder 1 in span 1, and approximately two feet of the nose of the footings at piers 3 and 4 is exposed.

The bridge has a history of scouring issues, mostly at the upstream nose of piers 2 and 3. Large rocks and large blocks of concrete have been placed at the footings several times over the years. The channel has a history of degradation and aggradation, but in general, it has been aggrading over the recent years. The bridge becomes overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe.

Figure 1
Regional Location Map
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

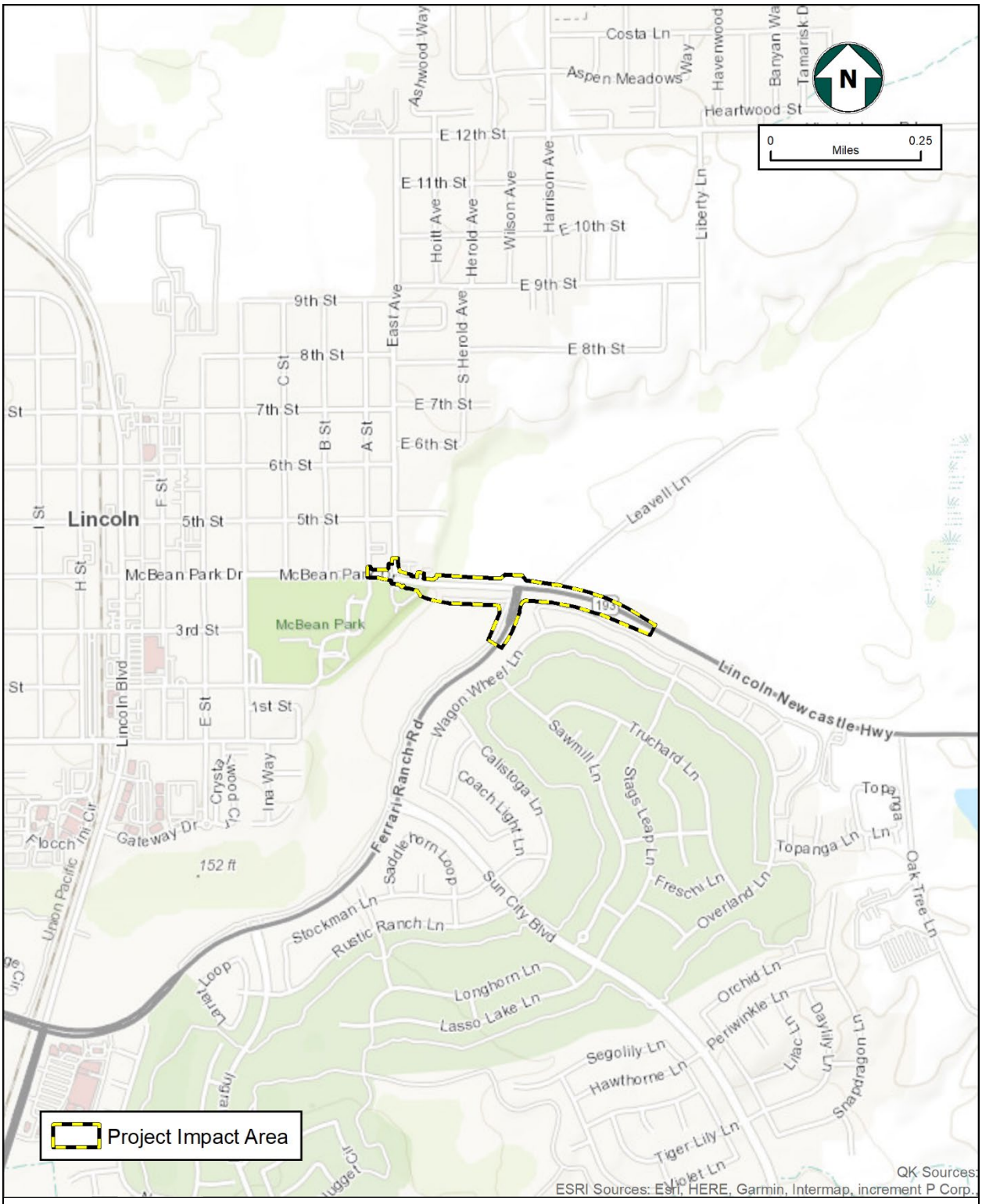


Figure 2
Vicinity Location Map
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

1.3. Project Description

The Project is at the eastern edge of the City boundary, approximately 1.5 miles east of downtown Lincoln, between commercial buildings to the west and open space to the east (Figure 3). The Project footprint includes the area occupied by the existing bridge, the replacement bridge, clear water diversion structures (dam and conveyance pipe), additional right-of-way (ROW) south and north of the existing ROW for widened road approaches, and three laydown areas (Figure 4). The banks of Auburn Ravine near the bridge will be cleared and grubbed to remove above-ground material, vegetation, non-salvageable trees, and other debris. The existing bridge, guard rail, piers, and abutments will be removed and replaced with a cast-in-place, reinforced slab girder bridge. It is presumed that cast-in-drilled hole piles will be the supporting foundation at the abutments and piers. The bridge will require pile placement, abutment construction with wingwalls, and superstructure construction, followed by construction of the bridge sidewalks and barrier rails. The new bridge will be longer and wider than the existing bridge to accommodate three travel lanes, two shoulders, and two sidewalks. Large flow events under the bridge will be accommodated by raising the roadway and bridge profile. One lane of the bridge will remain open during the construction phase of the Project to avoid road closures.

The Project will be completed in two phases to allow traffic access through the Project. One lane of the bridge will remain open during each construction phase of the Project to avoid road closures and preclude the need for a low water crossing. The first phase will involve removing the southern side of the bridge and constructing the new southern portion of the bridge while the north half of the existing bridge remains operational. Rock slope protection and/or soft armoring would be installed in front of the bridge abutments on the sloped banks to approximately 10 feet from the abutments and along the ravine invert/thalweg approximately 40 feet upstream and downstream of the bridge. Once the south portion of the new bridge has been completed, both directions of traffic will be redirected across the completed portion. During the second phase, the north side of the bridge will be removed and replaced.

The approach roadway and bridge will be raised by approximately five feet to better accommodate flooding events. Excavated soils from the Project and imported soil will be used for fill needed to elevate the roadway profile. Typical construction equipment will include backhoes, excavators, graders, dump trucks, mulchers, cranes, boom and concrete trucks, drill rig, pile drivers, forklifts, air compressors, front loaders, smooth wheeled roller, vibrating roller, asphalt paver, striping truck, cutting torch and saw, chipping gun, and jackhammer.

Overhead and underground electrical and telecommunication, as well as a natural gas line, are contained within the McBean Park Drive right-of-way, and these facilities extend across the existing bridge. Existing overhead power and telecommunications will be relocated underground along the edge of the new roadway realignment and across the new bridge. An existing underground natural gas line in the westerly roadway approach may require vertical relocation to account for the raised roadway profile over Auburn Ravine.

Figure 3
Project Impact Area
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Figure 4
Project Impact Area and Project Component Map
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

The temporary diversion of water in Auburn Ravine will be necessary to remove portions of the existing bridge and widen and construct the new bridge structure. Temporarily dewatering of the Project site and diverting ravine flows to two culvert pipes for controlled enclosed conveyance through the Project site will be necessary. A containment dam or bladder dam will be constructed within the channel banks of Auburn Ravine and will consist of pipes, sandbags filled with clean crushed rocks, and impermeable plastic sheeting. The containment dam will be established in conformance with City specifications and regulations as required by the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS). Dewatering of the Project site will be required during both phases of construction. During the interim period between Phase 1 and Phase 2, the diversion will be removed, and stream flow will be allowed to flow unrestricted.

Three staging areas will be used for the Project (see Figure 4). One staging area will be on the unused paved areas of McBean Park Drive and will not impact any habitat. The other two staging areas are south of McBean Park Drive. One is adjacent to the fire station southwest of the bridge, and the other is in riparian habitat west of the McBean Park Drive and Ferrari Ranch Road intersection. The two staging areas south of McBean Park Drive total 0.93 acres. All equipment and materials would be stored within these two staging areas. Soil excavated from the bridge work area may also be stored within any of these three staging areas. Access to the two staging areas south of McBean Park Drive and the Project site would be directly from the existing roadway, so no temporary access roads would be necessary. After Project construction is completed, the two staging areas south of McBean Park Drive will be landscaped using native vegetation.

The Project Impact Area (PIA) that was assessed for the Project included the bridge footprint, temporary construction easements and work areas, staging areas, additional right-of-way, roadway approaches, and clear water diversion (see Figure 4). The total PIA is 11.60 acres. Permanent impacted areas are identified as areas that either will not be restored to pre-Project conditions or that will be restored to pre-Project conditions eventually, but not within one year of the Project's completion. Temporary impacts are areas within the PIA that maybe impacted by Project activities, but will be restored to pre-Project conditions within one year of the Project's completion. Some areas within the PIA that contain sensitive resources will not be avoided by Project activities. Approximately 0.103 acres of aquatic resources will be permanently impacted, and 0.356 acres of aquatic resources will be temporarily impacted. Temporary impacts include the water diversion structure and all lands within the PIA where Project components will not be installed. Permanent impacts will result from the rock slope protection, the enlarged footprint of the bridge and road approaches, the realigned and widened portions of McBean Park Drive, and the widened portions of Ferrari Ranch Road (see Figure 4).

Chapter 2 – Study Methods

A review of regulatory requirements, pertinent literature, special-status species lists, and recorded occurrences of special-status species and wetlands and waters was conducted to determine sensitive biological resources that might occur within the Biological Survey Area (BSA). The BSA was examined to determine the presence or potential presence of special-status species, other sensitive biological resources, and habitat conditions that could support special-status species or other sensitive biological resources. Field surveys included an on-site biological survey, bat flyout surveys, bat acoustic monitoring, fisheries habitat assessment, and wetland and stream delineations conducted by Quad Knopf, Inc. (dba QK). A total of 169 trees within or overhanging the Project footprint were evaluated in 2015 and 2021 by Foothill Associates and Helix Environmental Consulting (Helix 2021).

2.1. Regulatory Requirements

The primary regulations affecting biological resource impacts are discussed in this section. This Project is located within the boundaries of the Placer County Conservation Program (PCCP), which is implemented through a Habitat Conservation Plan (HCP), Natural Communities Conservation Program (NCCP), and County Aquatic Resources Program (CARP). The PCCP guides public agencies whose secondary approvals may also be required (e.g., permits, financing approval, or participation agreement), which include the California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (USACE), USFWS, NMFS, Placer County, City of Lincoln, and the Central Valley Flood Protection Board (CVFPB). All wetlands, Waters of the State, and Waters of the U.S. would be subject to provisions of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act. If activities directly impact migratory birds or cause the destruction or abandonment of nests, the Project would be subject to provisions of the Migratory Bird Treaty Act (MBTA) and relevant sections of the California Fish and Game Code that protect bird nests, eggs, and nesting birds. Additional regulations could also apply to the Project. The following sections provide a summary of the applicable provisions of these regulations.

2.1.1. Federal Endangered Species Act
16 U.S.C. 35, 1531–1544

The Federal Endangered Species Act (FESA) of 1973 (USC Title 16, Sections 1531–1543) is a federal law that applies to any action that is likely to jeopardize the continued existence of designated endangered or threatened species or result in destruction or modification of critical habitat. This Act and subsequent amendments provide for the conservation of federally endangered and threatened species and the ecosystems upon which they depend. Section 7 of the Act requires federal agencies, in consultation with and with the assistance of the Secretary of the Interior or of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the Act.

Section 9 of FESA prohibits activities that result in "take" of threatened or endangered species. "Take" generally includes killing, harming, or harassing listed species. "Harm" has been further defined to include killing or injuring an individual of a listed species by significant obstruction of essential behavior patterns (e.g., breeding, feeding, or sheltering) through significant habitat modification or degradation.

Section 7 contains provisions for allowing "take" that is incidental to otherwise lawful activities. Under Section 7, a federal agency that proposes to conduct, fund, or approve a discretionary action that may result in "take" of listed species is required to consult with the United States Fish and Wildlife Service or National Marine Fisheries Service, depending upon species and jurisdictions. The result of the formal consultation is a Biological Opinion, which includes either a jeopardy or non-jeopardy decision. Included in the Biological Opinion is the possible issuance of authorization for "incidental take."

2.1.2. State Endangered Species Act
California Fish and Game Code 2050 et seq.

The California Endangered Species Act establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no State agency consultation procedures under CESA. For projects that affect both a State- and federal-listed species, compliance with the FESA may satisfy CESA if the CDFW determines that the federal incidental take authorization is "consistent" with CESA, which is referred to as a consistency determination per Fish & Game Code §2080.1. For projects that will result in a "take" of a State-only listed species (or if the CDFW determined that a federal take permit is not consistent with State requirements), the applicant must apply for an incidental take permit under Fish & Game Code §2081(b).

CESA provides protections for California-listed rare, threatened, or endangered species. Should any State-listed species be present within a project area and be subject to impacts from the project, the project proponent must apply for a 2081(b) Incidental Take Permit to the California Department of Fish and Wildlife (excluding occasions when a consistency determination applies). The resulting permit specifically defines the permitted activities and how the applicant must act to protect the affected species.

2.1.3. National Environmental Policy Act
42 U.S.C. 4321 et seq.

The National Environmental Policy Act (NEPA) requires federal agencies to assess the environmental effects of their proposed actions, document the analysis, and make this information available to the public for comment prior to implementation. Proposed actions include making federal permitting decisions, the adoption of federal land management actions, and the construction of highways and other publicly owned facilities.

2.1.4. California Environmental Quality Act
P.R.C. 21000 et seq.

The California Environmental Quality Act (CEQA) establishes the State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State, county, or local lead agencies.

The purpose of CEQA is to identify the significant effects on the environment from a project or other action and then to identify lower/no impact alternatives to a project and indicate the manner in which significant effects can be mitigated or avoided. The mechanism to ensure protection is the preparation and review of an environmental document that identifies the existing environmental conditions, describes a proposed action or project, assesses the types and significance of impacts on the environment, and identifies mitigation that would mitigate, reduce, or avoid impacts where feasible. If significant impacts cannot be mitigated, CEQA requires the lead agency to reject the project or make findings of fact and issue a statement of overriding considerations. Various responsible and trustee agencies provide a review, comments, and input into the decision-making process. Appendix G of the CEQA Guidelines identifies sensitive biological resources that must be addressed and fully analyzed, which include wetlands, sensitive natural communities, special-status plant and wildlife species, migratory corridors and nursery sites, fisheries resources, and other biological resources of local, regional, State, and federal importance.

2.1.5. Migratory Bird Treaty Act

Among other provisions, the MBTA prohibits the destruction of nests, eggs, and/or young of all designated migratory bird species. With only a few exceptions, all birds occurring within California are included in this prohibition.

2.1.6. California Fish and Game Code
Sections 1580, 1600–1616, 1900 et seq., 3503, 3513, 2800–2801, 3511, 4700, 5050, and 5515

Several sections of the California Fish and Game Code are applicable to the analysis of biological resource impacts that may be associated with the Project. The following paragraphs summarize these sections:

Section 1580

This section declares that the policy of the State is to protect threatened or endangered native plants, wildlife, and aquatic organisms and specialized habitat types, both terrestrial and non-marine aquatic, and large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves.

Sections 1600–1616

An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake without providing notification to the CDFW. This notification may result in a Lake or Streambed Alteration Agreement between the project applicant and CDFW. Activities in intermittent streams and canals or within riparian zones associated with those streams and canals may require Lake or Streambed Alteration Agreements.

Section 1900, et seq.

This portion of the Fish and Game Code is known as the "Native Plant Protection Act." The purpose of this section is to preserve, protect, and enhance endangered or rare native plants of the State. Many species and subspecies of native plants are endangered because their habitats are threatened with destruction, drastic modification, or severe curtailment, or because of commercial exploitation or by other means, or because of disease or other factors. This portion of the code designates California rare, threatened, and endangered plant taxa.

Section 3503

This section prohibits taking, possessing, or needlessly destroying the nest or eggs or any bird. Birds of prey are included in Section 3503.5.

Section 3513

California's migratory birds are protected under this section by making it unlawful to take or possess any migratory non-game bird (or any part of such bird) as designated in the MBTA.

Sections 2800–2801, 3511, 4700, 5050, and 5515

Sections 3511, 4700, 5050, and 5515 prohibit take of animals that are classified as "Fully Protected (FP)" in California. Take of FP species is specifically prohibited. Section 2800–2801, however, does permit take of FP species through the Natural Community Conservation Planning Act. Only through direct legislative action or the development of a Natural Community Conservation Plan can take of FP species occur. The Act uses conservation planning as an effective tool in protecting California's natural diversity and promoting multi-species and multi-habitat management and conservation. Its purpose is to sustain and restore those species and habitats that are identified by the CDFW as necessary to maintain the continued viability of those biological communities impacted by human changes to the landscape.

2.1.7. California Code of Regulations (CCR) Title 14 Sections 670.2, 670.5, and 15000

Sections 670.2, 670.5, and 15000

These sections list the wildlife species that are designated as threatened or endangered species in California.

CCR Section 15000 et seq.

This portion of the CCR prescribes the regulations to be followed by all local and State agencies in implementing the CEQA.

2.1.8. Clean Water Act, Sections 401 and 404

The Clean Water Act (CWA) is a federal law that protects the chemical, physical, and biological integrity of the nation's waters by preventing pollutants, providing assistance for the improvement of wastewater treatment, and maintaining the integrity of wetlands. The Environmental Protection Agency defines the CWA as a law that "...establishes the basic structure for regulating discharges of pollutants into the Waters of the United States and regulating quality standards for surface waters."

The State of California regulates water quality related to the discharge of fill material into Waters of the State pursuant to Section 401 of the CWA. Section 401 compliance is a federal mandate implemented by the State. The local Regional Water Quality Control Board (RWQCB) has jurisdiction over all those areas defined as jurisdictional under Section 404 of the CWA and regulates water quality for all Waters of the State. These waters may include isolated wetlands as defined under the California Porter-Cologne Water Quality Control Act (Porter-Cologne; Ca. Water Code, Div. 7, §13000 *et seq.*). Regulated discharges include those that can affect water quality, even if there is no significant nexus to a traditional navigable water body required for the U.S. Army Corps of Engineers (USACE) determination of jurisdiction over Waters of the U.S. A Waste Discharge Permit may be required to comply with the Porter-Cologne Water Quality Control Act, even if the CWA (including Section 401 Water Quality Certifications or Section 404 permits) would not apply.

The USACE, under Section 404 of the CWA, regulates discharges of dredged or fill material in "Waters of the United States." In addition to designated and traditional navigable waters, this term includes "waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (1) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industrial purpose by industries in interstate commerce." Tributaries to "Waters of the United States" and adjacent wetlands would also be included [33 California Federal Regulations (CFR) §328.3].

Some intermittent washes may be included in the defined “Waters of the United States,” depending on connection or nexus to navigable waters. Both wetlands and non-wetland areas can be included within the regulated area. Within non-wetlands that are classified as Waters of the U.S., the USACE maintains jurisdiction up to the “ordinary high water mark.” If wetlands are present that meet the criteria established by the USACE, the limit of jurisdiction is the ordinary high water mark or the limit of the adjacent or associated wetland, whichever is greater. If waters are determined to be under the jurisdiction of the USACE, the RWQCB would be the State permitting authority. At the discretion of the USACE, impacts to these areas could require a permit, depending on the type and size of the activity within USACE jurisdiction.

2.1.9. Executive Order 11990; Protection of Wetlands

Executive Order 11990 established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U.S. Department of Transportation (DOT) promulgated DOT Order 5660.1A in 1978 to comply with this direction. On federally funded projects, impacts on wetlands must be identified. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific Wetlands Only Practicable Alternative Finding. An additional requirement is to provide early public involvement in projects affecting wetlands. The Federal Highway Administration (FHWA) provides technical assistance (Technical Advisory 6640.8A) and reviews environmental documents for compliance.

2.1.10. Executive Order 13112; Invasive Species

Executive Order 13112, issued on February 3, 1999, established the National Invasive Species Council, tasked with acting as an interdepartmental organization to centralize efforts across agencies and political boundaries toward addressing the impacts and ongoing threats of invasive species. Implementation of this Executive Order required, among other actions, limitation or exclusion of federal funding for projects that may result in promoting the introduction or spread of invasive species. Guidelines established by the FHWA stipulate that FHWA funding will not be allocated for projects that are not in compliance with the Executive Order, and FHWA California Division will not authorize NEPA compliance in the absence of analysis of invasive species for such projects.

2.1.11. National Wild and Scenic Rivers Act

The National Wild and Scenic Rivers Act prohibits federal agencies from activities that would adversely affect the values for which a river was designated as a Wild and Scenic River. The Federal Highway Administration consults with the managing agencies during the NEPA process on projects that affect designated rivers or their immediate environments to reduce potential conflicts with wild and scenic river values that are protected by the Act.

2.1.12. National Wild and Scenic Rivers Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 was established to conserve and manage fishery resources found off the coast, as well as anadromous species and

Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

2.1.13. Regional and Local Legislation

Placer County Conservation Plan

On September 1, 2020, the Placer County Board of Supervisors adopted the PCCP under Chapter 19, Article 19.10 to the Placer County Code, which established an HCP under FESA, an NCCP under the California Natural Community Conservation Act, a CARP, and an In-Lieu Fee Program to fulfill Clean Water Act Sections 401 and 404 aquatic resources compensatory mitigation requirements. The PCCP covers approximately 201,000 acres of Western Placer County, with 50,000 to 60,000 acres set aside as permanently managed conservation areas. Most lands are within unincorporated Placer County and the City of Lincoln.

Under the PCCP, any ground-disturbance activities within the established plan area may be subject to fees and mitigation established through federal and State permitting processes. Impacts related to natural or semi-natural lands, including oak woodland, grasslands, and wetlands, may be subject to the PCCP requirements. The PCCP program is “designed to ensure that land will be managed to continue to support the survival and well-being of the Covered Species by proactively addressing the long-term conservation and development needs of the County.” Individuals seeking ground-disturbance activities within the plan area that may impact special-status species would, therefore, not be required to apply for individual Incidental Take Permits with the USFWS and CDFW because the established PCCP allows for a streamlined authorization process.

Recovery Plan for the Evolutionarily Significant Units of the Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and The Distinct Population Segment of California Central Valley Steelhead

The purpose of this Recovery Plan (NMFS 2014) is to guide the implementation of recovery of the species by resolving the threats to the species and thereby ensuring viable chinook salmon Evolutionarily Significant Units and the steelhead Distinct Population Segment. This Recovery Plan aims to remove the Sacramento River winter-run chinook salmon Evolutionarily Significant Unit, Central Valley spring-run chinook salmon (*Oncorhynchus mykiss irideus*) Evolutionarily Significant Unit, and California Central Valley steelhead (*Oncorhynchus tshawytscha*) Distinct Population Segment from the Federal List of Endangered and Threatened Wildlife (50 C.F.R. 17.11). This recovery effort has two primary objectives: (1) secure existing populations by addressing stressors; and (2) reintroduce populations into historically occupied or other suitable areas.

Auburn Ravine/Coon Creek Ecosystem Restoration Plan

The Auburn Ravine/Coon Creek Ecosystem Restoration Plan (Placer County 2002) focuses on the restoration of three major watersheds, which include Auburn Ravine, Markham Ravine, and Coon Creek. The primary goal of the Restoration Plan is to restore and protect water quality and fisheries habitat. A major emphasis will be on the protection and restoration of riparian and aquatic habitats (including anadromous and native resident species), protecting watershed integrity, improving water quality, reducing the risk of catastrophic wildfire, improving wildlife habitat, and improving the ecological functioning of the watersheds.

The City of Lincoln Municipal Code

The City of Lincoln Municipal Code (Section 18.69) states the City Council may adopt guidelines to regulate the preservation of oak trees located within the city limits. After the adoption of the guidelines, the planning commission, the City Council and/or the design review committee, as the case may be, shall utilize these guidelines in reviewing applications for projects, including but not limited to rezonings, subdivision maps, parcel maps, development permits, conditional use permits, design review board approvals, and variances and shall impose conditions of approval on such projects consistent with said guidelines.

City of Lincoln Master Fee Schedule

The City of Lincoln Master Fee Schedule requires mitigation and inspection of protected trees. Fees and mitigation requirements include the following:

- Tree (Protection and Removal)

49	Protected Tree Removal Inspection Application – 0-5 Trees	$200
50	Protected Tree Removal Inspection Application – 6+ Trees	$1,000

- In- Lieu/Mitigation Fee

65	Protected Oak Tree Removal Mitigation Fee (per trunk inch)	$150

City of Lincoln Department of Public Works Design Criteria and Procedure Manual

The City of Lincoln Department of Public Works Design Criteria and Procedure Manual (June 2004) protects native oaks based on their diameter at breast height (DBH). Existing oak trees six inches in diameter or larger are considered protected. For native oak trees, the plan shall show the protected zone and the approved protective fencing locations. Encroachments into the protected zone require tree permit approval.

City of Lincoln 2050 General Plan

On October 27, 2020, the City Council of the City of Lincoln approved Ordinance No. 1019B, which enacted Chapter 18.89 – Placer County Conservation Program of Title 18 of the City of Lincoln zoning code. The City also adopted Resolution No. 2020-174, approving the Final Environmental Impact Report and consistency findings with the City of Lincoln 2050 General Plan. This action incorporated the Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) for the PCCP within the City of Lincoln boundaries to streamline compliance with State and federal environmental laws for both public and private projects while simultaneously providing a comprehensive local program that effectively protects natural resources within the City. The PCCP outlines applicability, responsibility, land conversion authorization requirements, application process, and development fees for the purpose of mitigating impacts to open space, habitat, and species covered by the HCP/NCCP, including aquatic resources. The PCCP also outlines land dedication, wetland restoration, in-stream enhancement options, and options for in-lieu of fees and enforcement authority and authorization of take associated with impacts to aquatic resources within Placer County.

The following measures excerpted from the City of Lincoln 2050 General Plan (City of Lincoln 2008) would designate, protect, and encourage natural resources, open space, and recreation lands in the City, protect and enhance a significant system of interconnected natural habitat areas, and provide opportunities for recreation activities to meet citizen needs. (Goal OSC-1) and are recommended to be implemented to avoid and minimize impacts.

Policy OSC-1.1 Protect Natural Resources

The City shall strive to protect natural resource areas, fish and wildlife habitat areas, scenic areas, open space areas, and parks from encroachment or destruction by incompatible development.

Policy OSC-1.2 Coordinate with Placer County for Open Space Preservation

The City shall coordinate with Placer County and their Placer Legacy program to ensure City issues are incorporated into future plans.

Policy OSC-1.3 Creation of Buffers

In new development areas, the City shall encourage the use of open space, or recreational buffers between incompatible land uses.

Policy OSC-1.4 100-year Floodplains

The City will apply open space designations to all lands located within the 100-year floodway as shown on the FIRM panel or as determined by a project drainage plan and approved by the City Engineer/Director of Public Works. The City will also apply open space designations to all 100-year floodplain fringe areas and/or remaining floodplain fringe areas as determined by a project drainage plan identifying floodplain fringe encroachment areas and quantifying their impact along with other improvements to show a zero net impact to the upstream, downstream, and adjacent

properties. Open space designations will apply to all land located within a minimum of 50 feet from the center channel of all perennial and intermittent streams and creeks providing natural drainage and to areas consisting of riparian habitat. In designating these areas as open space, the City is preserving natural resources and protecting these areas from development.

Policy OSC-1.5 Protection of Minerals

The City will protect mineral resources such as groundwater, clay deposits, as well as groundwater recharge areas from urban development.

Policy OSC-1.6 Soil Erosion

The City shall require new development to implement measures that minimize soil erosion from wind and water related to construction. Measures may include but not be limited to the following:

- Grading requirements that limit grading to the amount necessary to provide stable areas for structural foundations, street rights-of-way, parking facilities, or other intended uses.

- Construction techniques that utilize site preparation, grading, and best management practices that provide erosion and sediment control to prevent construction-related contaminants from leaving development sites and polluting local waterways.

Policy OSC-1.7 Soil Erosion and Site Planning

The City shall require all development to minimize soil erosion by maintaining compatible land uses, suitable building designs, and appropriate construction techniques. Contour grading, where appropriate, and revegetation shall be required to mitigate the appearance of engineered slopes and to control erosion.

The following measures excerpted from the City of Lincoln 2050 General Plan (City of Lincoln 2008) would preserve and enhance local streams, creeks, and aquifers (Goal OSC-4) and are recommended to be implemented to avoid and minimize impacts.

Policy OSC-4.1 Identify and Protect Aquifers

The City will protect local aquifers and water recharge areas.

Policy OSC-4.2 Develop Groundwater Management Plan

The City shall develop and periodically update a groundwater management plan to protect local aquifers.

Policy OSC-4.3 Protect Surface Water and Groundwater

The City shall ensure that new development projects do not degrade surface water and groundwater.

Policy OSC-4.4 Protection and Management of Floodplains

The City shall encourage the protection of 100-year floodplains and, where appropriate, obtain public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access, and recreation.

Policy OSC-4.5 Use of Reclaimed Water

The City shall encourage the use of reclaimed water, in place of treated potable water, for landscaping and other suitable applications.

Policy OSC-4.6 Best Management Practices

The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect surface water and groundwater from the adverse effects of construction activities and urban runoff. Additionally, the City shall require, as part of its Storm Water NPDES Permit and ordinances, to implement the Pollution Prevention Plan (SWPPP) during construction activities for any improvement projects, new development, and redevelopment projects for reducing pollutants to the maximum extent practicable.

Policy OSC-4.7 Landscape Irrigation

The City shall explore the possibility of using reclaimed water to irrigate new commercial developments and new areas with large landscape areas. In areas where reclaimed water can be provided in the future, the City shall require landscape irrigation to be installed so that the system could be used with reclaimed water. The City shall also explore the use of industrial process water for landscape irrigation, provided that it meets City standards for irrigation.

The following measures excerpted from the City of Lincoln 2050 General Plan (City of Lincoln 2008) would preserve and protect existing biological resources, including both wildlife and vegetative habitat (Goal OSC-5), and are recommended to be implemented to avoid and minimize impacts.

Policy OSC-5.1 Protect Significant Vegetation

The City shall support the preservation of heritage oaks and threatened or endangered vegetative habitat from destruction. A heritage oak shall be defined as a tree with a diameter of 36 inches measured at a point 4.5 feet above grade level (i.e., diameter at breast height or DBH).

Policy OSC-5.2 Management of Wetlands

The City shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats. Such communities shall be restored or expanded, where possible and as appropriate.

Policy OSC-5.3 Placer Legacy Open Space and Conservation Program

The City will continue to coordinate with Placer County and the Placer Legacy Open Space and Conservation Program to protect habitat areas that support endangered species and other special-status species.

Policy OSC-5.4 Encourage Planting of Native Vegetation

The City shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation, and ensure that a maximum number and variety of well-adapted plants are maintained.

Policy OSC-5.5 New Development in Sensitive Areas

The City shall require that new development in areas that are known to have particular value for biological resources be carefully planned and, where possible, avoided so that the value of existing sensitive vegetation and wildlife habitat can be maintained.

Policy OSC-5.6 No Net Loss of Wetlands

The City will maintain a policy of no net loss of wetlands on a project-by-project basis, which may include an entire specific plan area. For the purpose of identifying such wetlands, the City will accept a map that delineates wetlands that have been accepted by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act of 1972. The term “no net loss” may include mitigation implemented through participation in an off-site mitigation bank or similar mitigation mechanism acceptable to the City and permitting agencies.

Policy OSC-5.7 404 Permit Requirements

The City may require project proponents to obtain 404 permits and prepare mitigation plans for or provide for the avoidance, preservation, and maintenance of identified wetlands prior to submitting applications for land use entitlements.

Policy OSC-5.8 Corps of Engineers Disclaimers

The City may, but need not, accept a Corps of Engineers disclaimer of any jurisdiction over the project of a Corps of Engineers 404 permit as the City’s own plan for the achievement of a project’s no net loss of wetlands.

Policy OSC-5.9 Wetlands Dedication

All preserved wetlands shall be dedicated to the City or a non-profit organization acceptable to the City and preserved through perpetual covenants enforceable by the City or other appropriate agencies to ensure their maintenance and survival. With respect to areas dedicated to the City, acceptance shall be conditioned upon the establishment of a lighting and landscaping district or other public or private funding mechanisms acceptable to the City.

Policy OSC-5.10 Native Vegetation for Landscaping

The City shall develop a list of native vegetation to be used as a landscape pallet for use within open space / preserve areas. Native plants should also be incorporated into plant palettes used in developed areas by citizens and developers.

Policy OSC-5.11 Requirement for Biological Studies

Prior to project (i.e., specific plan or individual project) approval, the City shall require a biological study to be prepared by a qualified biologist for any proposed development within areas that contain a moderate to high potential for sensitive habitat. As appropriate, the study shall include the following activities: (1) inventory species listed in the California Native Plant Society Manual of California Vegetation, (2) inventory species identified by the USFWS and CDFG, (3) inventory special status species listed in the California Natural Diversity Database (CNDDB), and (4) field survey of the project site by a qualified biologist.

Policy OSC-5.12 Appropriate Mitigation Measures

The City shall consider using appropriate mitigation measures for future projects (i.e., specific plans or individual projects) based on mitigation standards or protocols adopted by the applicable statute or agency (e.g., USFWS, CDFG, etc.) with jurisdiction over any affected sensitive habitats or special status species.

Policy OSC-5.13 Minimize Lighting Impacts

The City shall ensure that lighting in residential areas and along roadways shall be designed to prevent artificial lighting from reflecting into adjacent natural or open space areas.

2.2. Studies Required

The methods used to evaluate the biological resources within the Project and determine potential impacts to those resources caused by the Project activities included:

- Searching existing databases to obtain existing information of the site and surrounding area.
- Conducting biological surveys to characterize vegetation associations and habitat conditions present within the BSA.
- Collecting an inventory of plant and wildlife species, including raptor and nest surveys within the BSA.
- Assessing the potential for special-status species to occur on or near the BSA.
- Identifying potential wetlands, Waters of the State, and Waters of the United States to obtain information on the presence of waters within the BSA.

- Identifying, measuring, and mapping riparian trees using Environmental Systems Research Institute (ESRI) Collector for ArcGIS software installed on an iPad tethered to an EOS Arrow Global Positioning System (GPS) unit with sub-meter accuracy.

2.2.1. Literature Search

A review of the literature and agency databases to obtain information on the potential occurrences of natural communities and special-status species on and adjacent to the Project site was conducted within the *Lincoln* United States Geological Survey (USGS) 7.5-minute topographical quadrangle where the Project site is located, as well as the eight surrounding quadrangles. These include the *Wheatland, Camp Far West, Wolf, Sheridan, Pleasant Grove, Roseville, Gold Hill, and Rocklin* quadrangles.

A query of the CNDDB was conducted to generate a list of sensitive natural vegetation communities and plant and wildlife species of concern in the Project vicinity (CDFW 2021a). A query of the California Native Plant Society's (CNPS) Electronic Inventory was conducted to provide information on additional plant species of concern that may occur on the Project site and surrounding vicinity (CNPS 2021). In addition, a species list was obtained from the USFWS website for the same quadrangles to provide information on federally protected special-status species that have the potential to occur near the Project site (USFWS 2021a). Wildlife species designated as "Fully Protected" by California Fish and Game Code Sections 5050 (Fully Protected reptiles and amphibians), 3511 (Fully Protected birds), 5515 (Fully Protected fish), and 4700 (Fully Protected mammals) are also included in this list. All species listed as federally and State threatened or endangered, State species of special concern, State fully protected species, and CNPS sensitive species were evaluated. The potential for each species to occur on the Project site or on adjacent lands was evaluated based on the findings obtained during the site investigations. A review of the USFWS Threatened and Endangered Species Critical Habitat database was conducted to provide information on critical habitat designation (USFWS 2021b). A query of the National Oceanic and Atmospheric Administration (NOAA) database indicated that the PIA is within an area that is under the jurisdiction of NOAA (NOAA 2021).

A query of the USFWS National Wetlands Inventory (NWI) Map was reviewed to determine the occurrence of known wetlands in the project vicinity (USFWS 2021c). Regional hydrologic information was obtained from National Hydrography Dataset (NHD) to evaluate the potential occurrence of blueline drainages within the Project area (USGS 2021). Federal Emergency Management Agency (FEMA) flood zone databases were reviewed (FEMA 2021). Information on soils was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS) database (NRCS 2021a; NRCS 2021b).

2.2.2. Field Reviews and Biological Study Area

The BSA that was assessed for the Project includes all areas that could potentially be temporarily or permanently impacted by the Project, plus a 500-foot buffer to accommodate any changes to Project limits and Project design that may occur (Figure 5). The BSA assessed for the Project

Figure 5
Biological Survey Area
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

was 98.14 acres, including the footprint of the McBean Park Drive Bridge (19C0059), McBean Park Drive/State Route (SR) 193 east and west roadway approaches, staging areas, and a 500-foot buffer around each of these Project components. It includes habitat north and south of the McBean Bridge along the Auburn Ravine riparian corridor and habitat along McBean Park Drive. Residential and commercial areas of the City of Lincoln are within the west and southeast areas of the BSA.

2.2.3. Survey Methods

Biological surveys were conducted by QK Environmental Scientists to identify vegetative communities that occur on the site, to evaluate the site for the presence or absence of special-status species, and to evaluate the presence of other sensitive or important biological resources. The initial survey was conducted in March 2015, and follow-up surveys were conducted in January 2019 and February 2021 to verify documented site conditions. All areas within the BSA were surveyed by walking transects at approximately 50-foot intervals, which provided 100 percent visual coverage. Surveys included a 500-foot buffer around portions of the PIA that adjoined more natural communities such as riparian corridors and annual grassland habitat. "Windshield" surveys for raptor nests were conducted up to 0.5 miles from the Project footprint during the 2015 surveying efforts. A 50-foot survey buffer was examined around the PIA for the presence of wetlands, and delineations of the Auburn Ravine were conducted 100 feet upstream and downstream of the McBean Park Drive Bridge. The fish habitat assessment was conducted 600 feet downstream from the bridge and 400 feet upstream from the bridge.

Foothill Associates conducted an arborist survey in March 2015. During this survey, all riparian trees and oak trees within 50 feet of the Project footprint that measured greater than four inches in diameter at breast height (DBH) were mapped and measured. In March 2021, an additional arborist survey was conducted by Helix Environmental Planning to identify and inventory trees on or overhanging the current Project footprint, riparian trees potentially subject to CDFW jurisdiction, and other landscaping trees. Existing tree data was utilized from the 2015 tree survey conducted by Foothill Associates, and tag numbers from the 2015 report were utilized to update tree data. A subset of approximately 10 percent of the trees surveyed in 2015 was re-examined to confirm applicable trunk size and identify other changes to update findings for 2021. The PCCP (2020) classifies Valley Oak Woodland Natural Community as greater than 1 acre of forested habitat that has a canopy cover that consists of greater than 30 percent Valley oak. Because the total forested area within the BSA did not comprise greater than 1 acre of continuous forested habitat, an approach to evaluate if Valley Oak Woodland was located with the BSA was established through coordination with the PCA biologist. To assess if Valley Oak Woodland was present on the BSA, the forest community throughout the PIA was split into two units; one located on the eastern bank of the Auburn Ravine, and the other located on the western bank of the Auburn Ravine. The driplines of each Valley oak were overlaid onto the forested communities within each unit, and analyzed in ArcGIS to see if Valley oak made up greater than 30 percent of the total canopy cover.

Potential Waters of the U.S. (including wetlands) were delineated by QK Environmental Scientists in March 2015 with a Trimble GeoXH GPS. Follow-up surveys were conducted in January 2019 and February 2021 to verify and document any new conditions using ESRI Collector for ArcGIS software installed on an iPad tethered to an EOS Arrow GPS unit with sub-meter accuracy. All

water features, including the ordinary high water mark (OHWM) of Auburn Ravine, wetlands, and drainage ditches, were mapped within the PIA and surrounding 50-foot buffer. All observed wetland and water features were delineated using standard methods described in both the *1987 Army Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the most recent version of the *Arid West Regional Supplement Version 2.0* (USACE 2008a). Plant identification was determined using the *Jepson Manual: Vascular Plants of California of Higher Plants* (Baldwin et al. 2012). The wetland indicator status of each plant species was determined using *The National Wetland Plant List: 2016 wetland ratings* (Lichvar et al. 2016). The hydrologic soil and vegetative data recorded at the sample points were transcribed onto USACE Arid West Region Wetland Determination Data Forms. For non-wetland aquatic features, including the Auburn Ravine and drainages, the OHWM was delineated using methodologies and diagnostic characteristics in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b).

A fishery resource biological assessment was conducted in August 2014 by A. A. Rich and Associates, Fisheries and Ecological Consultants, to assess fishery habitat conditions in Auburn Ravine and survey for sensitive fish species. A field verification survey and update to the original 2014 findings was conducted by QK Principal Environmental Scientist in February 2021. Both site examinations were conducted within Auburn Ravine 600 feet south of the bridge and 400 feet north of the bridge. Six stream reaches of approximately 200 feet in length were examined. Three stream reaches below the bridge, one shorter stream reach at the bridge, and two stream reaches upstream of the bridge were examined. In 2021, current stream characteristics information was gathered, and current photographs of each stream reach were taken (Appendix B).

In August 2017, QK Environmental Scientists conducted a visual assessment of the existing bridge, a “flyout” survey to visually detect individual bats emerging from the bridge to forage, and an acoustic monitoring survey to identify the bats roosting at the bridge and the general level of bat activity. During the visual assessment, the underside of the bridge deck was examined from ground level. All expansion joints, crevices, beam walls, and the ground were searched for roosting bats and evidence of bat occupancy (i.e., guano deposits, urine and body staining, vocalizations, and odor) using unaided eyes and ears, a high-powered flashlight, and binoculars. Following the daytime assessment, the biologists conducted a “flyout” survey to visually detect individual bats emerging from the bridge to forage. The “flyout” survey was conducted from dusk (19:50) until darkness obscured visibility (approximately 20:30). Once bats began leaving (rather than circling beneath the bridge), the biologists visually counted them using handheld tally counters. This reduced the likelihood of double counting the same bats and provided a rough estimate of roost size. Due to the large colony of bats that were present and the difficulty of tracking individual bats, groups of 20 bats (estimated) were counted (i.e., one click of a tally counter per 20 bats observed) and tallied.

An acoustic monitoring survey was conducted at four sampling points to allow for uniform coverage of the entire bridge and coverage of potential flyways or foraging and drinking habitat for bats. Each acoustic monitoring unit included an auto-triggering D240x Pettersson Elektronik time expansion bat detector and either a Zoom© H2 or H2n digital player/recorder, which allowed for the automatic recording of each bat call as a separate audio file. All bat detectors were

elevated approximately four feet above ground to reduce surface echoes and to avoid thermal layering, or near-ground air convection currents, both of which can distort ultrasound signals. The bat detectors and recorders were secured to an upright T-post with the microphone of the bat detectors placed at the top of the post. Once installed, the units were tested to ensure they were functioning properly. The units were activated at dusk and recorded bat calls until 22:00 to 22:30. All recorded audio files were downloaded to a computer and analyzed using SonoBat software, version 4.2.1 US West, with automated species classification.

In February 2021, QK Environmental Scientists conducted verification of bat surveys, including a visual assessment of the existing bridge, a "flyout" survey to detect individual bats emerging from the bridge, and acoustic monitoring at the bridge. QK Environmental Scientists followed the same procedures for the visual assessment, "flyout" survey, and acoustic monitoring that was conducted in 2017. The "flyout" survey was conducted from dusk (17:30) until darkness obscured visibility (approximately 18:15). Acoustic monitoring survey was conducted at four sampling points, and each monitoring unit included an auto-triggering D240x Pettersson Elektronik time expansion bat detector and a Zoom© H2n digital player/recorder. The acoustic monitoring units were activated at dusk and recorded bat calls until 19:15 to 19:45. All recorded audio files were downloaded to a computer and analyzed using SonoBat software, version 4.4.5 US West, with automated species classification.

All areas within the BSA, including potential temporary and permanent impact areas, staging areas, and buffer distances from the PIA, were surveyed on foot and evaluated for their potential to support sensitive biological resources. Inventory of vegetation communities, plant species, and observations of wildlife species and sign (e.g., scat, tracks, prey remains, burrows, nests, etc.) were also recorded during surveys. All riparian areas with the PIA and surrounding 50-foot buffer were mapped using ESRI Collector for ArcGIS software installed on an iPad tethered to an EOS Arrow GPS unit with sub-meter accuracy.

2.2.4. Personnel and Survey Dates

Field studies included biological surveys, fishery habitat assessments, aquatic resources delineation surveys, bat surveys, and tree surveys. The entire BSA was examined during most survey efforts, although in some cases, the examinations were focused on smaller areas (e.g., the bat surveys were conducted at the bridge only). The following biological surveys were conducted:

August 15, 2014: A fishery survey was conducted to assess fishery resources and habitat conditions within Auburn Ravine. This survey was conducted by A. A. Rich and Associates, Fisheries and Ecological Consultant.

March 5 and 6, 2015: A biological survey and delineation of potential wetlands and Waters of the U.S. were conducted within the entire BSA. The delineation was conducted by Tyler Schade, QK Environmental Scientist.

March 10, 2015: An arborist survey was conducted within the Project footprint. This survey was conducted by Kirk Vail, Foothill Associates ISA-Certified Arborist.

Augusts 16, 2017: A visual assessment of the existing bridge, “flyout” survey, and acoustic monitoring survey were conducted at the bridge. These surveys were conducted by Theresa Brickley and Tyler Schade, QK Environmental Scientists.

September 7, 2017: Bat audio files analysis and bat species classification were conducted by Martina Pernicano and Theresa Brickley, QK Environmental Scientists.

January 11, 2019: A supplemental site visit was conducted to verify previous survey findings and to evaluate existing conditions within the BSA. This supplemental site visit was conducted by Dylan Ayers, QK Environmental Scientist.

February 4 and 5, 2021: A supplemental site visit was conducted to verify previous survey findings and evaluate existing conditions, and delineation of all water features within the BSA. These delineations were conducted by Julie Hausknecht, Sarah Yates, Lisa Sandoval, and Danielle Temple, QK Environmental Scientists.

February 4, 2021: A supplemental visual assessment of the existing bridge, a “flyout” survey, and an acoustic monitoring survey were conducted at the bridge. These surveys were conducted by Julie Hausknecht, Sarah Yates, Lisa Sandoval, and Danielle Temple, QK Environmental Scientists.

February 5, 2021: A verification fishery survey was conducted to assess fishery resource and habitat conditions within Auburn Ravine. This survey was conducted by Curtis Uptain, QK Principal Environmental Scientist.

February 17, 2021: Bat audio files analysis and bat species classification conducted by Martina Pernicano and Danielle Temple, QK Environmental Scientists.

March 23 and 24, 2021: An arborist survey was conducted within the Project footprint. This survey was conducted by Marisa Brilts, Helix Environmental Planning ISA-Certified Arborist.

2.3. Agency Coordination and Professional Contacts

There has been initial contact with the Placer County Authority (PCA), USACE, and CDFW to begin the permitting process through the PCCP HCP/NCCP framework. Consultation with the agencies will be completed by a combination of QK, Caltrans, the City of Lincoln, and the PCA. Permits through the RWQCB and approvals through USFWS and NOAA will be obtained through the PCCP. Permits issued by CDFW and USACE will be obtained separately from the PCCP, but the applications will meet the requirements of the PCCP and should be streamlined by the PCCP issuance. Coordination will need to occur with the following agencies:

- The Western Placer County PCCP/CARP Authorization Application Form will be submitted to the PCA.

- Central Valley Water Board Western Placer County Habitat Conservation Program/Natural Communities Conservation Plan Programmatic General Permit–Notice of Intent.

- A Notification of Lake and Streambed Alteration Agreement and requisite permit application, processing fee, and final environmental documents will be submitted to the CDFW. In addition, the CDFW will be consulted to discuss potential impacts to sensitive species.

- USACE has reviewed the Aquatics Resources Delineation Report (ARDR) and associated documents, and on August 17, 2022, a Preliminary Jurisdiction Determination concurring with the ARDR was issued (USACE reference number SPK-2022-00381, QK 2022a). Because the Project is within the PCCP, the Project has been issued the Western Placer County HCP/NCCP Programmatic General Permit 18 USACE to comply with 404 permitting. This permit is pending compliance with Section 106/Tribal Consultation.

- In accordance with the FESA, the USFWS and NMFS/NOAA will be consulted to discuss potential impacts to federally-listed species.

2.4. Limitations That May Influence Results

Biological surveys were conducted during fall in August 2014, the early spring in March 2015 and 2018, and late winter in January 2019 and January 2021. The period when those surveys were completed was outside of the blooming period of several plant species, and the presence of one special-status plant species could not be evaluated. In addition, other plants occurring within riparian vegetation were unable to be keyed out to species due to a lack of identifiable flowering parts; as such, species such as cottonwood (*Populus* sp.), elm (*Ulmus* sp.), willow (*Salix* sp.), rush (*Juncus* sp.), some sedge (*Carex* sp.), and other herbaceous species were only identified to genus.

The 2019 and 2021 surveys were conducted outside the migratory bird and raptor breeding and nesting season, which typically occurs between February 15 and September 30. Various species of migratory birds will construct nests in a variety of habitats and structures, and nests may be constructed in trees or shrubs, manmade structures, and directly on the ground. Because the BSA supports several types of habitats suitable for nesting birds, it is likely that birds will nest within the BSA. Surveys were conducted during a time when weather conditions were clear and sunny, and there was available access to the BSA; poor weather conditions or access restrictions did not bias the results of the surveys.

No comprehensive, long-term fish studies have been conducted within this reach of the Auburn Ravine. Only a few days of visual site assessments and limited habitat assessments were conducted. Much of the on-site evaluation relied on previously recorded information from various sources.

Chapter 3 – Results: Environmental Setting

3.1. Description of Existing Biological and Physical Conditions

The Project is in the Sacramento Valley floristic province, with an average elevation of 170 feet above mean sea level (AMSL), at the east edge of the City of Lincoln in Placer County, California. It is within the USGS quadrangle of Lincoln, in the northwest quarter of Section 14, Township 12 North, Range 06 East, Mount Diablo Base & Meridian. The BSA extends into Section 15 of the same Township and Range. The BSA is bordered on the north, south, and portions of the east by open space, which includes riparian habitat, stands of trees, and grassland habitat. The BSA is bordered on the west by commercial development and bordered to the east of Ferrari Ranch Road by existing and future residential development (see Figure 5).

3.1.1. Study Area

The BSA consists of the PIA and a 500-foot buffer, which encompasses the McBean Park Drive Bridge (19C0059), McBean Park Drive/SR 193 east and west roadway approaches, staging areas, habitat located north and south of McBean Park Drive, commercial and residential areas in the west, and residential areas in the southeast (see Figure 5). Open space parks occur within the BSA along Auburn Ravine. The BSA includes all areas that could be temporarily and permanently impacted by the Project.

Parcels within and adjacent to the BSA include private, commercial, City, and County owned. The Project includes existing ROW, private land to the north, public land to the south and west, and additional ROW south on Ferrari Ranch Road. An easement consisting of an open space preserve is located south of the Project site and within the BSA. The McBean Park Expansion Preserve was created in 2004 for on-site mitigation of residential development, which impacted wetlands and Waters of the U.S. (City of Lincoln 2004; Placer County 2020). The McBean Park Expansion Preserve is approximately 66 acres and includes created wetlands, wetland marshes, and enhanced emergent vegetation and streams.

3.1.2. Physical Conditions

Topographical Features

The BSA is at an elevation of approximately 170 feet AMSL (Figure 6). The area within the BSA tends to slope slightly from higher elevations in the northeast to the southwest, as evidenced by water flows within Auburn Ravine. Topography is slightly undulating within the BSA, with created wetland areas contributing to that undulation. McBean Park Drive is elevated above the surrounding landscape, especially where it crosses over Auburn Ravine.

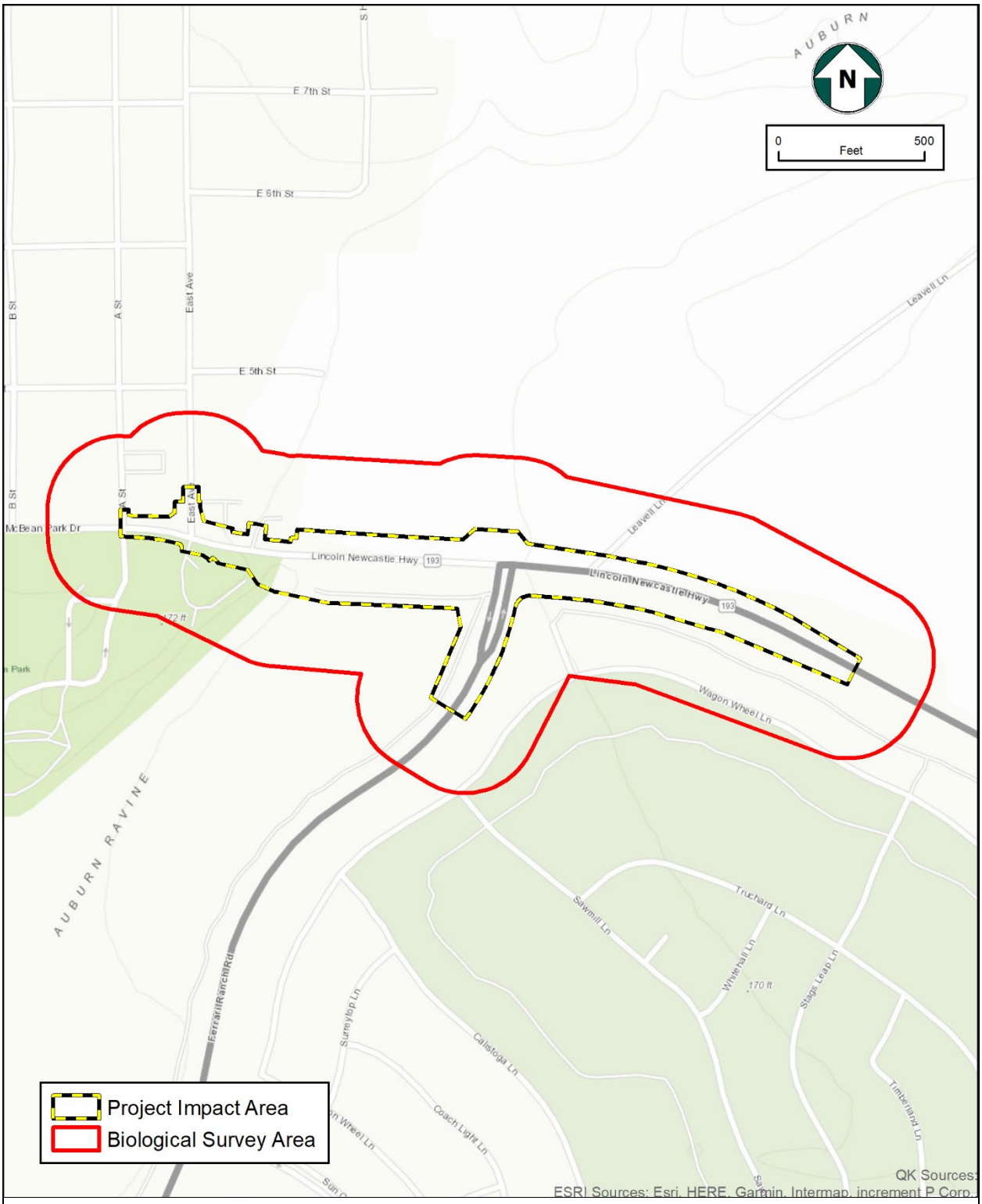


Figure 6
Topography within the Biological Survey Area
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Soils and Geology

The BSA is underlain by five soil types: San Joaquin sandy loam, Ramona sandy loam, Cometa-Ramona sandy loams, Xerofluvents, and Xerorthents (Figure 7).

The San Joaquin series consists of well and moderately well-drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources and is moderately deep to a duripan (NRCS 2021a). This soil type occurs on undulating low terraces with slopes of 0 to 9 percent. San Joaquin soils are on hummocky, nearly level to undulating terraces at elevations of about 20 to 500 feet. Some areas have been leveled. They formed in alluvium from mixed but mainly granitic rock sources. The climate is dry with hot, dry summers and cool, moist, and foggy winters. These soils are well and moderately well drained. Some areas are subject to rare or occasional flooding. It is used for cropland and livestock grazing. This is a hydric soil (NRCS 2021b).

The Ramona series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs (NRCS 2021a). The Ramona soils are nearly level to moderately steep. They are on terraces and fans at elevations of 250 to 3,500 feet. They formed in alluvium, derived mostly from granitic and related rock sources. The climate is dry subhumid mesothermal with warm, dry summers and cool, moist winters. Mean annual precipitation is 10 to 20 inches. Used mostly for the production of grain, grain-hay, pasture, irrigated citrus, olives (*Olea europaea*), truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, forbs, chamise, or chaparral. This is a hydric soil (NRCS 2021b).

The Cometa soil series consists of moderately deep and moderately to well-drained soils (NRCS 2021a). These soils formed in alluvium derived from granitic rock sources. These soils occur on gently sloping, slightly dissected older stream terraces. They have very slow permeability and slow to medium runoff. This soil type is used for growing rice (*Oryza sativa*), vineyards, orchards, and dry-farmed grain. Vegetation consisting of annual grasses, forbs, and weedy species grow in uncultivated areas of this soil type. This soil is hydric (NRCS 2021b).

Xerofluvents and Xerorthents are groups consisting of Entisols, which exhibit little to no soil horizon development (NRCS 2021a). Some Entisols have steep, actively eroding slopes, and others are on floodplains. This is due to repeated inundation and deposition of alluvial materials. These soils are typically found in valleys or river systems. This soil type is hydric (NRCS 2021b).

Hydrological Resources

The National Wetlands Inventory (NWI) and National Hydrologic Dataset (NHD; Figure 8) list the Auburn Ravine as an intermittent Riverine system, but because of nearly year-long flows, it is more likely a semi-perennial or seasonal stream. The Auburn Ravine carries natural flows generated by fall/winter rainfall events and augmented flows generated from irrigation water from other sources, such as the Middle Fork American River and snowmelt from the Sierra Nevada to the east. The water in the ravine flows from north to south and ultimately into the Sacramento River. Winter flow peaks of Auburn Ravine can range from a few hundred cubic feet

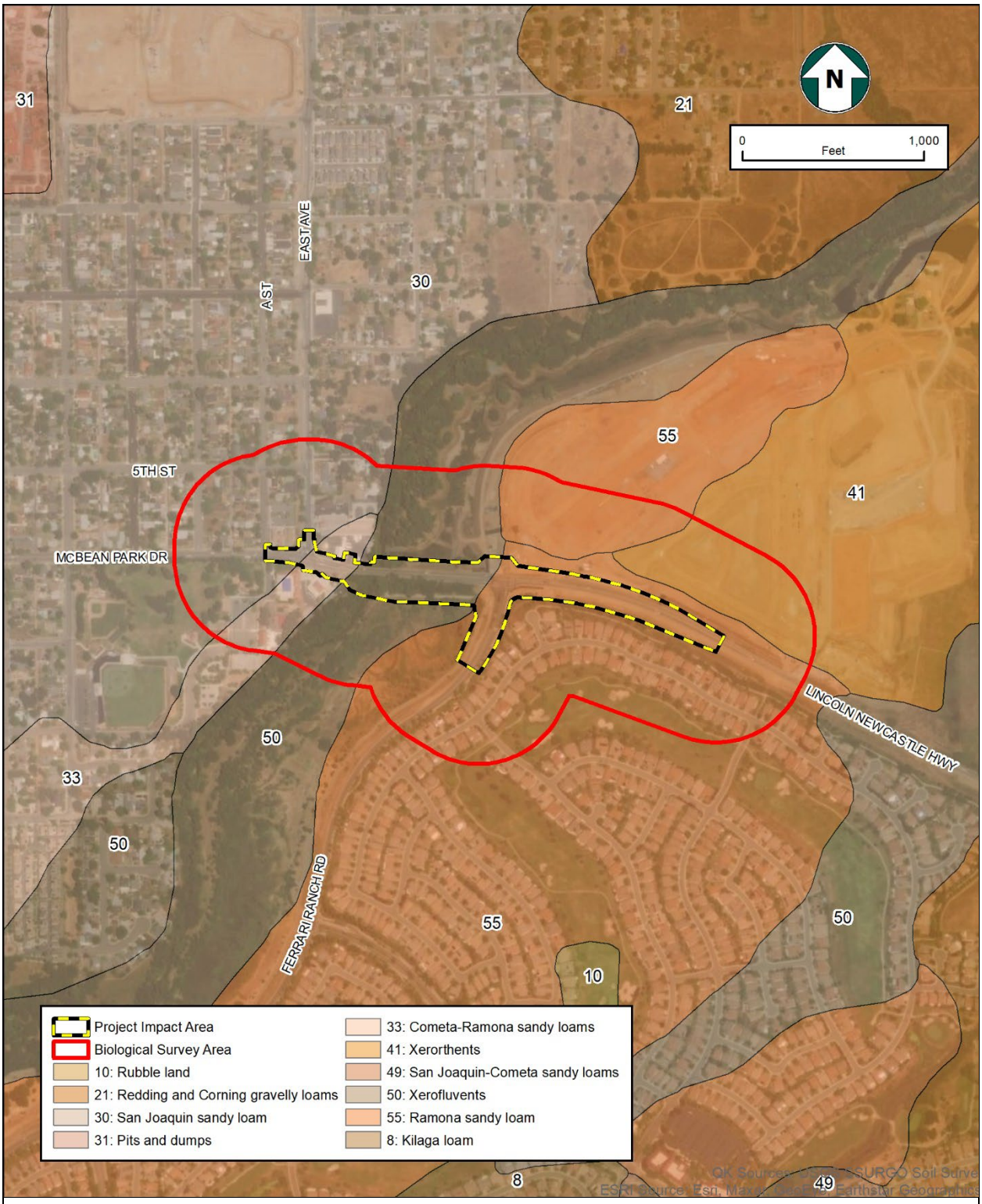


Figure 7
Soils within the Biological Survey Area
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

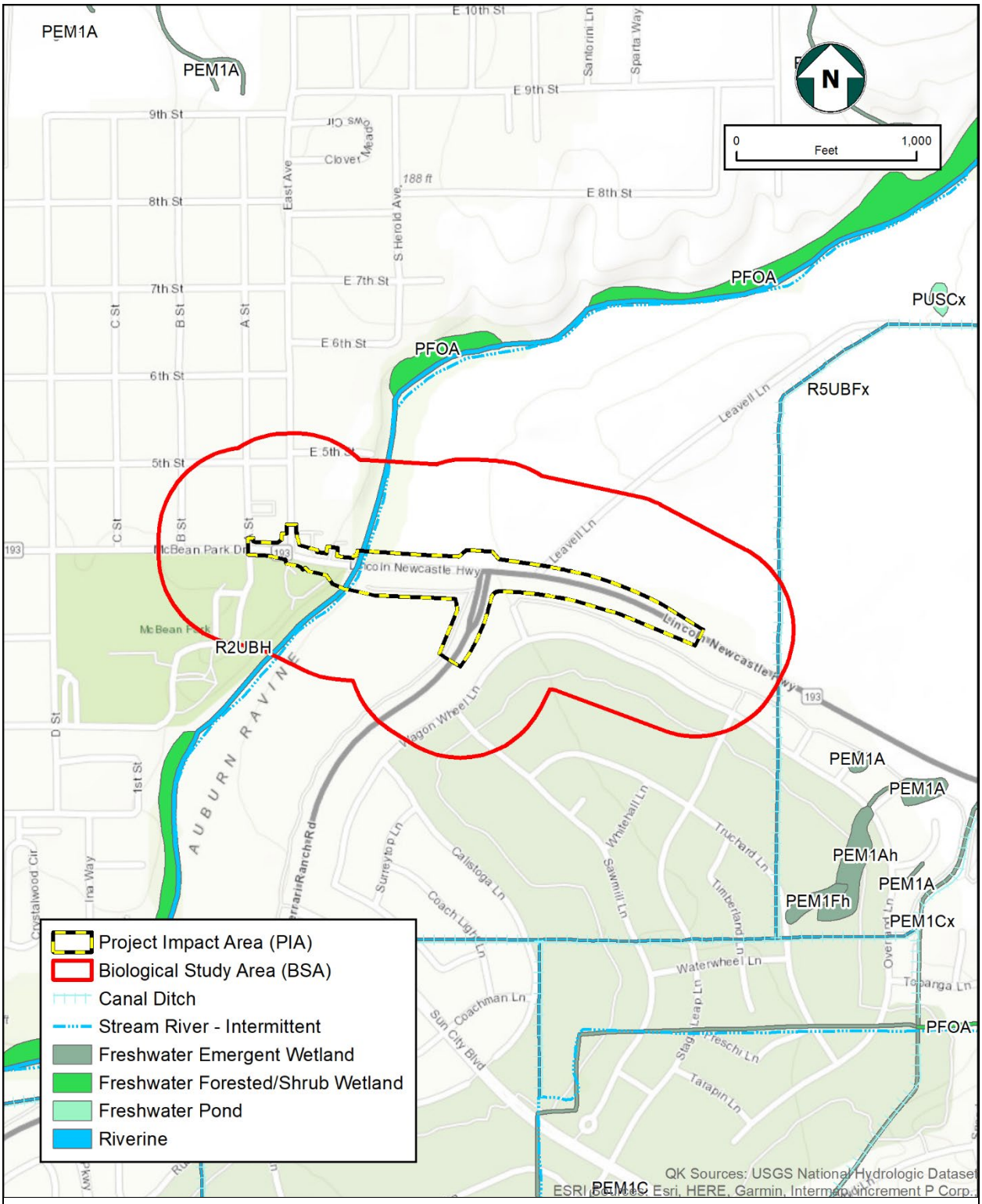


Figure 8
NWI and NHD Aquatic Resources within the Biological Survey Area
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

per second (cfs) to an estimated 100-year flow event exceeding 17,000 cfs (Placer County 2002). During dry periods, parts of Auburn Ravine may be dry or have flows as low as 1 to 2 cfs with only a few inches of water in the stream (Placer County 2002).

The NHD depicts one blue-line drainage documented as an intermittent stream river occurring within the PIA (USGS 2021; Figure 8). This blue-line drainage is the Auburn Ravine. The NWI database reports one water feature documented as riverine within the PIA (USFWS 2021c; see Figure 8). This water feature is the Auburn Ravine. The NHD and NWI refer to Auburn Ravine as intermittent or riverine, but because a few inches to zero flow can occur within parts of the stream during dry periods, Auburn Ravine at the location of the Project is, in reality, a semi-perennial or seasonal water feature.

There is one record of an R5UBFx feature in the east portion of the BSA. This feature is described as an unknown perennial riverine system with an unconsolidated bottom that is semi-permanently flooded and has been excavated by humans. The nearest records are for Freshwater Forested/Shrub Wetland (PFOA), which occurs outside of the BSA, approximately 858 feet north and 1,170 feet south of the Project, and the freshwater emergent wetland (PEM1A, PEM1Ah, and PEM1Fh) records, which occurs approximately 1,085 feet to the southeast of the Project (see Figure 8). The BSA, except for the most western and eastern portions along McBean Park Drive, occurs within a regulatory floodway (Figure 9). That regulatory floodway follows the Auburn Ravine and extends to the east of Auburn Ravine and the north and south of McBean Park Drive (see Figure 9). Most of the northern and southern portion of the BSA is within a 1 percent annual chance of flood hazard (see Figure 9). A small portion of the BSA located northwest and northeast of the PIA occurs within a 0.2 percent annual chance of flood hazard. The entire BSA is within minimal flood hazard (see Figure 9).

During the 2021 surveys, Auburn Ravine, two wetlands, and three drainage ditches were present within a 50-foot buffer around the PIA (Figure 10). Auburn Ravine is the major feature occurring on the west side of the PIA and BSA. Auburn Ravine originates north of the Project and crosses the Project in a north-south direction, and continues flowing southwest, eventually flowing into the Sacramento River. Auburn Ravine is a seasonal stream with a dense riparian corridor and occasionally steep banks. Small areas of both wetlands are within the PIA. The first wetland is east of the bridge but south of McBean Park Drive. The second wetland is fully established and is present within the protected McBean Park Expansion Preserve. The second wetland is east of the bridge and north of McBean Park Drive. This wetland is currently in the process of being enhanced. It is lined with small boulders and contains little mature vegetation other than clusters of unidentifiable desiccated vegetation. A manmade rocky berm separates this wetland from Auburn Ravine, but the berm has slightly eroded away to allow water from the wetland to flow into Auburn Ravine. Three manmade intermittently wet drainage ditches are present within the PIA. The first ditch is north of McBean Park Drive, east of the bridge. This ditch consisted of little to no vegetation and was mainly used for erosion control measures, including straw wattles and jute matting, and some areas had standing water. The second ditch is south of McBean Park Drive, east of the bridge. This ditch consisted of dense ruderal vegetation with areas of flowing water. On the western section of this ditch, water was being diverted through a PVC pipe and the ditch

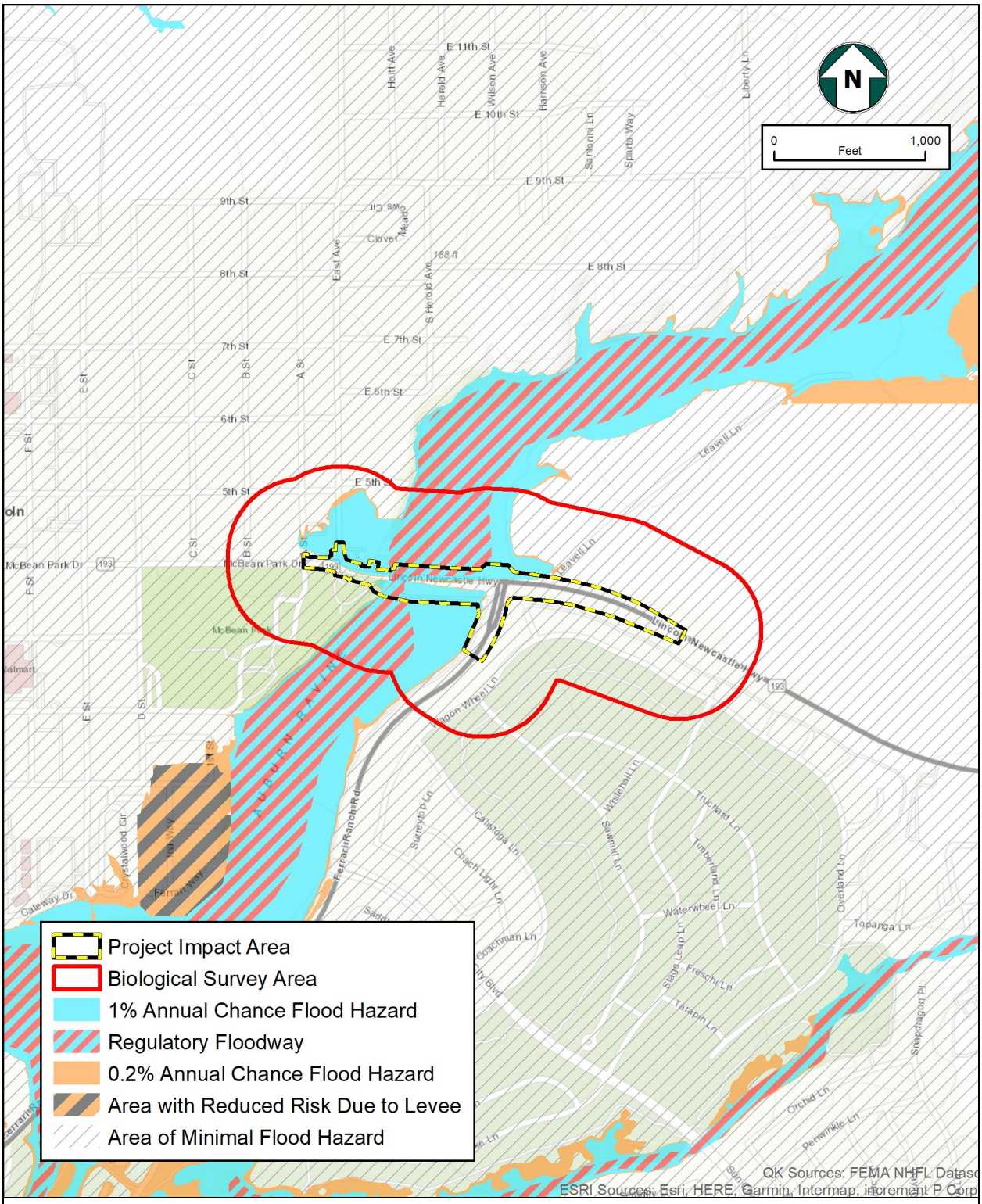


Figure 9
Flood Zones within the Biological Survey Area
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

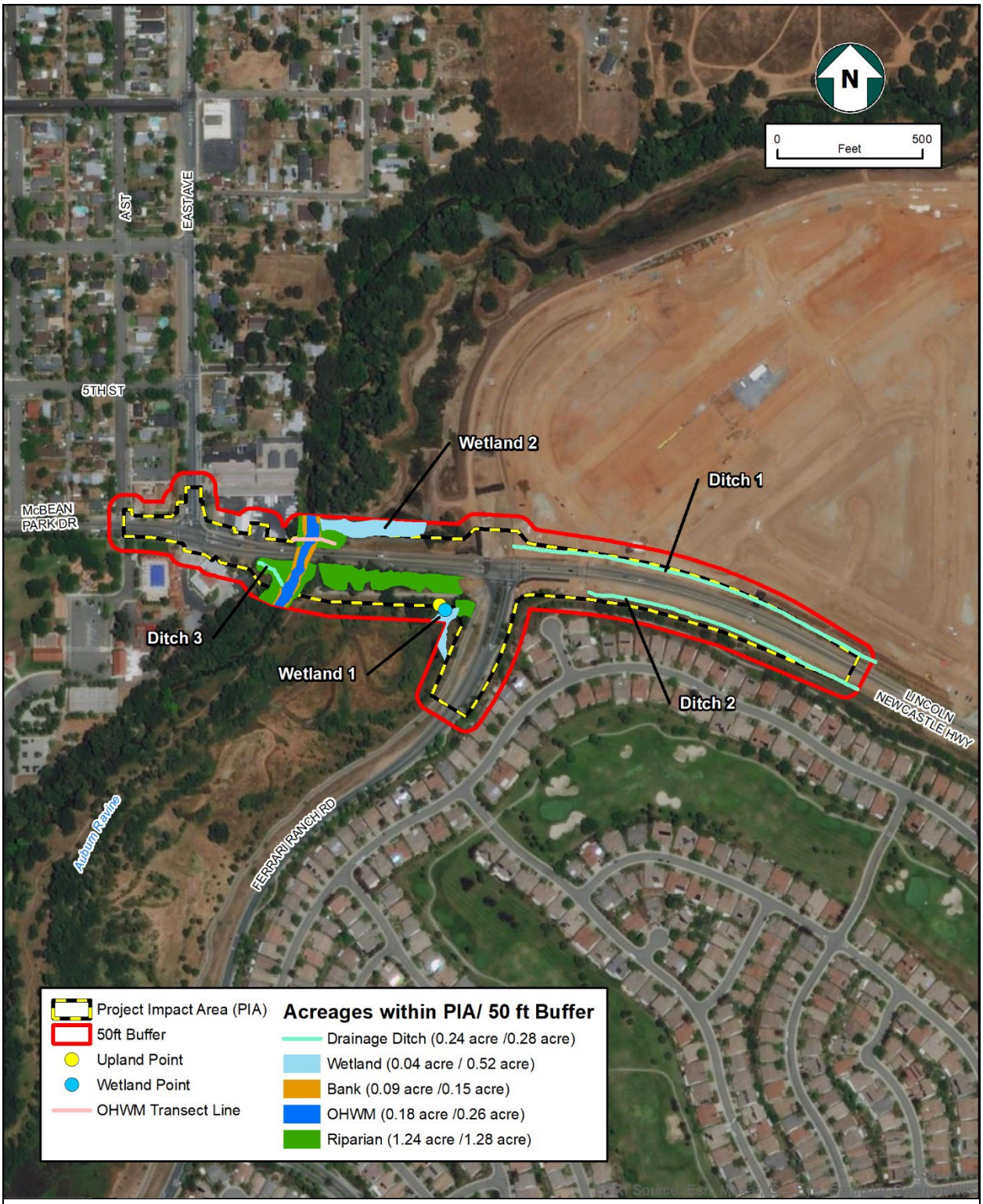


Figure 10
Delineated Aquatic Resources within the Project Impact Area and Buffer
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

was mostly dry. The third ditch flows from a drainage culvert under McBean Park Drive into Auburn Ravine west of the bridge and south of McBean Park Drive. At the time of the survey, this ditch consisted of low-flowing water and was surrounded by riparian vegetation.

3.1.3. Biological Conditions Within the Biological Study Area

Natural Communities

The database and literature review identified four sensitive plant communities within 10 miles of the Project (CDFW 2021a), which included Alkali Meadow, Alkali Seep, Northern Hardpan Vernal Pool, and Northern Volcanic Mud Flow Vernal Pool. No sensitive plant community occurs within the BSA.

Vegetation Communities

There were five vegetation communities occurring within the BSA, including Valley Foothill Riparian, Aquatic Marshland Complex, Urban, Riverine, and Annual Grassland. Areas south of McBean Park Drive are mostly a mixture of Valley Foothill Riparian and Annual Grassland habitats (Figures 11 and 12). Canopy cover of Valley oak did not reach or exceed thirty percent in the PIA., so the only forested community within the PIA was Valley Foothill Riparian. Temporary and permanent impacts due to Project activities are anticipated to occur to all vegetation communities, except for Aquatic Marshland Complex (Table 1).

- Valley Foothill Riparian

Mayer and Laudenslayer (1988) describe Valley Foothill Riparian as a mostly winter deciduous tree-dominated community consisting of primarily winter deciduous riparian trees providing 20 to 80 percent cover, a subcanopy tree layer, an understory shrub layer, and about one percent herbaceous vegetation. The dominant species in the canopy layer are cottonwood, California sycamore (*Platanus racemosa*), and valley oak. Subcanopy trees typically include white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), and Oregon ash (*Fraxinus latifolia*). Typical understory shrub and herbaceous layers consist of wild grape (*Vitis* spp.), wild rose (*Rosa* spp.), California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), buttonbrush (*Cephalanthus occidentalis*), willows, sedges (*Carex* sp.), rushes (*Juncus* sp.), grasses, miner's lettuce (*Claytonia perfoliata*), mugwort (*Artemisia douglasiana*), poison hemlock (*Conium maculatum*), and stinging nettle (*Urtica dioica*). Valley Foothill Riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife, many of which are permanent residents, while others are transient or temporal visitors. At least 50 amphibians and reptiles, 55 mammal species, and over 140 bird species are known to use riparian communities.

This habitat is generally associated with low velocity flows, flood plains, and gentle topography. Valleys provide deep alluvial soils and a high water table. The substrate is coarse, gravelly, or rocky soils more or less permanently moist but probably well aerated. Valley Foothill Riparian habitats occur in the Central Valley and the lower foothills of the Cascade, Sierra Nevada, and Coast ranges, in the lower slopes of the Peninsular and Transverse ranges, and in a few locations

of lower elevation on the desert side of the Southern California mountains. They range in elevation from sea level to 3,000 and sometimes occur as high as 5,000 on south-facing slopes.

Much of the BSA is Valley Foothill Riparian habitat, approximately 6.29 acres. Valley Foothill Riparian is directly south and north of McBean Park Drive and east and west of Auburn Ravine (see Figures 11 and 12). Habitat that was defined as bank in the ARDR is classified as Valley Foothill Riparian because the PCCP does not classify bank as a habitat type. This community is comprised of scattered stands of riparian trees consisting of Fremont cottonwood (*Populus fremontii*), valley oak, black walnut (*Juglans nigra*), blue oak (*Q. douglasii*), and Oregon ash. The understory is comprised of patches of species commonly associated with Annual Grassland habitats including wild oat (*Avena fatua*), sweet fennel (*Foeniculum vulgare*), ripgut brome, redstem filaree, common groundsel (*Senecio vulgaris*), cutleaf geranium, turkey mullein (*Croton setigerus*), Italian ryegrass, winter vetch (*Vicia villosa*), miner's lettuce, Bermuda grass, and medusahead (*Elymus caput-medusae*). Ruderal vegetation such as medusahead, foxtail barley, little quaking grass (*Briza minor*), rose clover (*Trifolium hirtum*), cutleaf geranium, Italian ryegrass, redstem filaree, mustard, and milk thistle, dominated vegetation along the roadside (including the roadside ditches) and in other disturbed areas (see Table 2).

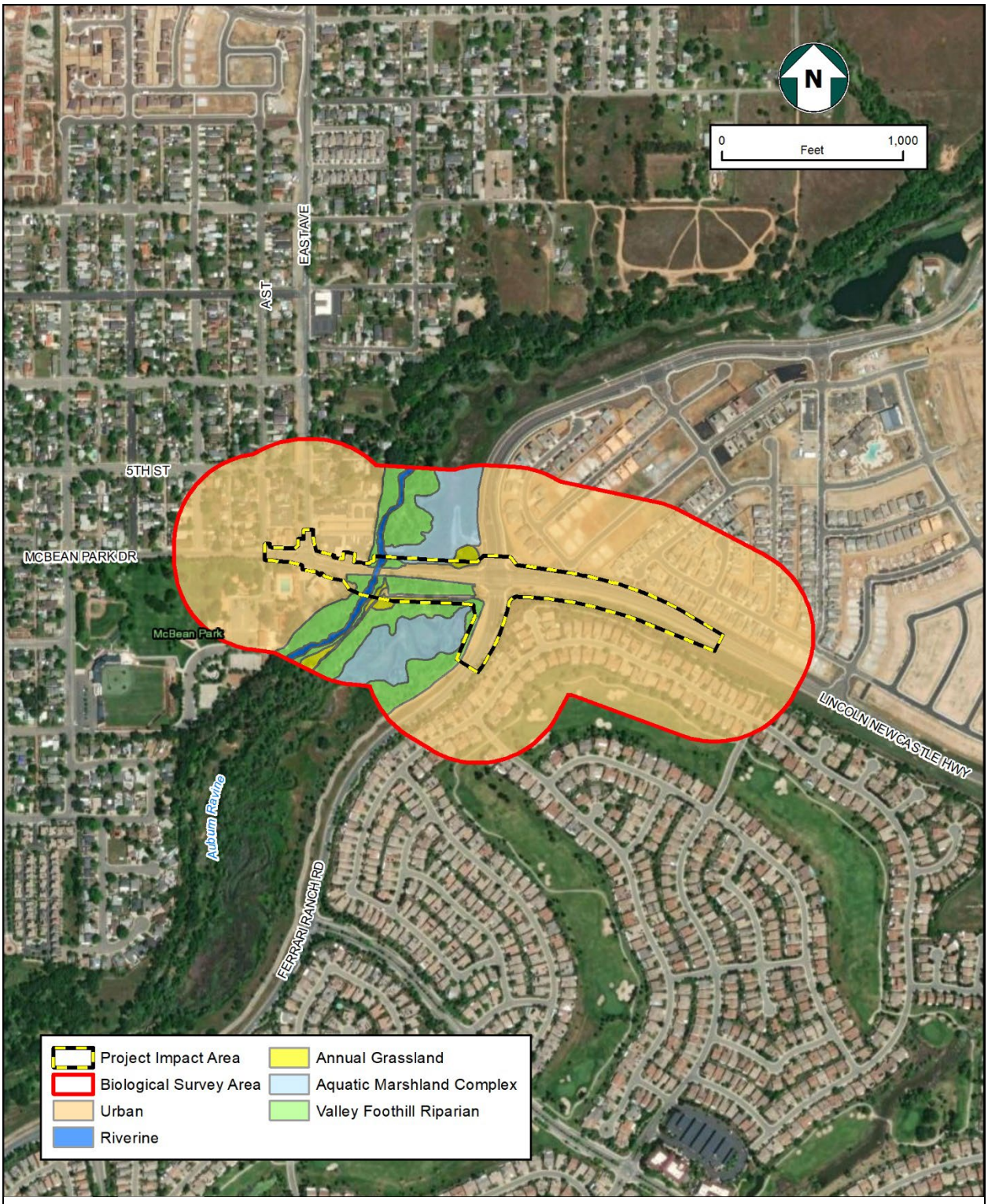


Figure 11
Vegetation Communities within the Biological Survey Area,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Figure 12
Vegetation Communities and Temporary and Permanent Impacts within the Project Impact Area,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Table 1
Temporary and Permanent Impacts to Aquatic Resources and Upland Habitats
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Natural Community	Temporary Impacts (acre)	Permanent Impacts (acre)
Urban	7.505	1.617
Riverine	0.178	0.0024
Annual Grassland	0.225	0.203
Aquatic Marshland Complex	0	0
Valley Foothill Riparian	0.579	1.297

- Aquatic Marshland Complex

The PCCP (2020) describes Aquatic Marshland Complex as a community that is characterized by erect, rooted herbaceous hydrophytes that are rooted in soils and permanently or seasonally inundated. Dominant vegetation generally consists of perennial monocots up to 6.6 feet tall, which may include sedges, rushes, cattail (*Typha* spp.), and arrowhead (*Syngonium podophyllum*). Aquatic Marshland Complex provide food, cover, and water for more than 160 species of birds, and numerous mammals, reptiles, and amphibians. Many species rely on Aquatic Marshland Complex for their entire life cycle. The endangered Santa Cruz long-toed salamander (*Ambystoma macrodactylum*) and rare black toad (*Bufo exsul*) require pond water for breeding, while the rare giant garter snake (*Thamnophis gigas*) uses these wetlands as its primary habitat. The endangered Aleutian Canada goose (*Branta hutchinsii leucopareia*), bald eagle (*Haliaeetus leucocephalus*), and peregrine falcon (*Falco peregrinus*) use Aquatic Marshland Complex as feeding areas and nesting sites. This habitat occurs in a variety of exposures and slopes provided saturation or periodically flooding occurs in a basin or depression. Soils are predominantly silt and clay, although coarser sediments and organic material may be intermixed, and Aquatic Marshland Complex occur at all elevations but are typically below 7,500 feet.

Aquatic Marshland Complex occurs in approximately 7.39 acres of the BSA, which are south and north of McBean Park Drive east of Auburn Ravine. There is a wetland to the south of McBean Park Drive that is an established protected wetland. There is a wetland to the north of McBean Park Drive that is currently in the process of being enhanced (see Figure 10). A section of this wetland is located within the PIA, but it was determined that it could be avoided by Project activities, and no temporary or permanent impacts will occur to this wetland (see Figure 12 and Table 1). Common plants in the Aquatic Marshland Complex habitat of the BSA include common cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), valley sedge (*Carex barbarae*), rushes, rabbitsfoot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*). The Pacific treefrog (*Pseudacris regilla*) was also present within the wetland areas.

- Urban

Mayer and Laudenslayer (1988) describe Urban as a developed habitat with five types of vegetative structures, including tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Common in city parks, green belts, and cemeteries, tree groves vary in height, tree spacing, crown

shape, and understory conditions depending on species planted and landscape design. Street tree strips show variation in the spacing of trees, depending upon species and design considerations, and are typically planted in grass. Shade trees/lawns are typical of residential areas and reminiscent of natural savannas. Lawns are structurally the most uniform vegetative units of the Urban habitat, and shrub cover, including hedges, is more limited in distribution. Species composition in Urban habitats varies with planting design, and climate and monoculture are commonly observed in tree groves and street tree strips. Three urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. Downtown has the lowest diversity, comprised of over 90 percent avian density and biomass, including rock dove (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Wildlife species that use Urban areas include scrub jay (*Aphelocoma* sp.), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and California slender salamander (*Batrachoseps attenuatus*). Wrentit (*Chamaea fasciata*), bushtit (*Psaltriparus minimus*), plain (oak) titmouse (*Baeolophus inornatus*), chestnut-backed chickadee (*Poecile rufescens*), California quail (*Callipepla californica*), black-tailed deer (*Odocoileus hemionus*), ringtail (*Bassariscus astutus*), black-tailed jackrabbit (*Lepus californicus*), gopher snake (*Pituophis catenifer*), and western fence lizard (*Sceloporus occidentalis*) typically occur in suburban areas. Urban habitat is the result of modifying pre-settlement vegetation and introducing new species. They are not limited to any particular physical setting and occur throughout California.

Much of the BSA, approximately 79.17 acres, is Urban habitat, which includes paved roads, existing residential areas and residential development on the east of the BSA, commercial and residential areas, and a public park to the west of Auburn Ravine (see Figures 11 and 12). The PIA consists of existing paved roads and sidewalks, and soft shoulders with drainages containing mostly ruderal vegetation. The residential and commercial areas and the public park within the BSA consist of a variety of ornamental plant species. Common plants in the Urban habitat within the BSA include ripgut brome (*Bromus diandrus*), redstem filaree (*Erodium cicutarium*), yellow starthistle (*Centaurea solstitialis*), Bermuda grass (*Cynodon dactylon*), magnolia (*Magnolia grandiflora*), iris (*Iris* sp.), rosemary (*Salvia rosmarinus*), and other ornamental and ruderal shrubs and trees.

- Riverine

Mayer and Laudenslayer (1988) describe Riverine as intermittent or continually running water that distinguishes rivers and streams originating from an elevated source such as a spring or lake and flows downward at a rate relative to the slope. Some streams and pools can be warm, cold, deep, shallow, swirl or churn, and have slow or high-velocity waters. They occur in association with many terrestrial habitats. Riparian habitats could be found adjacent to many rivers and streams as well as lacustrine and Aquatic Marshland Complex habitats. Depending on the temperature and speed of the water, it could contain various wildlife species. Fast flowing areas of streams or rivers and quiet pools could be inhabited by nymphs of mayflies (*Ephemeroptera*), caddisflies (*Tr*ichoptera), stoneflies (*Plecoptera*), as well as dragonflies (*Anisoptera*), damselflies (*Zygoptera*), and water striders (*Hemiptera*). Open waters of large rivers and near shore waters provide resting, cover, and food for many species of waterfowl, as well as shorebirds, herons,

flycatchers, gulls, swallows, swifts, osprey (*Pandion haliaetus*), bald eagle, belted kingfisher (*Megaceryle alcyon*), and American dipper (*Cinclus mexicanus*). The more common mammals that may use Riverine habitat include river otter (*Lontra canadensis*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*). Many streams at some time experience very low flow and nearly dry up, and some even dry up seasonally every year. The constant swirling and churning of high-velocity water over riffles and falls result in greater contact with the atmosphere and high oxygen content. In polluted waters, deep holes, or low velocity flows, dissolved oxygen is lower. Riverine habitat occurs statewide, mostly between sea level and 8,000 feet.

The Riverine habitat within the BSA is limited to Auburn Ravine, which is approximately 0.93 acres (see Figures 11 and 12). Because of the swift-moving flow within the main channel, little to no vegetation was present within the ravine and mostly consisted of a sandy and gravelly creek bed. Two areas on the north side of the bridge and a small area south of the bridge near the eastern bank of Auburn Ravine consisted of areas of slow flow consisting of very little moss and algae growth.

- Annual Grassland

Mayer and Laudenslayer (1988) describe Annual Grassland as composed primarily of annual plant species, many of which occur as understory plants in valley oak woodland and other habitats. It is dominated by introduced annual grasses that include wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), red brome (*B. madritensis* ssp. *rubens*), wild barley (*Hordeum spontaneum*), and foxtail fescue (*Vulpia myuros*). Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Species associated with this community include western fence lizard, common garter snake (*Thamnophis sirtalis*), rattlesnake (*Crotalus* sp.), burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), black-tailed jackrabbit, California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), badger (*Taxidea taxus*), coyote (*Canis latrans*), and San Joaquin kit fox (*Vulpes macrotis mutica*). This habitat also provides important foraging habitat for the turkey vulture (*Cathartes aura*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), prairie falcon (*F. mexicanus*), and black-shouldered kite (*Elanus axillaris*). Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Common soil orders include Entisols and Alfisols. This habitat occurs in various sized patches throughout the State.

Limited Annual Grassland habitat is present within the BSA. Approximately 1.13 acres of Annual Grassland habitat is present within the BSA near the Aquatic Marshland Complex south of McBean Park Drive and east of Auburn Ravine. Small sections of Annual Grassland are also present along the west side of Ferrari Ranch Road and north of the residential area in the eastern section of the BSA (see Figures 11 and 12). Common plants in the Urban habitat of the BSA include ripgut brome (*Bromus diandrus*), redstem filaree (*Erodium cicutarium*), foxtail barley

(*Hordeum murinum* ssp. *leporinum*), deergrass (*Muhlenbergia rigens*), cutleaf geranium (*Geranium dissectum*), and Italian ryegrass (*Festuca perennis*).

Common Plant Species

Ninety-four common plant species were found within and near the BSA. Riparian vegetation within the BSA includes valley oak, Pacific willow (*Salix lucida*), sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), black cottonwood, Fremont's cottonwood, black walnut, Himalayan blackberry, mugwort (*Artemisia douglasiana*), Oregon ash, box elder, common cattail, deergrass, bracken fern (*Pteridium aquilinum*), white alder, and curly dock. A stand of black cottonwood trees occurs within the BSA to the north of the Project site, east of Auburn Ravine. Herbaceous vegetation near the OHWM of Auburn Ravine included sedge, tall flatsedge, rush, mint (*Mentha* spp.), water smartweed (*Polygonum amphibium*), and Himalayan blackberry (Table 2).

Vegetation within the non-native annual grassland community included winter vetch (*Vicia villosa*), miner's lettuce, mustard (*Brassica* sp.), yellow starthistle, redstem filaree, ripgut brome, wild oat, Bermuda grass, and medusahead (*Elymus caput-medusae*). Ruderal vegetation such as medusahead, foxtail barley, little quaking grass (*Briza minor*), rose clover (*Trifolium hirtum*), sweet fennel, cutleaf geranium, Italian ryegrass, redstem filaree, mustard, and milk thistle, dominated vegetation along the roadside (including the roadside ditches) and in other disturbed areas (see Table 2).

Table 2
Plant Species Observed
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Scientific Name	Common Name
Acer negundo	boxelder maple
Alnus rhombifolia	white alder
Ambrosia artemisiifolia	common ragweed
Artemisia douglasiana	California mugwort
Arum italicum	Italian lords and ladies
Asteraceae	unknown aster
Avena fatua	wild oat
Azolla filiculoides	mosquito fern
Baccharis pilularis	coyote brush
Brassica spp.	mustard
Briza minor	little quaking grass
Bromus diandrus	ripgut brome
Capsella bursa-pastoris	Shepherd's purse
Carex barbarae	valley sedge
Carex sp.	sedge
Catalpa speciosa	northern catalpa
Ceanothus cuneatus	buck brush
Centaurea solstitialis	yellow starthistle
Claytonia perfoliata	miner's lettuce
Conium maculatum	poison hemlock
Coreopsis tinctoria	golden tickseed
Cortaderia selloana	pampas grass
Croton setigerus	turkey mullein
Cynodon dactylon	Bermuda grass
Cyperus eragrostis	tall flatsedge
Daucus carota	wild carrot
Digitaria sanguinalis	hairy crabgrass
Dittrichia graveolens	stinkwort
Elymus caput-medusae	medusahead
Elymus glaucus	blue wildrye
Equisetum laevigatum	smooth horsetail
Eriogonum baileyi	Bailey buckwheat
Erodium cicutarium	red stemmed filaree
Festuca perennis	Italian ryegrass
Foeniculum vulgare	sweet fennel
Frangula californica	California coffeeberry
Fraxinus latifolia	Oregon ash
Geranium dissectum	cutleaf geranium

Scientific Name	Common Name
Hedera helix	English ivy
Hirschfeldia incana	short-podded mustard
Hordeum murinum ssp. *leporinum*	foxtail barley
Hordeum spp.	foxtail
Hydrocotyle sp.	pennywort
Iris sp.	iris
Juglans californica var. *hindsii*	northern California black walnut
Juglans nigra	black walnut
Juncus drummondii	Drummond's rush
Juncus sp.	rush
Lactuca serriola	prickly lettuce
Ligustrum lucidum	glossy privet
Magnolia grandiflora	magnolia
Marrubium vulgare	white horehound
Mentha spp.	mint
Morus alba	white mulberry
Muhlenbergia rigens	deergrass
Paspalum dilatatum	Dallisgrass
Persicaria amphibia	water smartweed
Phacelia imbricata	imbricate phacelia
Phalaris arundinacea	reed canarygrass
Phyllostachys aurea	golden bamboo
Pinus ponderosa	ponderosa pine
Plantago lanceolata	English plantain
Polygonum amphibium	water smartweed
Polypogon monspeliensis	rabbitsfoot grass
Populus fremontii	Fremont cottonwood
Populus sp.	cottonwood
Populus trichocarpa	black cottonwood
Pteridium aquilinum	western bracken fern
Quercus douglasii	blue oak
Quercus kelloggii	black oak
Quercus lobata	valley oak
Quercus wislizeni	interior live oak
Raphanus raphanistrum	wild radish
Rosa californica	California wild rose
Rosa sp.	rose
Rosmarinus officinalis	rosemary
Rubus armeniacus	Himalayan blackberry
Rumex crispus	curly dock
Salix exigua	narrowleaf willow
Salix laevigata	red willow

Scientific Name	Common Name
Salix lasiolepis	arroyo willow
Salix lucida ssp. *lasiandra*	Pacific willow
Salix prolixa	Mackenzie's willow
Salix sp.	willow
Senecio vulgaris	common groundsel
Sequoia sempervirens	coast redwood
Silybum marianum	milk thistle
Solidago velutina	threenerve goldenrod
Trifolium hirtum	rose clover
Typha latifolia	common cattail
Ulmus sp.	elm
Urtica dioica	stinging nettle
Verbena hastata	swamp verbena
Vicia villosa	winter vetch
Vinca major	periwinkle
Xanthium strumarium	rough cocklebur

Both staging areas south of McBean Park Drive are located within riparian and non-native annual grassland habitat. A row of riparian trees and Himalayan blackberry thicket occurs along the eastern and southern border of the eastern staging area. The southwest staging area is primarily non-native grassland but is surrounded by riparian habitat. Sixty-five protected oak trees (four blue oaks, 11 interior live oaks, and 50 valley oaks) are within the Project Impact Area and could potentially be impacted by Project activities.

Common Animal Species

Forty-two common wildlife species were observed within the BSA during 2015, 2019, and 2021 field surveys (Table 3). Wildlife species present included 36 birds, seven mammals, one amphibian, and one reptile. Signs (mud nests) of nesting cliff swallows (*Petrochelidon pyrrhinota*) were present beneath McBean Park Drive Bridge. Twenty migratory bird nests and raptor stick nests were present within or near the BSA during the 2021 surveys. Diagnostic sign of two wildlife species, raccoon and deer tracks, was observed. Sign of beaver, including felled and gnawed trees, were present within the riparian area north of the Project and east of Auburn Ravine. A partially collapsed potential burrow or tunnel, likely from the beaver, was present on the east bank of Auburn Ravine, north of the Project. Three beaver carcasses were present in the northeast section of the PIA, and one deceased bat was present in a crevice on the underside of the bridge east of the main channel (see Figure 13).

Table 3
Wildlife Species or Species Sign Observed during 2015, 2019, and 2021 Surveys, McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Scientific Name	Common Name
Accipiter cooperii	Cooper's hawk
Agelaius phoeniceus	red-winged blackbird
Anas platyrhynchos	mallard
Aphelocoma californica	California scrub-jay
Branta canadensis	Canada goose
Bubo virginianus	great horned owl
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Calypte anna	Anna's hummingbird
Castor canadensis	beaver
Cathartes aura	turkey vulture
Colaptes auratus	northern flicker
Columba livia	rock pigeon
Corvus corax	common raven
Dryobates nuttallii	Nuttall's woodpecker
Eptesicus fuscus	big brown bat
Euphagus cyanocephalus	Brewer's blackbird
Junco hyemalis	dark-eyed junco
Larus californicus	California gull
Larus delawarensis	ring-billed gull
Melanerpes formicivorus	acorn woodpecker
Melospiza melodia	song sparrow
Mimus polyglottos	northern mockingbird
Myotis sp.	bat
Myotis californicus	California myotis
Myotis yumanensis	Yuma myotis
Odocoileus sp.	deer*
Passer domesticus	house sparrow
Passerella iliaca	fox sparrow
Petrochelidon pyrrhonota	cliff swallow
Pheucticus melanocephalus	black-headed grosbeak
Pipilo maculates	spotted towhee
Procyon lotor	raccoon*
Psaltriparus minimus	bushtit
Pseudacris regilla	Pacific treefrog
Regulus calendula	ruby-crowned kinglet
Sayornis nigricans	black phoebe
Sceloporus occidentalis	western fence lizard

Scientific Name	Common Name
Sciurus griseus	western gray squirrel
Setophaga coronata	yellow-rumped warbler
Setophaga petechia	yellow warbler
Sialia mexicana	western bluebird
Streptopelia decaocto	Eurasian collared dove
Sturnella neglecta	western meadowlark
Tadarida brasiliensis	Mexican free-tailed bat
Turdus migratorius	American robin
Zenaida macroura	mourning dove

*Indicates that only sign (e.g., dens or burrows, scat, prey remains, tracks) of the species was observed.

Aquatic Resources

Auburn Ravine is a tributary of the Sacramento River, which receives water from snowmelt from the Sierra Nevada runoff and numerous smaller tributaries throughout the region. It is at its highest levels during the winter and spring months. Neither Auburn Ravine nor the Sacramento River is a Wild and Scenic River (USFWS 2020b). The Project is not within or adjacent to a Wild and Scenic River System.

During the 2015, 2017, 2019, and 2021 survey periods, the stream was low but flowing. The flow was likely lower than average for the time of year the surveys were completed because of extended periods of drought in the region.

The northeast bank of Auburn Ravine was moderately steep with a wide riparian corridor. The northwest bank of Auburn Ravine was very steep, with a narrow riparian corridor that abutted the fence along commercial development. It is likely that the riparian corridor on the northwest side once extended much farther west but was removed for urban development. Occasional organic debris (fallen trees, logs, roots) and non-organic debris (broken concrete with rebar, tires, trash) occurred near the extreme banks of the stream. The south banks were shorter with more gentle slopes than the northern banks. The southeast bank (and, to some extent, the northeast) contained the greatest amount of Himalayan blackberry within the BSA. Erosion control netting was present along small lengths of the southeast bank. A pedestrian trail atop a berm just east of the southeast bank appeared to terminate approximately 450 feet south of the bridge. The southwest bank contained a wide riparian corridor consisting of Oregon ash, box elder, cottonwoods, and significant amounts of willow trees. This bank was gentle and had several washed-out flat banks. Debris on this side of the stream was rare and, when present, consisted of fallen trees. The riparian habitat surrounding the stream is supported by Auburn Ravine, nearby drainage, and the adjacent wetland marsh. The riparian corridor provides foraging habitat for birds and mammals in its understory, which contains edible foliage, acorns, seeds, and berries; the corridor also provides shelter and a prey base (invertebrates) for reptiles and amphibians.

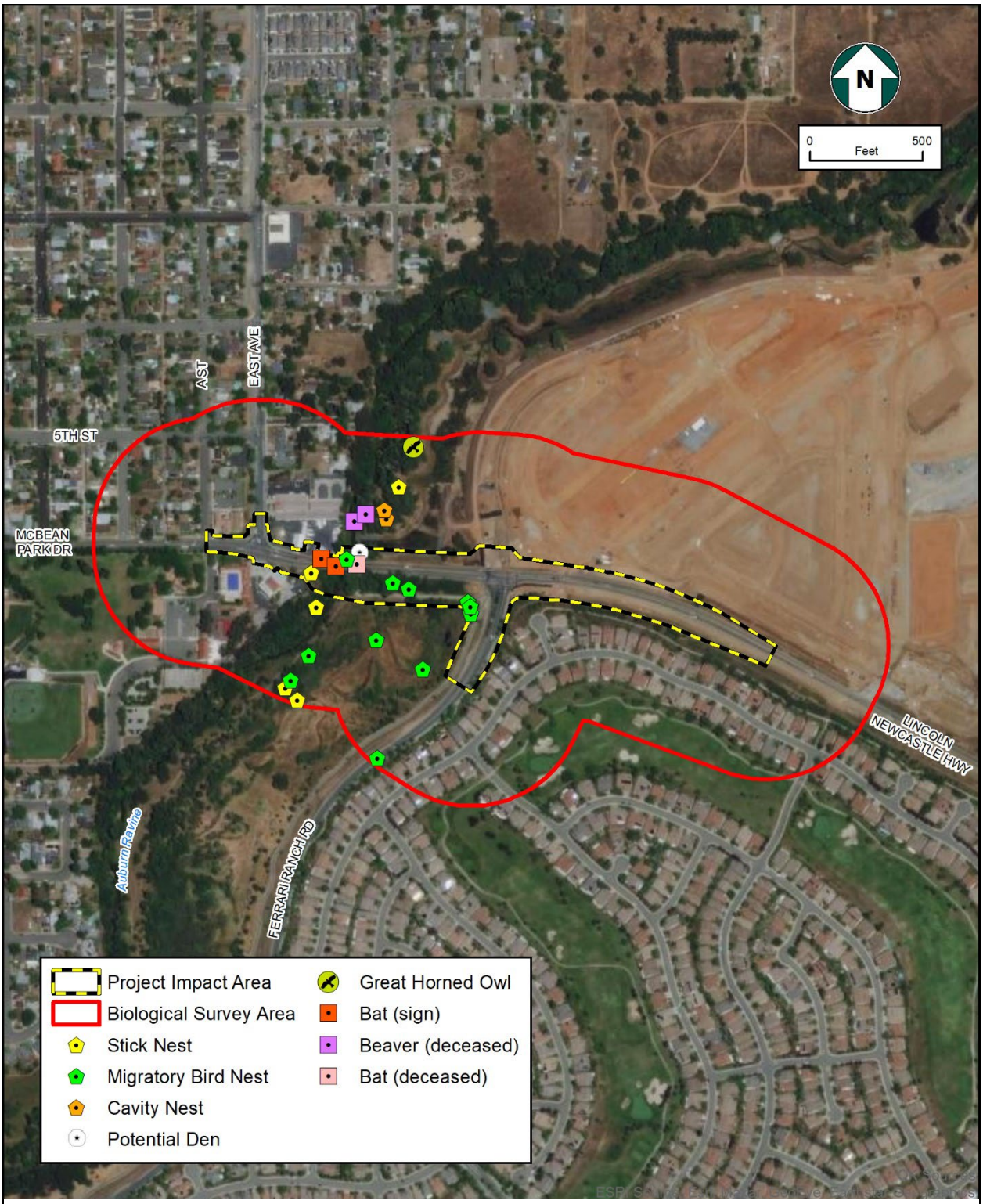


Figure 13
Biological Resources Present During 2021 Surveys of the BSA, McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Approximately 0.26 acres of OHWM and 0.09 acres of bank habitat of Auburn Ravine were delineated within the PIA and the 50-foot buffer. Bank habitat was delineated per the USACE aquatic resources delineation requirements and is only included as part of the ARDR. Bank is not included as a natural community. The PIA encompasses 0.178 acres within the OHWM of Auburn Ravine (Table 4), but only 0.0024 acres will be permanently impacted, and 0.178 acres will be temporarily impacted by the Project. The PIA encompasses 0.09 acres of bank habitat beyond the OHWM within Auburn Ravine, which includes 0.027 acres of permanent impacts and 0.064 acres of temporary impacts.

Two wetlands and three drainage ditches also occur within the PIA. Approximately 0.277 acres of OHWM of the three ditches was delineated within the PIA and the 50-foot buffer. The OHWM of Ditch 1 is 0.15 acres, the OHWM of Ditch 2 is 0.114 acres, and the OHWM of Ditch 3 is 0.013 acres (see Table 4 and Figure 10). Ditches 1 and 2 are mostly within the PIA, with only a small area (0.04 acre) within a 50-foot buffer on the east side of the Project. Ditch 3 is within the PIA southwest of the bridge and will need to be removed to accommodate the widening of the western road approach. All of Ditch 3 (0.013) will be permanently impacted by the Project. The PIA encompasses a total of approximately 0.4587 acres of all water features, including the Auburn Ravine, three ditches, and two wetlands.

Two wetland features that were not included in the NWI are present within the BSA and are partially within the PIA. A very small area (0.0007 acres) of Wetland 1, which is an established wetland within the protected McBean Park Expansion Preserve, is present east of the bridge and area south of McBean Park Drive. The perimeter of that wetland was delineated, and paired sample points on either side of the feature boundary were taken to collect information describing both wetland and associated upland conditions. At each sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was analyzed. Wetland 1 is not expected to be directly or indirectly impacted by the Project. A small area (0.04 acres) of Wetland 2, which is currently being enhanced, is present within the PIA east of the bridge and north of McBean Park Drive (see Table 4 and Figure 10). This wetland is directly adjacent to Auburn Ravine north of the bridge, with a manmade rocky berm separating the two water features. That berm has slightly eroded away to allow water from Wetland 2 to flow into Auburn Ravine. Wetland 2 is not fully established and is currently being enhanced; it is lined with small boulders and contains little mature vegetation other than clusters of unidentifiable desiccated vegetation. Wetland 2 will not be impacted by the Project, and no formal delineation was conducted.

A total of 1.28 acres of riparian habitat was delineated, including 1.24 acres within the PIA (see Figure 10). Impacts to the riparian habitat caused by the widening of the bridge, road approaches, water diversion, rock slope protection, staging, and grubbing will be 1.001 acres (see Figure 4), including 0.56 acres of riparian habitat expected to be cleared and grubbed. Only 0.18 acres of riparian habitat is expected to be temporarily disturbed.

The area of greatest potential impact will be at the southeastern end of the bridge, where fill will be used to stabilize the widened road shoulder (see Figure 10). The OHWM of Auburn Ravine and associated drainages are under the jurisdiction of the USACE and the RWQCB. The bed, bank, and riparian habitat of Auburn Ravine are under the jurisdiction of the CDFW.

Table 4
Delineated Water Features,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Waters	ID	Description	Acreage/ Linear Feet within the PIA	Acreage/ Linear Feet Temporarily Impacted by Project	Acreage/ Linear Feet Permanently Impacted by Project	Total Acreage/ Linear Feet
Stream	Auburn Ravine	Seasonal stream with dense riparian corridor and occasionally steep banks that runs through the Project site and eventually feeds into the Sacramento River.	0.18/232	0.178/155	0.0024/77	0.26/341
		Total Stream	**0.182/232**	0.178/155	0.0024/77	0.26/341
Drainage Ditch	Ditch 1	Intermittently wet ditch located east of bridge. Runs along the north border of McBean Park Drive and south of active residential development and stops before the Ferrari Ranch Road intersection. Contains erosion control measures (straw wattles and jute matting).	0.12/1,053	N/A	N/A	0.15/1,306
	Ditch 2	Intermittently wet ditch located east of the bridge. Runs along the south border of McBean Park Drive west and stops before Ferrari Ranch Road.	0.105/920	N/A	N/A	0.114/989
	Ditch 3	Intermittently wet ditch located west of Auburn Ravine and south of McBean Park Drive. Flows from a culvert into Auburn Ravine.	0.013/114	NA	0.013/91	0.013/114
		Total Drainage Ditch	**0.238/2,087**	NA	0.013/91	0.277/2,409
Wetland	Wetland 1	Wetland located southeast of the PIA. A manmade established wetland	0.0007/N/A	NA	N/A	0.112/N/A

Waters	ID	Description	Acreage/ Linear Feet within the PIA	Acreage/ Linear Feet Temporarily Impacted by Project	Acreage/ Linear Feet Permanently Impacted by Project	Total Acreage/ Linear Feet
		feature in a Preserve area. Dense cattails and willows occur within and near wetland.				
	Wetland 2	Wetland located northeast of the PIA. An ongoing wetland restoration project. Limited, new vegetation growth and drains into Auburn Ravine.	0.04/N/A	NA	N/A	0.41/N/A
		Total Wetland	**0.0407/N/A**	**NA**	**N/A**	**0.522/N/A**
		Total Delineated Water Features	**0.4587/2,319**	**0.3567/2,319**	**0.103/461**	**1.059/2,750**

Invasive Species

Invasive species are species that are non-native to the ecosystem into which they have invaded or been introduced and whose presence may cause economic, environmental, or human health harm. Invasive species can spread into natural ecosystems and displace native species, hybridize with native species, and alter natural communities and ecosystem processes. Twenty-three invasive species (Cal-IPC 2021; Table 5) were present within the BSA. Three of the invasive species are considered noxious in California. These noxious plants are all classified as Class C and include yellow starthistle, Bermuda grass, and medusahead (Cal-IPC 2021).

Table 5
Invasive Species Identified
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Scientific Name	Common Name	Cal-IPC Rating	USDA Noxious Weeds
Avena fatua	wild oat	Moderate	-
Bromus diandrus	ripgut brome	Moderate	-
Centaurea solstitialis	yellow starthistle	High	C
Conium maculatum	poison hemlock	Moderate	-
Cortaderia selloana	pampas grass	High	-
Cynodon dactylon	Bermuda grass	Moderate	C
Dittrichia graveolens	stinkwort	Moderate	-
Elymus caput-medusae	medusahead	High	C
Erodium cicutarium	redstem filaree	Limited	-
Festuca perennis	Italian ryegrass	Moderate	-
Foeniculum vulgare	sweet fennel	Moderate	-
Geranium dissectum	cutleaf geranium	Limited	-
Hedera helix	English ivy	High	-
Hirschfeldia incana	short-pod mustard	Moderate	-
Ligustrum lucidum	glossy privet	Limited	-
Plantago lanceolata	English plantain	Limited	-
Polypogon monspeliensis	rabbitsfoot grass	Limited	-
Raphanus raphanistrum	wild radish	Limited	-
Rubus armeniacus	Himalayan blackberry	High	-
Rumex crispus	curly dock	Limited	-
Silybum marianum	milk thistle	Limited	-
Trifolium hirtum	rose clover	Limited	-
Vinca major	periwinkle	Moderate	-

High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
Moderate – These species have substantial and apparent but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though the

establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
Limited – These species are invasive, but their ecological impacts are minor on a statewide level, or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
C - noxious weed is a *"pest of known economic or environmental detriment and, if present in California, it is usually widespread."*

Habitat Connectivity

Wildlife movement corridors also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges. They can also be small-scale movement corridors such as riparian zones that provide connectivity and cover to support the movement at a local scale.

The Project is not located within any identified wildlife linkages or corridors identified by the California Essential Habitat Connectivity Project (Spencer et al. 2010; CDFW 2021b; Figure 14). The most prominent movement corridor in the BSA is Auburn Ravine and the open space to the east of Auburn Ravine (see Figure 10).

This corridor provides foraging habitat for migratory birds and raptors, and these species could use these areas as stopover sites during migrations or movement between local areas. Other species such as beaver, frogs, and toads could move through the aquatic resources and associated riparian habitat. Auburn Ravine consists of suitable habitat that may support numerous aquatic species, including steelhead (*Oncorhynchus mykiss*) and chinook salmon (*Oncorhynchus tshawytscha*). Steelhead is a federal-listed species, and chinook salmon is a federal- and State-listed species. Grassland habitat also occurs within the BSA and provides foraging habitat for migratory birds and raptors and transient foragers such as coyotes. The bridge provides habitat for roosting or traveling bats, and the riparian corridor and wetland marsh support a prey base for bats. The Project will not permanently restrict, eliminate, or significantly alter the use of this movement corridor by most species. The Project will not substantially impede the movements of most wildlife, and impacts will be temporary.

Avoidance and minimization measures will be implemented to reduce the impact of protected fish species because of the temporary restriction of Auburn Ravine. All in-water construction activities, including the installation of water diversion structures, will be conducted within the protective window for sensitive species between June 15 and October 15. Fish in Auburn Ravine will be collected and relocated prior to installing dewatering structures, and fish relocation around the water diversion structures should be conducted during periods when fish are migrating and while the diversion structures are operational. Fish will be relocated into suitable habitat upstream or

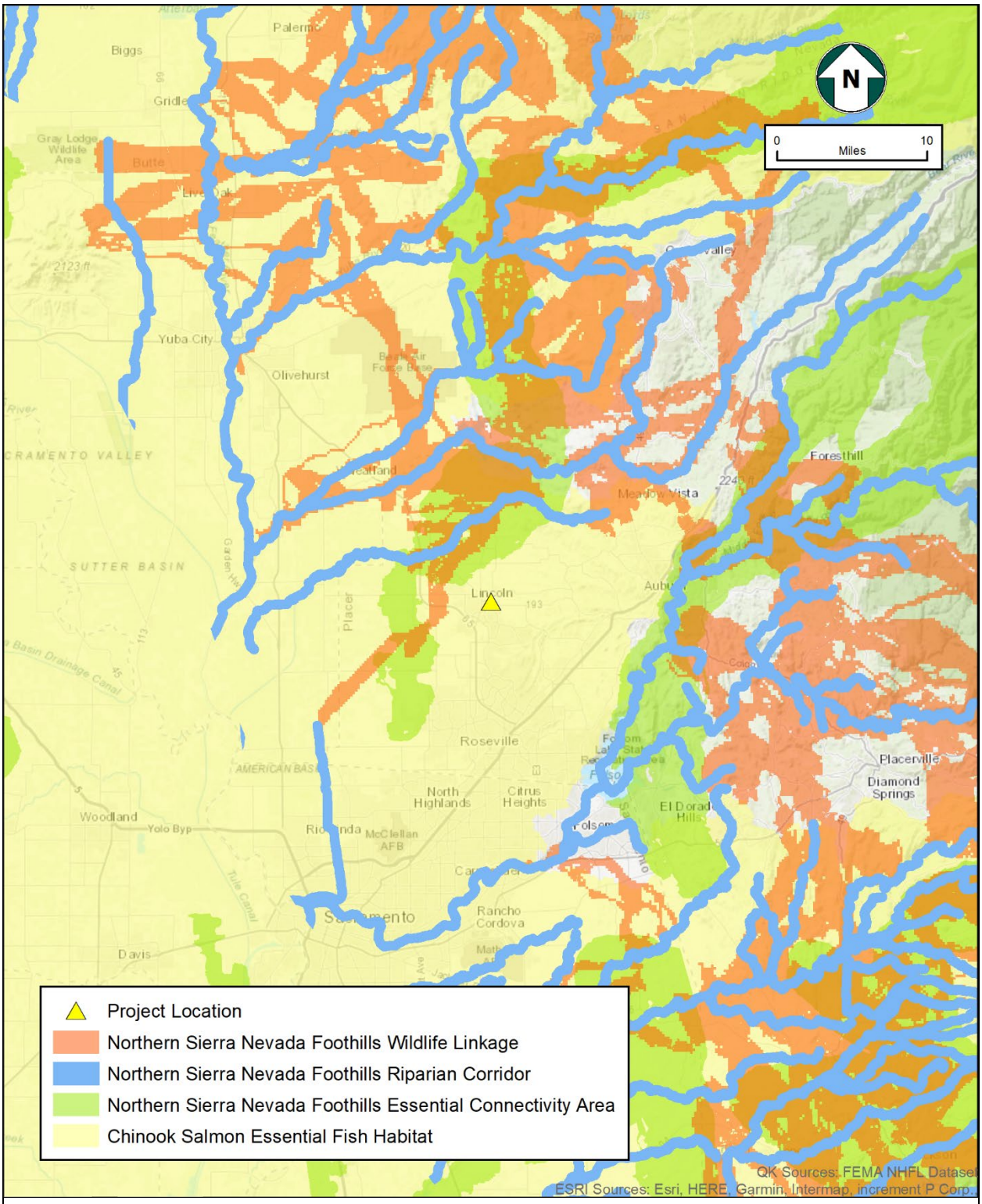


Figure 14
Wildlife Linkages, Movement Corridors, and Essential Fish Habitat, McBean Park Drive Bridge Replacement Project, City of Lincoln, California

downstream of the water diversion structures, depending upon the time of year and the direction of migratory movements. Relocation sites should be far enough away that any construction-related activities would not affect salmonids.

Existing barriers to wildlife movement within the BSA include roads and urban development. McBean Park Drive/SR 193 is subject to loud, heavy traffic, including frequent use of semi-trucks and emergency vehicles (the City of Lincoln Fire Station is adjacent to the Project site). Fencing associated with a residential community, commercial property, private land, and other signs of human habitation could hinder movement.

3.2. Regional Species and Habitat and Natural Communities of Concern

The following sections address special-status biological resources that were observed, reported, or have the potential to occur in the region. These resources include plant and wildlife species that have been afforded special-status and/or recognition by federal and State resource agencies, as well as private conservation organizations. In addition, special-status biological resources include vegetation types and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value.

3.2.1. Sensitive Communities

The CNDDB listed four sensitive natural communities historically known from the project region (CDFW 2021a). These include Alkali Meadow, Alkali Seep, Northern hardpan Vernal Pool, and Northern Volcanic Mud Flow Vernal Pool (Table 6). These communities are known to occur within 10 miles of the Project, but no historical occurrences of sensitive natural communities occurred within the BSA (Appendix A).

3.2.2. Special-Status Plants

The CNPS and CNDDB databases listed historical occurrences of 21 special-status plant species within the nine USGS quadrangles (see Table 6). Of these, six plant species were listed as State or federally threatened or endangered, and the remaining 15 were listed as CNPS-sensitive.

The six federal-listed and/or State-listed plant species are Stebbins' morning-glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*), Pine Hill flannelbush (*Fremontodendron californicum* ssp. *decumbens*), El Dorado bedstraw (*Galium californicum* ssp. sierra), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and Layne's butterweed/ragwort (*Packera* (=*Senecio) layneae*). The closest historical record of any listed plant species is of Bogg's Lake hedge-hyssop, which is approximately 2.5 miles to the northwest of the PIA (see Appendix A). All these plants were determined to be absent from the BSA because of a lack of appropriate habitat.

Table 6
Sensitive Natural Communities and Special-Status Species
Potentially Occurring on or Known to Occur near the
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
SENSITIVE NATURAL COMMUNITIES					
Alkali Meadow	Alkali Meadow	RARE	This community is found on fine-textured, more-or-less, permanently moist (shallow water table), alkaline soils in valley bottoms and the lower portions of alluvial slopes. The community is typically characterized by perennial grasses, sedges, and forbs. Only small fragments remain in the southern Central Valley and on the Modoc Plateau in California.	Absent	This natural community was not found within the Project site, and its associated habitat is absent. The Project site does not contain vegetation that would support this community. There was one CNDDB record of this natural community occurring within 10 miles of the Project site. This record was approximately 5.3 miles south of the site.
Alkali Seep	Alkali Seep	RARE	This community requires permanently wet or moist alkaline seeps. It is dominated by low-growing perennial herbs, usually with few species. This community is often associated with alkali meadows.	Absent	This natural community was not found within the Project site, and its associated habitat is absent. The Project site does not include vegetation or any seeps that would support this community. There was one CNDDB record of this natural community occurring within 10 miles of the Project site. This record was approximately 5.3 miles south of the site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	RARE	This community occurs on old, very acidic, Fe-Si cemented hardpan soils (Redding, San Joaquin, and similar series). The microrelief on these soils typically is hummocky, with mounds intervening between localized depressions. Winter rainfall perches on the hardpan, forming pools in the depressions. Evaporation (not runoff) empties pools in the spring.	Absent	This natural community was not found within the Project site, and its associated habitat is absent. No vernal pools or vernal pool habitat is within the Project site, and the Project site does not include the soils needed to support this community. There were five CNDDB records of this natural community occurring within 10 miles of the Project site. The nearest record was approximately 1.4 miles northwest of the site.
Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	RARE	This community is restricted to irregular depressions in Tertiary pyroclastic flows (Lahars, primarily in the Mehrten formation). Shallow soils prevent forests from forming.	Absent	This natural community was not found within the Project site, and its associated habitat is absent. No pyroclastic flow habitat occurs within the Project site. There were five CNDDB records of this natural community occurring within 10 miles of the Project site. The nearest record was approximately 7.4 miles south of the site.
SPECIAL-STATUS PLANTS					
Azolla microphylla	Mexican mosquito fern	4.2	This is an annual/ perennial fern that does not produce flowers but produces spores in August. It grows in ponds and slow streams in marshes and swamp habitats. It	Absent	Habitat that could support this species is absent from the Project site. No ponds and slow streams in marshes and swamp habitats occur

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			occurs at elevations from approximately 89 to 328 feet.		on-site, and the species was not observed during surveys.
Balsamorhiza macrolepis	big-scale balsamroot	1B.2	This is a perennial herb that blooms from March to June. It occurs in chaparral, cismontane woodland, and valley and foothill grassland habitats and sometimes on serpentinite. It occurs at elevations ranging from approximately 147 to 5,101 feet, and occurrences are scattered along lower foothills and mountain regions along the perimeter of Sacramento Valley. This species is threatened by grazing and potentially residential, recreational, and energy development.	Absent	Habitat that could support this species is absent from the Project site. Grassland that is present is non-native annual grassland, and this species was not observed during surveys. The species elevation range is outside the elevation of the Project site.
Brodiaea rosea ssp. *vallicola*	valley brodiaea	4.2	This is a perennial bulbiferous herb that typically blooms from April to May and can bloom as late as June. It occurs on old alluvial terraces in silty, sandy, and gravelly loam in valley and foothill grassland swales and vernal pools. It occurs at elevations ranging from approximately 32 to 1,099 feet. Similar to *B. rosea* ssp. *rosea*, but with a perianth that is always violet, most floral characters longer, and with a disjunct distribution in non-serpentine habitats along the	Absent	Habitat that could support this species is absent from the Project site. No old alluvial terraces in silty, sandy, and gravelly loam or valley and foothill grassland swales and vernal pools occur on-site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			eastern edge of the Great Valley. This species is threatened by urbanization.		
Calystegia stebbinsii	Stebbins' morning-glory	FE, 1B.1	This is a perennial rhizomatous herb that blooms from April to July. It occurs in chaparral openings and cismontane woodland on gabbroic or serpentinite soils. It occurs at elevations ranging from approximately 605 to 3,575 feet. This species is threatened by development, vehicles, road maintenance, clearing, alteration of fire regimes, and competition with non-native plants. It is known for the mountains and upper foothills of El Dorado and Nevada counties.	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project site. This species was not observed during surveys.
Ceanothus roderickii	Pine Hill ceanothus	FE, SR, 1B.1	This is a perennial evergreen shrub that blooms from April to June. It occurs in chaparral and cismontane woodland, usually on serpentinite or gabbroic soils at elevations from approximately 800 to 3,575 feet. It is known only from the foothills and lower mountains of El Dorado County and is threatened by residential development, road widening, vehicles, illegal dumping, and alteration of fire regimes.	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Chloropyron molle ssp. *hispidum*	hispid bird's-beak	1B.1	This is a hemiparasitic annual herb that blooms from June to September. It grows in alkaline soils in meadows and seeps, playas, and valley and foothill grassland. It occurs at elevations ranging from approximately sea level to 510 feet in scattered occurrences in foothills along the east and west side of Sacramento Valley. It is believed to be extirpated from much of the lower San Joaquin Valley and is threatened by agricultural conversion, development, and grazing.	Absent	Habitat that could support this species is absent from the Project site. Although grassland habitat is present on the Project site, they are very limited, and there are no alkaline soils, no meadows, seeps, or playas. This species was not observed during surveys. However, grasslands and alkaline soils do occur on the Project site and could support this species.
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	4.2	This is an annual herb that blooms from May to July. It occurs in chaparral, cismontane woodland, and lower montane coniferous forest. It occurs at elevations ranging from approximately 246 to 3,000 feet. This species is threatened by weed control measures, non-native plants, road maintenance, fire suppression, and development.	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project site. This species was not observed during surveys.
Downingia pusilla	dwarf downingia	2B.2	This is an annual herb that blooms from March to May. It occurs in vernal pools and in moist conditions in valley and foothill grasslands. It occurs at elevations ranging from approximately 3 to 1,460 feet and is documented primarily on the Central	Absent	Habitat that could support this species is absent from the Project site. Moist conditions in valley or foothill grasslands were present within the BSA, but no vernal pools occur on the Project site. This

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			Valley floor and foothills from Fresno County north and in coastal mountains north of the Bay Area. This species is threatened by development, grazing, non-native plants, vehicles, and industrial forestry.		species was not observed during surveys.
Fremontodendron californicum ssp. *decumbens*	Pine Hill flannelbush	FE, SR, 1B.2	This is a perennial evergreen shrub that blooms from April to July. It usually occurs on rocky gabbroic or serpentinite soils in chaparral and cismontane woodland. It occurs at elevations from approximately 1,390 to 2,495 feet. It is known from a few occurrences in Sierra Nevada foothills in El Dorado, Nevada, and Yuba counties and is threatened by the development and alteration of fire regimes.	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project site. This species was not observed during surveys.
Fritillaria agrestis	stinkbells	4.2	This is a perennial bulbiferous herb that blooms from March to June. It occurs on clay and sometimes serpentinite soils in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland habitats. It occurs at elevations ranging from approximately 30 to 5,100 feet. This species is threatened by development, grazing, vehicles, and possibly non-native plants. Most	Absent	Habitat that could support this species is absent from the Project site. Although grassland habitat occurs on-site, no clay or serpentinite soils occur on-site. No chaparral, cismontane woodland, pinyon, or juniper woodland habitats are present. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			populations are small and occur scattered throughout the Coast Ranges and the Sierra Nevada foothills.		
Galium californicum ssp. *sierrae*	El Dorado bedstraw	FE, SR, 1B.2	This is a perennial herb that blooms from May to June. It occurs on gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest at elevations from approximately 325 to 1,920 feet. It is only known from El Dorado County and is threatened by development, vehicles, and recreational activities.	Absent	Habitat that could support this species is absent from the Project site. No chaparral, cismontane woodland, and lower montane coniferous forest occur on the Project site. This species was not observed during surveys.
Gratiola heterosepala	Bogg's Lake hedge-hyssop	SE, 1B.2	This is an annual herb that blooms from April to August. It occurs in clay soils in marshes and swamps, including lake margins and vernal pools. It occurs at elevations ranging from approximately 33 to 7,800 feet. This species is threatened by agriculture, development, grazing, trampling, and vehicles. It has been documented primarily in northern California north of Lodi, with scattered occurrences in foothills and mountains in Merced, Madera, and Fresno counties.	Absent	Habitat that could support this species is absent from the Project site. No clay soils in marshes, swamps, or vernal pools occur on the Project site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	1B.2	This is an annual herb that blooms from March to May. It occurs in mesic conditions in valley and foothill grassland habitats. It occurs at elevations ranging from approximately 95 to 751 feet. This species is threatened by development and is known from approximately 10 occurrences in Sierra Nevada foothills from Calaveras County north to Tehama County.	Absent	Habitat that could support this species is present on the Project site. Grassland habitat is present on the Project site. This species was not observed during surveys.
Juncus leiospermus var. *leiospermus*	Red Bluff dwarf rush	1B.1	This is an annual herb that blooms from March to June. It occurs in vernally mesic conditions in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. It occurs at elevations ranging from approximately 110 to 4,100 feet. This species is threatened by development, grazing, vehicles, industrial forestry, and agriculture. Known recorded occurrences are in the foothills from Sacramento north to Shasta Trinity National Forest.	Present	Habitat that could support this species is present on the Project site. This species was not observed during surveys.
Lathyrus sulphureus var. *argillaceus*	dubious pea	3	This is a perennial herb that blooms from April to May. It occurs in cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest habitats. It occurs at elevations ranging from	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			approximately 492 to 3,051 feet. This species is possibly threatened by development and road maintenance.		site. This species was not observed during surveys.
Legenere limosa	legenere	1B.1	This is an annual herb that blooms from April to June. It occurs in vernal pools and at elevations ranging from sea level to 2,885 feet. This species is threatened by grazing, road widening, non-native plants, and development. Scattered recorded occurrences are on the Sacramento Valley floor and in foothills and lower mountains of the Sierra Nevada, Trinity Mountains, and Coast Ranges. Many historical occurrences are extirpated.	Absent	Habitat that could support this species is absent from the Project site. No vernal pools occur on the Project site. This species was not observed during surveys.
Lilium humboldtii ssp. *humboldtii*	Humboldt lily	4.2	This California endemic is a perennial bulbiferous herb that blooms between May and July and sometimes as late as August. It occurs in open areas in chaparral, cismontane woodland, and lower montane coniferous forest at elevations from approximately 295 to 4,200 feet. It is found in the Sierra Nevada Range from Tehama County south to Fresno County and is threatened by urbanization, horticultural collecting, deer browsing, competition with non-native plants,	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			road maintenance, erosion, and logging.		
Navarretia myersii ssp. *myersii*	pincushion navarretia	1B.1	This is an annual herb endemic to California that blooms from April to May. It often occurs in acidic conditions within vernal pools at elevations from approximately 65 to 1,080 feet. It is documented primarily in the Sierra Nevada foothills from Merced County north and is threatened by development and possibly threatened by non-native plants.	Absent	Habitat that could support this species is absent from the Project site. No vernal pools occur on the Project site. This species was not observed during surveys.
Navarretia nigelliformis ssp. *nigelliformis*	adobe navarretia	4.2	This is an annual herb endemic to California that blooms from April to June. It occurs on clay soils and sometimes serpentine substrate within vernally mesic valley and foothill grassland and sometimes in vernal pools. It occurs at elevations from approximately 210 to 3,280 feet and is documented primarily in Coast Ranges, with several occurrences in Sierra Nevada foothills. It is possibly threatened by grazing.	Absent	Habitat that could support this species is absent from the Project site. No clay soils or serpentine substrate within vernally mesic valley and foothill grassland or vernal pool habitats occur on the Project site. This species was not observed during surveys.
Senecio layneae	Layne's ragwort	FT, SR, 1B.1	This is a perennial herb endemic to California that blooms from April to August. It occurs on rocky, serpentinite, or gabbroic substrate in chaparral and cismontane woodland.	Absent	Habitat that could support this species is absent from the Project site, and the species elevation range is outside the elevation of the Project

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			It occurs at elevations from approximately 655 to 3,560 feet. It is threatened by urbanization, development, clearing, grazing, road construction, vehicles, non-native plants, and fire suppression.		site. This species was not observed during surveys.
Wolffia brasiliensis	Brazilian watermeal	2B.3	This is a perennial aquatic herb that blooms from April to December. It occurs in marshes and swamps in assorted shallow fresh water. It ranges in elevation from approximately 65 to 328 feet.	Absent	Habitat that could support this species is absent from the Project site. No marsh or swamp habitats in assorted shallow fresh water occur on the Project site. This species was not observed during surveys.
INVERTEBRATES					
Andrena subapasta	An andrenid bee	G1G3 S1S3	This bee species is thought to occur along grassland forbs. Little to no detailed life history or behavioral information on this species is known. Other species of the subgenus *Diandrena,* however, are solitary, ground-nesting bees.	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools were in the vicinity of the Project site. This species was not observed during surveys.
Branchinecta conservatio	Conservancy fairy shrimp	FE	This fairy shrimp species occurs in large, cool-water vernal pools with moderately turbid water that generally lasts until June. This species is generally present in vernal pools from early November to early April, and the average time to maturity is 49 days, but it can be as little as 19 days in warmer pools. Eggs are laid in spring	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools were in the vicinity of the Project site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			and persist through the dry season as cysts. This species is endemic to the Central Valley and surrounding foothills and mountains, with only eight populations known. This species is threatened by habitat loss, degradation, fragmentation, and interference with vernal pool hydrology.		
Branchinecta lynchi	vernal pool fairy shrimp	FT	This species occurs in a variety of vernal pool habitats that range from small, clear sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It occurs more commonly in pools less than 0.05 acres, typically as part of larger vernal pool complexes. Adults are active from early December to early May. Pools must hold water for at least 18 days, the minimum to complete the life cycle if temperatures are optimal. Eggs are laid in spring and persist through the dry season as cysts. The current California distribution includes the Central Valley and Coast Ranges. This species is threatened by habitat loss, degradation, fragmentation, and interference with vernal pool hydrology.	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools were in the vicinity of the Project site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	This species is closely associated with elderberry shrubs (*Sambucus* sp.) for food and reproduction. This species usually occurs along rivers and streams; eggs are laid on the bark of elderberry shrubs, and larvae hatch and burrow into the stems. Adults eat elderberry leaves and flowers. Stem diameter must be a minimum of one inch, and exit holes in stems are the most common method for identification. This species ranges from southern Shasta County to Fresno County.	Absent	Habitat that could support this species was absent from the Project site. No elderberry shrubs occur in the vicinity of the Project site. This species was not observed during surveys.
Hydrochara rickseckeri	Ricksecker's water scavenger beetle	G1G2, S2	This rare aquatic beetle species was previously thought to be endemic to the San Francisco Bay Area of California; however, new collections made from outside Sacramento extend that range into the Central Valley region. The preferred habitat of this species is unknown, but most others in this widespread genus occur in a variety of habitats, including artificial ponds.	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools occur in the vicinity of the Project site. This species was not observed during surveys.
Lepidurus packardi	vernal pool tadpole shrimp	FE	This species occurs in a wide variety of ephemeral wetland habitats from 6.5 square feet to 88 acres in size. The majority of occurrences have been found on high terrace landforms and Redding and Corning soils. This	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools were in the vicinity of the Project site. This

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			species requires a minimum of 25 days to mature, and the average age for reproduction is 54 days. Eggs are lain in spring and persist through the dry season as cysts. Its current distribution is in the Central Valley and San Francisco Bay Area. This species is threatened by habitat loss, degradation, fragmentation, and interference with vernal pool hydrology.		species was not observed during surveys.
Linderiella occidentalis	California linderiella	G2G3, S2S3	This species is the most widely distributed fairy shrimp in California and can be found in vernal pools from 10.8 square feet to 13 acres, supported by most landforms, geologic formations, and soil types. This species requires a minimum of 31 days to maturity with an average of 43 days to reproduce. Eggs are laid in spring and persist through the dry season as cysts. The current distribution is from the Central Valley and Coast Ranges. This species is threatened by habitat loss, degradation, fragmentation, and interference with vernal pool hydrology.	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools were in the vicinity of the Project site. This species was not observed during surveys.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
FISH					
Hypomesus transpacificus	Delta smelt	FE, ST	This is a small fish species endemic to the San Francisco Estuary and the larger Sacramento-San Joaquin Delta. It moves between freshwater and low salinity water throughout the year, and most spawning happens in tidally influenced backwater sloughs and channel edgewaters. It occurs primarily in main water bodies and sloughs of the Delta and Suisun Bay and is not directly associated with small stream systems. This species' historical distribution does not extend beyond Mossdale on the San Joaquin River and Sacramento on the Sacramento River.	Absent	Habitat that could support this species was absent from the Project site. The Project site is outside the known range of this species. This species was not observed during surveys.
Oncorhynchus mykiss irideus pop. *11*	Central Valley steelhead	FT	This species spawns from December through April. This fish spawns in small, cool streams and tributaries in gravel substrates. A minimum of seven inches in depth of water is required, and ocean and spawning habitats must be connected to support migration.	Present	Habitat that could support this species is present on the Project site. Auburn Ravine consists of spawning habitat for anadromous fish species.
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	FT	Few wild spawning populations remain in the Sacramento River system. Native populations were extirpated in the San Joaquin River drainage. This species migrates upstream during high runoff events	Present	Habitat that could support this species is present on the Project site. Auburn Ravine consists of spawning habitat for anadromous fish species.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			starting in January or February and prefers pools in tributary streams less than 70°F, where they hold over the summer before spawning in the fall. Pools should have plenty of cover, such as rock ledges, woody debris, etc. Dams block spawning habitat, and the remaining spawning habitat is degraded by human activities		
Oncorhynchus tshawytscha	Winter-run Sacramento River chinook salmon	FE, SE	This species spawns in streams of the Sacramento and San Joaquin River systems in California from July through August. This species evolved in stable, cold, spring-fed streams in high-elevation headwaters that are now blocked by large dams on the upper Sacramento River, McCloud River, and Battle Creek. Spawning adults prefer streams reaching temperatures between 42.5°F and 57.5°F. This species is threatened by major ecological shifts in the Sacramento-San Joaquin Delta ecosystem, including the detrimental impacts of hatchery fishes, loss of riparian, floodplain, and instream habitat, etc.	Absent	Habitat that could support this species is present on the Project site. Auburn Ravine is a tributary of the Sacramento River and contains spawning habitat for anadromous fish species. This species is likely to be absent, however, because of the lack of high elevation spawning areas and high water temperatures.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
AMPHIBIAN					
Rana aurora draytonii	California red-legged frog	FT, SSC	This species occurs primarily in and near ponds in forests, woodlands, grasslands, coastal scrub, and stream sides with plant cover, preferably with dense shrubby vegetation such as cattails and willows near deep water pools. Breeding habitat may be permanent or ephemeral, and it estivates in animal burrows or other moist refuges when ephemeral habitat is dry. This frog is endemic to California, and northern Baja California found throughout coastal California from Mendocino County south. Its inland distribution includes northern Sacramento Valley and foothills of Sierra Nevada south to Tulare County (possibly Kern County). This species occurs primarily at elevations ranging from sea level to 5,000 feet.	Absent	Habitat that could support this species is absent from the Project site. Auburn Ravine contains marginal habitat foraging and migratory habitat for this species, but it does not contain conditions that would support a permanent population of this species, nor does it provide breeding habitat. The nearby Preserve contains ponds with cattails and wetlands, but suitable breeding habitat is absent. Locally, the California red-legged frog is known only from elevations above 2,400 feet.
Rana boylii	foothill yellow-legged frog, Northeast, Northern Sierra clade	CT	This species is found in streams and rivers with rocky substrates and open, sunny banks, and sometimes isolated pools, vegetation backwaters, and deep, shaded spring-fed pools; forests, chaparral, and woodlands. Its eggs are laid on the downstream side of rocks in shallow, slow-moving water. The current distribution	Present	Habitat that could support this species is present on the Project site. In summer, Auburn Ravine is a slow-moving stream, and it provides areas where eggs can be laid. Therefore, this species could potentially forage and breed on and near the Project site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			includes the north coast, northern Sierra Nevada, foothills of southern Sierra Nevada (almost extinct), elevation from sea level to 6,000 feet.		
Spea hammondii	western spadefoot	SSC	This species relies on vernal pools for breeding where predators cannot become established. It occurs in open areas with sand or gravelly soils in a variety of habitats: grasslands, coastal scrub, woodlands, chaparral, sandy washes, lowland river floodplains, alkali flats, foothills, and mountains. This species is endemic to California and northern Baja California with a distribution from Redding south throughout Central Valley and foothills, throughout the South Coast mountain range into coastal Southern California to Transverse mountains and Peninsular mountains. This species occurs at elevations ranging from sea level to 4,500 feet.	Absent	Habitat that could support this species was absent from the Project site. No vernal pools or habitat that supports vernal pools were in the vicinity of the Project site. Therefore, habitat suitable to support this species is absent from the Project site. This species was not observed during surveys.
REPTILES					
Emys marmorata	western pond turtle	SSC	This species is highly aquatic and diurnally active. It is found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with vegetation and rocky or muddy bottoms in a wide variety of habitats.	Present	Habitat that could support this species is present on the Project site. In summer, Auburn Ravine is a slow-moving stream, and it provides basking habitat and upland refugia; the nearby Preserve provides

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			It needs basking areas near water (logs, rocks, vegetation mats, banks). This species may enter brackish water and even seawater, and it digs a nest on land near water. It ranges from north of the San Francisco Bay area to south, including the Central Valley.		breeding, foraging, and basking habitat year-round. Therefore, this species could potentially forage and nest on and near the Project site.
Thamnophis gigas	giant garter snake	FT, ST	This is a highly aquatic snake found in marshes and sloughs, drainage canals, and irrigation ditches and prefers sloughs to be flooded in summer and dry in winter. It prefers vegetation close to the water for basking and typically does not venture more than 200 feet from the aquatic habitat. It ranges in elevation from sea level to 400 feet. It is endemic to California and currently ranges from Glenn County to the southern edge of the San Francisco Bay-Delta, and from Merced County to northern Fresno County.	Present	Marginal habitat that could support this species was present within the Project site. No marshes or sloughs were located in the vicinity of the Project site, but irrigation ditches and the aquatic habitat on the Project may support this species. No CNDDB occurrences of this species were in Placer County, and some range maps indicate this species' habitat is outside the Project vicinity. This species was not observed during surveys.
BIRDS					
Agelaius tricolor	tricolored blackbird	ST, SSC	This bird species is a colonial breeder that prefers freshwater, emergent wetlands with tall, dense cattails or tule, but also thickets of willow, blackberry, wild rose, and tall herbs. Breeding colonies consist of a	Present	Habitat that could support this species is present on the Project site. Auburn Ravine contains marginal riparian habitat for this species. The nearby Preserve contains also contains dense riparian vegetation

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			minimum of approximately 50 pairs. This species forages in pastures, grain fields, and similar habitats near breeding areas.		with cattails that could support this species. This species, therefore, could forage on the Project site and potentially breed adjacent to the site.
Ammodramus savannarum	grasshopper sparrow	G5 S3, SSC	This bird species occurs in dense valley and foothill grasslands on rolling hills, lowland plains, valleys, and on hillsides on lower mountain slopes. It favors native grasslands with a mix of grasses, forbs, and scattered shrubs. This species is loosely colonial when nesting and is a summer resident that breeds west of the Cascade-Sierra Nevada crest from Mendocino to Trinity counties, south to San Diego County; largely insectivorous.	Present	Habitat that could support this species is present on the Project site. Grassland habitat occurs on the Project site; however, most of this habitat is non-native annual grassland. Therefore, this species could potentially forage on and near the Project site.
Ardea herodias	great blue heron	G5 S4	This species lives in both freshwater and saltwater habitats, including shallow estuaries, fresh and saline emergent wetlands, rivers, streams, lakes, and marine shores, croplands, pastures, and mountains above foothills, and may also forage in grasslands and agricultural fields. Its primary prey is small fish, but it will consume rodents, amphibians, snakes, lizards, invertebrates, and other birds. It nests mainly in the tops of secluded large snags or live trees but will also nest on the ground, on	Present	Habitat that could support this species is present on the Project site. Auburn Ravine contains a prey base for this species. Riparian habitat occurs in association with Auburn Ravine and could potentially be used for nesting substrate. Therefore, this species could potentially forage or nest on and near the Project site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			bushes, in mangroves, and on structures such as duck blinds, channel markers, or artificial nest platforms. This species is fairly common year-round throughout most of California.		
Athene cunicularia	burrowing owl	G4S3, SSC	This species occupies a variety of open, semi-arid to arid habitats throughout central and southern California, including desert regions. It prefers open habitats with few shrubs or trees and low-growing vegetation. It is most active around sunrise and sunset and utilizes burrows constructed by mammals year-round for shelter and nesting. This species is well documented in urban areas where patches of undeveloped areas are present (e.g., canals, airports, drainage basins) and in areas of dense agricultural development, particularly where canals provide burrow habitat. It forages primarily for rodents and insects within several miles of its burrow, usually in open grassy habitats if available. It has been observed hunting bats and insects around parking lot lights. Threats to this species include development resulting in habitat loss/fragmentation.	Present	Habitat that could support this species is present on the Project site. Annual Grassland habitat occurs on the Project site, but it is surrounded by wetlands and may be seasonally flooded. There are no California ground squirrel or similar-sized burrows on-site, and although they typically use other species' burrows, burrowing owl can excavate their own burrows.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Buteo swainsoni	Swainson's hawk	ST	This species occurs in grassland, desert, and agricultural landscapes in the Central Valley and Antelope Valley. These hawks may be resident or migrant, and nest and breed in stands with few trees in juniper-sage flats, riparian areas, and oak savannah habitats. This species has also been observed nesting and breeding in large eucalyptus trees along freeways and in trees over rural residences surrounded by agriculture. It may nest on the ground if no suitable trees are available. Nests are a platform of sticks, bark, and fresh leaves at or near the top of trees. This species breeds from late March to late August. It forages in grassland, open scrub, and grain fields, primarily for rodents.	Present	Habitat that could support this species is present on the Project site. Foraging habitat occurs in riparian and grassland areas. However, given that this species is easily disturbed by human activities and given that the Project site occurs in a heavily traveled corridor by vehicles, NEVs, and pedestrians, it is unlikely that the species would nest on or near the Project site. Therefore, this species could potentially forage on and near the Project site.
Circus hudsonius	northern harrier	G5 S3, SSC	This species is widely distributed and occurs in grasslands, lodgepole pine and alpine meadows, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and coastal beach scrub and dune habitats. It typically nests on the ground in dense vegetation, often on the edges of marshes. It feeds on small mammals, birds, frogs, and other species and hunts on the wing by flying low over the ground, making	Absent	Habitat that could support this species is absent from the Project site. Although the Project site may have an adequate prey base, it is mostly riparian, and the surrounding area is urbanized.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			open habitat a requirement. This species is threatened by habitat loss, fragmentation, and degradation.		
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT, SE	This migratory species nests in open riparian woodlands along broad lower flood bottoms of larger river systems. It prefers willows, often mixed with cottonwood, with an understory of blackberry, nettles, or wild grapes. Its nest is most often placed in willows with cottonwoods used extensively for foraging and also occasionally nests in orchards adjacent to river bottoms.	Present	Habitat that could support this species is present on the Project site. This species could forage within the riparian corridor associated with Auburn Ravine. The riparian corridor, however, is narrow and is unlikely to support nesting habitat. Therefore, this species could potentially forage on the Project site.
Elanus leucurus	white-tailed kite	G5 S3S4, FP	This species occurs in woodlands, marshes, and swamps, partially cleared lands, cultivated fields, wetlands, riparian woodland, and valley & foothill grassland. It prefers rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. It forages in open grasslands, meadows, or marshes close to isolated, dense-topped trees for nesting and perching. They nest in the upper third of trees, which can be open-country trees growing in isolation or at the edge of or within a forest. This species is a year-long resident in coastal and valley lowlands. It forages over open	Present	Habitat that could support this species is present on the Project site. This species could forage or breed in riparian, wetland, or grassland areas. Therefore, this species could potentially forage or breed on and near the Project site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			grassland, wetlands, and grazed lands and is rarely found away from agricultural areas.		
Icteria virens	yellow-breasted chat	G5 S3, SSC	This species occurs in dense riparian thickets of willows, vine tangles, and dense shrubs associated with streams, swampy ground, and small ponds. It builds nests one to eight feet above the ground, typically in low, dense vegetation. It primarily feeds on a variety of insects and berries. This species is usually identified by a series of hoots, whistles, and clucks, coming from briar tangles.	Present	Habitat that could support this species is present on the Project site. This species could forage or breed in riparian areas. Therefore, this species could potentially forage or breed on and near the Project site.
Laterallus jamaicensis coturniculus	California black rail	G3G4 S1 ST, FP	This species inhabits salt, brackish and freshwater habitats in the San Francisco Bay, Sacramento-San Joaquin Delta, and a few locations along coastal Southern California, usually along the shallow margins of saltwater marshes bordering larger bays. It is most common in tidal emergent wetlands and requires water depths of about one inch that do not fluctuate during the year and dense vegetation for nesting habitat. This species is threatened primarily by loss of habitat but also by predators (incl. domestic cats) and collision with artificial structures.	Present	Marginal habitat that could support movement and foraging for this species is present on the Project site. Breeding habitat is present south of the Project within the McBean Park Expansion Preserve.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Melospiza melodia mailliardi	song sparrow (Modesto population)	G5 S3, SSC	This species is a widely distributed songbird in North America that occurs in freshwater emergent marshes dominated by *Scirpus* and *Typha*, riparian willow, and riparian habitat. It nests in riparian forests of valley oak and blackberry (*Rubus* sp.*),* along vegetated canals and levees, and in valley oak restoration sites. This species primarily feeds on insects and seeds and is endemic to the Sacramento Valley.	Present	Habitat that could support this species is present on the Project site. The species could forage or nest in the wetland area adjacent to the Project site or within the riparian area on and near the site. Cattails occur adjacent to the site, and valley oak occurs on and adjacent to the site. Therefore, this species could potentially forage or breed on and near the Project site.
Pandion haliaetus	osprey	G5 S4	This species is common throughout North America and is considered winter transients in the Central Valley. In winter, they are found near freshwater lakes and rivers, where they breed along the coastline. Its habitat includes almost any expanse of shallow, fish-filled water, including rivers, lakes, reservoirs, lagoons, swamps, and marshes. It has adapted to using poles and towers for nesting sites and foraging areas but must include an adequate supply of accessible fish within a maximum of about 12 miles of the nest. This species has historically been threatened by pesticide (DDT) use, but population numbers have increased since the DDT ban.	Absent	Nesting habitat that could support this species is present in the riparian areas within the Project site, but there is limited foraging habitat and an inconsistent and unsustainable food source within the seasonal Auburn Ravine. No sustainable fish were present during the 2021 field survey. Given the inadequate prey base, this species would likely not nest on or near the Project site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Progne subis	purple martin	G5 S3, SSC	This species inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine throughout the State. They require hollow cavities for nesting, such as woodpecker holes in tall, isolated tree/snag and in human-made structures. A population persists in the Sacramento area. This species requires a water source. It is threatened by the loss of riparian habitat and tree snags, as well as competition with European starlings for nest sites. This species forages over riparian areas, forests, and woodland.	Absent	Habitat that could support this species is absent from the Project site. The closest substantial population occurs in Sacramento. However, recent sightings (2007) have occurred in Placer County. The bridge showed no signs of purple martin presence (though ample bat and swallow presence).
Riparia riparia	bank swallow	G5 S2, ST	This migrant species is found primarily in riparian scrub and woodland habitats. Its territory usually includes vertical cliffs or banks where it can nest in colonies of 10 to 2,000 nests on vertical banks and cliffs with fine-textured to sandy soils near streams, rivers, lakes, and the ocean where it digs a nesting hole. An estimated 75% of the population breeds along the Sacramento and Feather rivers. This species is threatened by habitat loss from channelization and stabilization of	Absent	Habitat that could support this species is absent from the Project site. The banks of Auburn Ravine on and near the Project site do not provide adequate nesting habitat; the soils are not loose, and the banks are mostly covered in vegetation.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			banks and other disturbances of nesting areas.		
Setophaga petechia	yellow warbler	G5 S3S4, SSC	This species occurs throughout North America in habitats that are generally wet and in deciduous thickets. It can occur in the West up to 9,000 feet in elevation and nests in bushes or small trees such as willows, hawthorns, white cedar, raspberry, dogwood, and honeysuckle. It typically builds nests 10 to 40 feet above the ground. This species primarily preys on insects from foliage, during short flights, or while hovering.	Present	Habitat that could support this species is present on the Project site. The riparian area with wet and deciduous thickets may provide nesting and cover for the yellow warbler. This species was observed during the 2021 reconnaissance survey.
MAMMALS					
Antrozous pallidus	pallid bat	G5 S3, SSC	This species occurs throughout California in a wide variety of habitats, including grasslands, shrublands, woodlands, and forests up through mixed conifer. It is most common in open, dry habitats with rocky areas for roosting. It is a yearlong resident and feeds mainly on insects and arachnids on the ground or by gleaning. This species day roosts in caves, crevices, mines, and occasionally hollow trees and buildings, including bridges. Night roosts are in more open sites.	Present	Habitat that could support this species is present on the Project site. This species could forage in riparian areas. It is unlikely to roost within the study area but could be a transient forager.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
			Maternity colonies form in early April, with young flying by July or August. This species needs water and is very sensitive to the disturbance of roosting sites.		
Corynorhinus townsendii	Townsend's big-eared bat	G3G4 S2, SSC	This species occurs in coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is correlated with the availability of caves and cave-like roosting habitat, occurring in areas dominated by exposed, cavity-forming rock and/or historic mining districts. It prefers open, large areas for roosting, and they do not tuck themselves into cracks, and crevices like many bat species do.	Present	Habitat that could support this species is present on the Project site. This species could forage in the riparian corridor within the Project site. This species is unlikely to roost within the study area but could be a transient forager. This species was not observed during surveys.

Sources:

California Department of Fish and Wildlife (CDFW). 2021. California Natural Diversity Data Base, California Department of Fish and Wildlife Sacramento, CA.
California Native Plant Society (CNPS). 2021. Inventory of Rare and Endangered Plants (online edition, v6-05b 4-11-05). Rare Plant Scientific Advisory Committee. California Native Plant Society. Sacramento, CA.
National Oceanic and Atmospheric Administration (NOAA). 2021. NOAA Fisheries West Coast. "California Species List Tools." NOAA Fisheries West Coast Region, October 22, 2012. https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html.
Unites States Fish and Wildlife Service (USFWS). 2021. Federal Endangered and Threatened Species List.

Abbreviations:

FE Federal Endangered Species
FT Federal Threatened Species
SE California Endangered Species
ST California Threatened Species
SSC California Species of Special Concern
SR California State Rare

FP California Fully Protected Species
1B.1 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Seriously Endangered in California
1B.2 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Fairly Endangered in California.
2B.2 Native Plant Society List 2B Species-Plants Categorized as Endangered in California; Fairly Endangered in California
2B.3 Native Plant Society List 2B Species-Plants Categorized as Endangered in California; Not Very Endangered in California
3.1 Native Plant Society List 3 Species-Plants Categorized as Needs More Information; Seriously Endangered in California
3.2 Native Plant Society List 3 Species-Plants Categorized as Needs More Information; Fairly Endangered in California.
3.3 Native Plant Society List 3 Species-Plants Categorized as Needs More Information; Not Very Endangered in California
4.2 Plants of limited distribution - Watch list, Fairly Endangered in California (20-80% occurrences threatened)
G1 Critically Imperiled. At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 Imperiled. At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 Vulnerable. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G4 Apparently Secure. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 Secure. Common; widespread and abundant.
S1 Critically Imperiled. Critically imperiled in the state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2 Imperiled. Imperiled in the state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state/province.
S3 Vulnerable. Vulnerable in the state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 Apparently Secure. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 Apparently Secure. Uncommon but not rare; some cause for long-term concern due to declines or other factors.

There were 15 other plant species listed by the CNPS as sensitive (see Table 6). Two CNPS 1B species, the big-scale balsamroot (*Balsamorhiza macrolepis*) and pincushion navarretia (*Navarretia myersii* ssp. *myersii*) are historically known to occur within the BSA (see Appendix A) but habitat that could support these species is absent from the BSA.

All 21 of the special-status plant species, except for Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) and Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), are associated with habitat types that are absent from the BSA (e.g., chaparral, cismontane woodland, juniper woodland, lower montane coniferous forest, marshes, swamps, and vernal pools), or are known to occur at elevations that are not present at the BSA. None of these four species were observed during the surveys. However, the surveys were conducted outside of the blooming period (June to September) for hispid bird's beak, and the most recent reconnaissance survey was conducted outside the blooming period for all four species. These species could occur within the BSA during the blooming season but are not likely to occur within the PIA because of a lack of habitat.

3.2.3. Special-Status Wildlife

The database searches listed historical occurrences of 33 special-status wildlife species within the nine USGS quadrangles (see Table 6). Of these, 28 wildlife species are listed as State and/or federally threatened, endangered, species of special concern, or fully protected. The CNDDB listed occurrences of 33 special-status species within 10 miles of the BSA. There are CNDDB historical records of two special-status wildlife species occurring within the BSA, the tricolored blackbird (*Agelaius tricolor*) and Central Valley steelhead.

Of the 28 species, suitable habitat is present on the BSA for 16 State and/or federally threatened, endangered, species of special concern, or fully protected species. Habitat occurs within the BSA that is capable of supporting seven State and/or federally threatened or endangered, including Central Valley steelhead, Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha*), foothill yellow-legged frog (*Rana boylii*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird, and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Habitat is present within the BSA that could support nine State species of special concern or fully protected species, including the grasshopper sparrow (*Ammodramus savannarum*), burrowing owl (*Athene cunicularia*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), the Modesto population of the song sparrow (*Melospiza melodia mailliardi*), yellow warbler (*Setophaga petechia*), western pond turtle (*Emys marmorata*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

3.2.4. Critical Habitat

One USFWS Designated Critical Habitat unit for Central Valley steelhead is located within the PIA (USFWS 2021b; CDFW 2021b; Figure 15). This habitat can be used for adult spawning, migration, juvenile rearing, and juvenile migration. Designated Critical Habitat units for vernal pool fairy shrimp (*Branchinecta lynchi*) are in the vicinity of the Project.

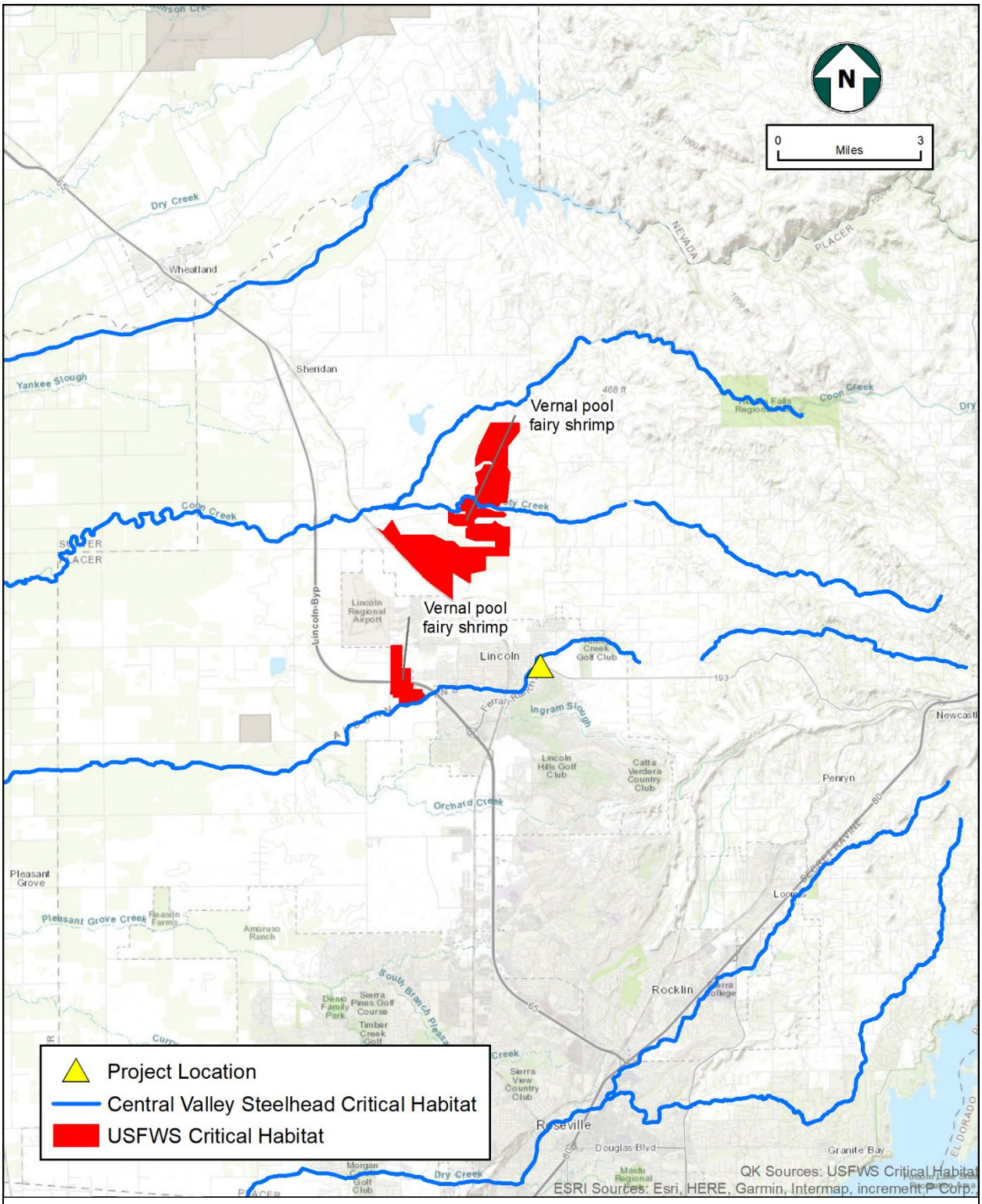


Figure 15
Designated Critical Habitat
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Chapter 4 – Results: Biological Resources, Discussion of Impacts, and Mitigation

The PCCP requires that a project follows avoidance and mitigation measures that cover a range of project activities and species and avoidance and mitigation measures that are species specific. In this section, the avoidance and minimization measures that are specific to a specific resource or species are included in the discussion of impacts and mitigation for that species or resource. The avoidance and minimization measures that are general and protect a variety of species and/or resources are included below.

4.1. General Conditions, Community Conditions, and Best Management Practices

4.1.1. General Conditions

General Condition 1, Watershed Hydrology and Water Quality: All Covered Activities shall comply with the State of California General Construction Permit, including requirements to develop a project-based Stormwater Pollution Prevention Plan (SWPPP) and applicable NPDES program requirements as implemented by the County and the City of Lincoln. The site design requirements, source control measures, and BMPs required by this Condition will cumulatively benefit Covered Species by:

- Minimizing the potential impacts on Covered Species that are most likely to be affected by changes in hydrology and water quality.
- Reducing stream pollution by removing pollutants from surface runoff before it reaches local streams.
- Minimizing degradation of streams and maintaining or improving the hydrograph to maintain populations of Covered Species and enhance recovery.
- Reducing the potential for scour at stormwater outlets to streams by controlling the rate of flow into the streams.

General Condition 3, Land Conversion (PCCP Section 6.3.1.3) applies to the Project because it should result in a permanent natural land cover conversion. Therefore, land conversion fees should be paid as determined by the PCA, using the PCCP fee schedule for guidance. The fees will be applied when projects affect Grassland Riverine/Riparian Complex.

General Condition 4, Temporary Effects (PCCP Section 6.3.1.4) applies to the Project because it will result in temporary effects on natural land cover, and the applicant wishes to apply temporary effect fees (lower than the fees applied under General Condition 3). All natural land cover that will be returned to pre-Project conditions is described in the Habitats and Natural Communities of Special Concern and Discussion of Wetlands, Waters of the States, and Waters of the United States sections below. To qualify for the temporary effect fee, the City must document pre-Project

conditions and propose performance standards for the affected natural community as part of their participation package. These performance standards demonstrate to the local jurisdiction that temporary impact sites will be returned to pre-Project conditions within one year of starting ground disturbance at that location. Performance standards should include metrics such as percent vegetative cover, vegetation height, restored topography, or restored hydrology. One year after the Project's groundbreaking, the City will provide the Permittee with jurisdiction over the Project with a written assessment of how the performance standards were met. Based on this information, the Permittee will determine whether the Project impacts were actually temporary. If it is determined that the effects remain one year after groundbreaking activities have commenced, the effects will be considered permanent, and fees will be reassessed based on those effects, as described in General Condition 3, Land Conversion. Temporary effects allowable under the permits will be subject to overall maximum effects. If a plot of land is subjected to temporary disturbance more than once, that temporary effect is only counted once in the cumulative tally of maximum effects.

General Condition 5, Conduct Worker Training (PCCP Section 6.3.1.5): Because this Project requires conditions for avoidance or minimization during construction, all Project construction personnel will participate in a worker environmental training program that will educate workers regarding the Covered Species and their habitats, the need to avoid impacts, State and federal protection, and the legal implications of violating environmental laws and regulations. At a minimum, this training will be accomplished through “tailgate” presentations at the PIA and the distribution of informational brochures, with descriptions of sensitive biological resources and regulatory protections, to construction personnel prior to initiation of construction work.

4.1.2. Community Conditions

Community Condition 2.1, Riverine and Riparian Avoidance*:* Riparian vegetation and the surrounding buffer cannot be avoided, so Community Condition 2.2, Minimize Riverine and Riparian Effects, applies to this Project.

Community Condition 2.2, Minimize Riverine and Riparian Effects: Because riverine and riparian constituent habitat avoidance is not feasible, Covered Activities shall minimize effects on riverine and riparian constituent habitat by following design, construction, and operations minimization measures.

Covered Activities that will occur within the riverine and riparian constituent habitat will adhere to avoidance measures, as applicable.

The design requirements and construction BMPs identified in Table 7 below reflect current and forthcoming regulations and guidelines for in-stream Project design (e.g., the State Water Board's draft *Procedures for Discharges of Dredged or Fill Materials to Waters of the State* and NMFS's *Guidelines for Salmonid Passage at Stream Crossings).*

Table 7
In-Stream and Stream System BMPs
excerpted from the PCCP Western Placer County Habitat Conservation Plan/ Natural Community Plan

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Planning and Design			
All Covered Activities shall minimize the area of disturbance in Stream System to the maximum extent practicable.	Stream System	Yes	Will be implemented as Project mitigation.
Prior to the final Project design, site characteristics will be evaluated to determine if non-traditional designs, such as bioengineered bank treatments that incorporate live vegetation or other engineered habitat improvements, can be successfully utilized while meeting the requirements of the Project.	Stream System	Yes	Revegetation and bank stabilization are incorporated into the Revegetation Plan.
If structural changes to the channel bed are necessary as part of the Project design, provisions for fish passage will be incorporated into the Project design.	Channel	Yes	Fish passage is incorporated into the Fish Relocation Plan.
To minimize the impact of new construction, existing access routes and levee roads shall be used.	Stream System	Yes	Temporary access routes will be needed for project activities within previously designated areas identified on the Project site plan. Use of existing

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
			access routes and roads will be used unless new routes are needed as part of the Project activities.
Removal of riparian vegetation shall be minimized, so the amount cleared will only be the amount necessary to accomplish the required activity and comply with public health and safety directives. Where riparian vegetation requires removal, removal will first be targeted in areas dominated by invasive vegetation.	Stream System	Yes	Some removal of vegetation is necessary, but those areas will be minimized and revegetated as part of the Revegetation Plan.
Maintenance of natural stream characteristics, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, woody debris, and a natural channel bed, will be incorporated into the Project design.	Channel	No	Project activities should not impact these features.
Stream bank repair design will first consider only use of compacted soil and will be re-seeded with native grasses or sterile non-native hybrids and stabilized with natural erosion control fabric. If compacted soil is not sufficient to stabilize the slope, bioengineering techniques must be used. No hardscape (e.g., concrete or any sort of bare riprap) or rock gabions may be utilized in streams not managed for flood control (i.e., streams where channel clearing, vegetation and debris removal, and conveyance maintenance activities are conducted)	Stream System	Yes	Revegetation is included in the Revegetation Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
except in cases where infrastructure or human safety is threatened (e.g., undercutting of existing roads).			
Rock riprap may only be used to stabilize channels experiencing extreme erosion or posing a threat to public safety. When used, rock riprap must be large enough and installed to withstand a 100-year flow event and planted with native riparian species suitable for planting in such a manner.	Channel	No	No installation of riprap is planned within the OHWM.
Limit removal of instream woody material and vegetation in channels, on stream banks, and along levees and maintenance roads to only that necessary to meet the objective of the Covered Activity or to meet regulatory requirements or guidelines.	Stream System	Yes	WM will only be removed within the Project footprint as necessary to allow for construction as part of BMPs.
In streams not managed for flood control purposes (i.e., streams where channel clearing, vegetation and debris removal, and conveyance maintenance activities are conducted), woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure, impedes reasonable access, or is causing bank failure and sediment loading to the stream.	Channel	Yes	WM will only be removed within the Project footprint as necessary to allow for construction as part of BMPs.
If debris blockages threaten bank stability and may increase sedimentation of downstream reaches, debris will be removed. When clearing natural debris blockages (e.g., branches, fallen trees, soil from landslides) from the channel, only remove the minimum amount of debris necessary to maintain flow conveyance (i.e., prevent	Channel	Yes	Removal of blockages or debris is only planned to occur within the Project footprint and will be determined

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
significant backwatering or pooling). Non-natural debris (e.g., trash, and shopping carts) will be fully removed from the channel.			by current conditions during construction. BMPs will be implemented to minimize the amount of debris necessary to maintain flow conveyance and remove non-natural debris fully from the channel.
To minimize the effect of increased local erosion due to in-channel vegetation removal, the top of the bank shall be protected by leaving vegetation in place to the maximum extent possible.	Stream System	Yes	Vegetation removal will be necessary for bridge construction within the Project footprint. Revegetation after construction is complete will be conducted in temporarily disturbed areas as part of the Revegetation Plan.
Avoid access routes on slopes of greater than 20 percent used to access upland areas adjacent to streams and riparian areas. Any upland access across sloped areas shall be examined for evidence of	Stream System	Yes	Established access routes during construction activities will be temporary, and a

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
instability and either revegetated or filled to prevent future landslide or erosion.			Revegetation Plan along slopes is included in the project design.
Avoid activities in the active (i.e., flowing) channel to the maximum extent practicable, especially during the migration, spawning, and egg incubation season for listed fish species or before amphibians have undergone metamorphosis. If activities must be conducted in the active channel, limit the use of equipment for in-water work to hand tools to the extent practicable.	Channel	Yes	In-water activities will be minimized and timed to reduce impacts to fish. In-water work with heavy equipment will be necessary for bridge construction. A Fish Relocation Plan will be implemented to avoid impacts to sensitive species.
Bank stabilization site design shall evaluate hydraulic effects immediately upstream and downstream of the work area to minimize downstream erosion caused by changes in water velocity. Design of bank stabilization projects shall incorporate similar roughness and characteristics of the bank surrounding the Project area.	Channel	Yes	Hydraulic reports were generated and used in Project design (see Appendix C).
Trails will be sited and designed with the smallest footprint necessary to cross through the Stream System. Trail crossings of streams will be aligned perpendicular to the channel and be designed to avoid any potential for future erosion.	Stream System	No	No trail system crossing will be built apart from the bridge replacement.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Trail crossings of freshwater streams and drainages will adhere to the BMP above regarding the preference of bridges, or other overwater structures, to minimize disturbance. Culverts may also be used if that is the least environmentally damaging design.	Channel	No	No trail system crossing will be built apart from the bridge replacement.
Trail design shall minimize the need for drainage structures. At the outfalls of drainage structures, erosion control measures shall be taken to prevent erosion.	Channel	No	No new trail designs are incorporated into the Project.
Whenever possible, the span of bridges will also allow for upland habitat beneath the bridge to provide undercrossing areas for wildlife species that will not enter the creek. Native plantings, natural debris, or scattered rocks will be installed under bridges to provide wildlife cover and encourage the use of crossings.	Stream System	Yes	Riprap and native vegetation will be used to restore impacted areas to prior conditions as part of the Revegetation Plan.
While in-stream work is performed, the entire streamflow shall be diverted around the work area by a barrier, except where it has been determined by a qualified biologist that the least environmentally disruptive approach is to work in a flowing stream, and fish and amphibian passage is not a concern at that time. Where feasible, water diversion techniques shall allow stream flows to gravity flow around or through the work site.	Channel	Yes	Water will be diverted around the Project. A containment dam or bladder fam will be used to divert water as part of the Water Diversion Plan included in Section 2.3 as part of the Fish Passage Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Dewatering			
Cofferdams for isolating in-channel activities shall be installed both upstream and downstream not more than 100 feet from the extent of the work areas to prevent seepage into or from the work area when dewatering of the entire channel is necessary; otherwise, cofferdams shall affect no more of the stream channel than is necessary to support completion of the work. All water shall be discharged in a non-erosive manner (e.g., through gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices) provided that it first has been properly treated to eliminate contaminants, including raw concrete. Treated water discharged to the channel shall be consistent with ambient conditions, including temperature and pH. Turbid water or water contaminated with other pollutants pumped out of cofferdams shall be discharged to upland areas (e.g., grassy fields) providing overland flow and infiltration and not allowed to re-enter the channel, or pumped to containers (e.g., baker tanks) for disposal.	Channel	Yes	A containment dam or bladder dam will be used to divert water. A Water Diversion Plan is included in Section 2.3 as part of the Fish Passage Plan.
In channels with low flows, small in-channel berms constructed of imported, Channel non-erosive materials (e.g., washed, rounded, spawning-sized gravel between 0.4 and 4.0 inches [10 to 100 millimeters] in diameter) or other temporary structures (gravel-filled sandbags, inflatable rubber cofferdams) that deflect water to one side of the channel during Project implementation may be built. Following berm removal, the channel shall be restored to its original condition; gravel in contact with	Channel	Yes	A containment or bladder dam will be used to divert water flow as part of the Water Diversion Plan for this Project. The Stream Channel will be restored to its

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
flowing water shall be left in place and allowed to disperse naturally by high winter flows.			original condition or improved to enhance fish spawning and migration as included in the Revegetation Plan.
Sumps or basins may be used to collect water, where appropriate (e.g., in channels with low flows). If pumps are used, a fish screen must be installed to prevent the entrapment of small fish.	Channel	No	No sump or basin is planned. Water should be fully diverted around the Project, and no pumps will be used as identified in the Water Diversion Plan.
To prevent increases in temperature and decreases in dissolved oxygen (DO), properly sized bypass pipes shall be used (i.e., larger diameter pipes to better pass the flows). The creation of a low-flow channel or other methods to isolate the work area may be used to avoid the use of bypass pipes.	Channel	Yes	The Project site will be dewatered by diverting ravine flows through two culverts as described in Section 2.3 as part of the Water Diversion Plan.
Diversions shall not diminish the quantity or degrade the quality of the discharged water and shall maintain ambient stream flows below the diversion. When the work is completed, all de-watering materials placed in	Channel	Yes	This will be enacted as included in the Water Diversion Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
the channel shall be removed, and normal flows shall be restored to the affected stream as soon as feasible and safe. To the extent feasible, all temporary diversion structures and the supportive material shall be removed no more than 48 hours after work is completed; clean gravel in contact with flowing water shall be left in place and allowed to disperse naturally by high winter flows.			
Construction			
The applicant shall maintain a copy of Project conditions as determined by the local jurisdiction and/or PCA at the site. Site supervisors shall be familiar with all permit conditions.	Stream System	Yes	Project conditions and associated plans will be provided to the site supervisor.
A qualified biologist will train all personnel working within or adjacent to the Stream System (i.e., those people operating ground-disturbing equipment) regarding these avoidance and minimization measures and the permit obligations of Project applicants working under this Plan.	Stream System	Yes	A biologist will prepare and present a Worker Environmental Awareness Training.
Personnel shall utilize equipment that minimizes the area and degree of disturbance, such as appropriately-tired vehicles (either tracked or wheeled, depending on the situation) or avoidance of vehicles if possible.	Channel	Yes	Avoidance of vehicles is not possible, but equipment will be appropriately sized. Standard BMPs for vehicle use and maintenance will be enacted.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
No vehicles other than necessary construction equipment shall be allowed within the Stream System.	Stream System	Yes	Stream entrance will be limited to equipment necessary to complete work. Standard BMPs for vehicle use and maintenance will be enacted.
All wetlands, other waters, and Stream Systems that are adjacent to a Covered Activity project site and that will be avoided shall be marked with bright construction fencing. Temporary fencing shall be removed upon completion of the Project.	Stream System	Yes	This will be accomplished as part of the BMPs.
Deep pools located outside and adjacent to the construction footprint shall be fenced or blocked with barriers to prevent encroachment of equipment and personnel from affecting deep-pool habitats, which are used as refuge for fish and wildlife.	Channel	Yes	This will be accomplished as part of the BMPs.
When practicable, avoid maintenance and construction activities at night. When night work cannot be avoided: • Minimize use of temporary lighting. • Shield and focus lights on work areas. • Use the lowest intensity lighting necessary to complete the work.	Stream System	Yes	No night work is anticipated for this Project.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Wildlife entering the construction site shall be allowed to leave the area unharmed or shall be flushed or herded humanely in a safe direction from the site.	Stream System	Yes	This will be accomplished as part of the BMPs.
All utility pipe sections shall be capped or inspected for wildlife before being placed in a trench. Pipes within a trench shall be capped at the end of each day to prevent entry by wildlife.	Stream System	Yes	This will be accomplished as part of the BMPs.
At the end of each workday, all open trenches will be provided with a ramp of dirt or wood to allow trapped animals to escape	Stream System	Yes	This will be accomplished as part of the BMPs.
Staging and storage areas for equipment, stockpiled materials, fuels, lubricants, and solvents shall be located outside of the Stream System. If site conditions prevent locating staging areas outside the Stream System, at a minimum, they shall be located outside the top of the bank, ideally on an existing disturbed area (e.g., access road) or other area that can be readily returned to pre-Project conditions at the conclusion of the activity.	Stream System	Yes	Two staging areas will be placed within areas that are graded and void of vegetation. One staging area will be located within riparian vegetation and will be restored to pre-Project conditions. These are detailed as part of the BMPs and Revegetation Plan.
Handle and dispose of invasive plant species removed during Covered Activity implementation in such a manner as to prevent further spread of the invasive species.	Stream System	Yes	This will be accomplished as part of the BMPs.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
To minimize the spread of pathogens, all staff working in aquatic systems (i.e., streams, ponds, and wetlands), including site monitors, construction crews, and surveyors, will adhere to the most current guidance for equipment decontamination provided by the Wildlife Agencies at the time of activity implementation.	Channel	Yes	This will be accomplished as part of the BMPs.
Only herbicides registered with the California Department of Pesticide Regulation shall be used in streams, ponds, and lakes and shall be applied in accordance with label instructions. A list of all pesticides that may be used in the Project area shall be submitted to the PCA before use. The USFWS and NMFS do not issue Incidental Take Permits for pesticide and rodenticide use; pesticide and rodenticide use, and resultant "take" of ESA-listed species, are not covered under this Plan for the federal permits.	Stream System	No	No herbicides are anticipated to be needed for this Project.
Avoid or minimize the amount of fertilizer used during hydroseeding to minimize introducing these materials into waterways.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan.
Post-Construction			
Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan.
The stream bed will be returned to as close to pre-Project condition considering such characteristics as elevations, profile, and gradient-as appropriate.	Channel	Yes	Hydraulic studies (Appendix C) were conducted and

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Ecologically improved conditions shall be incorporated into the Project design when appropriate.			incorporated into the Project design.
Any disturbed soils will be revegetated with native plants, non-invasive species, or non-reproductive (i.e., sterile hybrids) plants suitable for altered soil conditions.	Stream System	Yes	Revegetation with native seed will be conducted as part of the Revegetation Plan design.
Projects that cross beneath streams must provide a post-construction summary of any unanticipated effects (e.g., stream channel disturbance due to a frac-out) resulting from the implementation of the Project. Additional fees may be owed (as required by General Conditions 3 and 4, *Land Conversion and Temporary Effects*, respectively) based on the actual effects of the Project.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan design.
Operations and Maintenance			
For stream maintenance activities, only in-stream work that is necessary to maintain the channel consistent with designated management purposes (e.g., flood control and groundwater recharge) will be conducted.	Channel	Yes	This will be accomplished as part of the Water Diversion Plan.
When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade producing and bank stabilizing vegetation.	Stream System	Yes	This will be accomplished as part of the Revegetation Plan.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Vegetation thinning and removal in streams managed for flood control will be phased to ensure that some riparian habitat remains at all times. Projects will be planned so that the least amount of riparian vegetation will be removed while still meeting the desired flood control needs.	Stream System	Yes	This will be accomplished as part of the BMPs and Water Diversion Plan.
If a project alters the stream bed during stream maintenance, the stream low flow channel shall be returned to its approximate prior location with appropriate depth for fish passage without creating a potential future bank erosion problem.	Channel	Yes	Hydraulic studies of the channels have been drafted (see Appendix C) and can be referred to and will be implemented as part of the Water Diversion and Revegetation Plans.
Sediment removal in the stream channel shall use the approach with the least impact, such as phasing of removal activities or only removing sediment along one half of the channel bed, allowing the other half to remain relatively undisturbed.	Channel	Yes	Methods to reduce sediment quantities from being released after construction activities are completed. Will be considered and included in Water Diversion and Revegetation Plans.
Maintenance and operation of pumps and generators placed in stream will minimize impacts to water quality and aquatic species.	Channel	No	This equipment is not expected to be needed.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
Temporary crossings shall be installed no earlier than April 15 and shall be removed no later than October 15. This work window could be modified at the discretion of the County, City, and Wildlife Agencies.	Channel	Yes	Should temporary crossings be used, installation, and removal as required by mitigation and incorporated in BMPs and relevant plans.
Work in Stream Systems shall not disturb active bird nests until young birds have fledged. To avoid effects to nesting birds in Stream Systems, trees and shrubs shall be removed outside of the nesting season, approximately between August 15 and February 1. Tree and shrub removal at other times is at the PCA's discretion and will require surveys by a qualified biologist to determine the absence of nesting birds.	Stream System	Yes	This will be accomplished as part of the Project mitigation.
The following will be implemented to minimize noise effects on fish and wildlife during pile driving: • Vibratory pile drivers, or other Wildlife Agency-approved methods, shall be used to drive piles, to the maximum extent practicable. • Where feasible, the use of impact hammers to drive piles will be limited to areas outside of the stream channel or in dry cofferdams. • Bubble curtains will be used to attenuate sound when it is necessary to drive piles with an impact hammer in water.	Channel	Yes	During pile driving activities, implementation of minimization measures will be enacted as incorporated in BMPs and relevant plans.

Avoidance and Minimization Measure Project	Location	Applicable to the Project	Justification
• Where feasible, metal-to-metal contact of the driver hammer and metal piles will be avoided. • The smallest pile driver and the minimum force necessary to complete the work will be used. • All types of pile driving will be limited to daylight hours only to provide fish and wildlife with extended quiet periods. • Prior to initiating pile driving with an impact hammer, an acoustic analysis using the most recent interagency standards and guidelines will be conducted to predict impacts of pile driving noise on listed fish species. A Hydroacoustic Monitoring Plan will be developed and implemented, and underwater noise levels will be monitored during all impact pile driving on land, in dry cofferdams, and in water (using bubble curtains) to ensure that the peak and cumulative sound exposure levels do not exceed predicted values.			

4.2. Habitats and Natural Communities of Special Concern

Four sensitive natural communities were historically found within 10 miles of the BSA, including Alkali Meadow, Alkali Seep, Northern hardpan Vernal Pool, and Northern Volcanic Mud Flow Vernal Pool. None of these communities were identified within the BSA, and the Project will not result in impacts to these sensitive natural communities. No avoidance, minimization, or mitigation measures are required for the protection of these sensitive natural communities.

The other natural communities that are considered sensitive and are present within the BSA are riparian habitat along Auburn Ravine, where some oak trees are located, and wetlands and Waters of the U.S. State agencies, such as CDFW, consider riparian vegetation to be sensitive (Figure 16). Oak trees in oak woodlands are protected by CEQA Section 21083.4, and wetlands and Waters of the U.S. are considered sensitive by federal and State agencies.

4.2.1. Riparian Habitat and Oak Trees

Riparian habitat on the Project is classified as Valley Foothill Riparian and can support a diverse assemblage of wildlife, and as such, it is considered a sensitive community by CDFW. Riparian habitat is protected under CDFW regulations when a project may "substantially adversely affect existing fish or wildlife resources" that occur in that habitat (CDFW 2015). Auburn Ravine supports a riparian corridor that consists of woody vegetation, including willows, cottonwoods, Himalayan blackberry, and valley oaks. Valley oaks are protected by CEQA Section 21083.4. Riparian habitat is primarily associated with bed and bank features along Auburn Ravine, but scattered stands of riparian trees are present surrounding both wetland features. Valley oaks occur within the riparian areas in the PIA.

Survey Results

Riparian habitat within the BSA is primarily associated with Auburn Ravine and within the open space to the east of Auburn Ravine. It is dominated by Fremont's cottonwood, black cottonwood, Pacific willow, arroyo willow, sandbar willow, and black walnut. The understory consists of Himalayan blackberry and mugwort. Oregon ash, box elder, and white alder also occur within the riparian habitat. Helix Environmental surveyed a total of 169 trees on or overhanging the site, including 65 protected trees consisting of four blue oaks, 11 interior live oaks, and 50 valley oaks (see Helix 2021).

Wildlife present within the riparian habitat during the 2021 surveys included three beaver carcasses, sign of roosting bats underneath the bridge, and numerous bird species (see Figure 13).

Project Impacts

Impacts will occur to riparian vegetation consisting of Fremont's cottonwood, black cottonwood, protected oak species, and various understory species. Impacts will be a result of widening the road approaches, installing rock slope protection, using staging areas, installing a water diversion

structure, and using a work area at the bridge construction site. Permanent impacts to

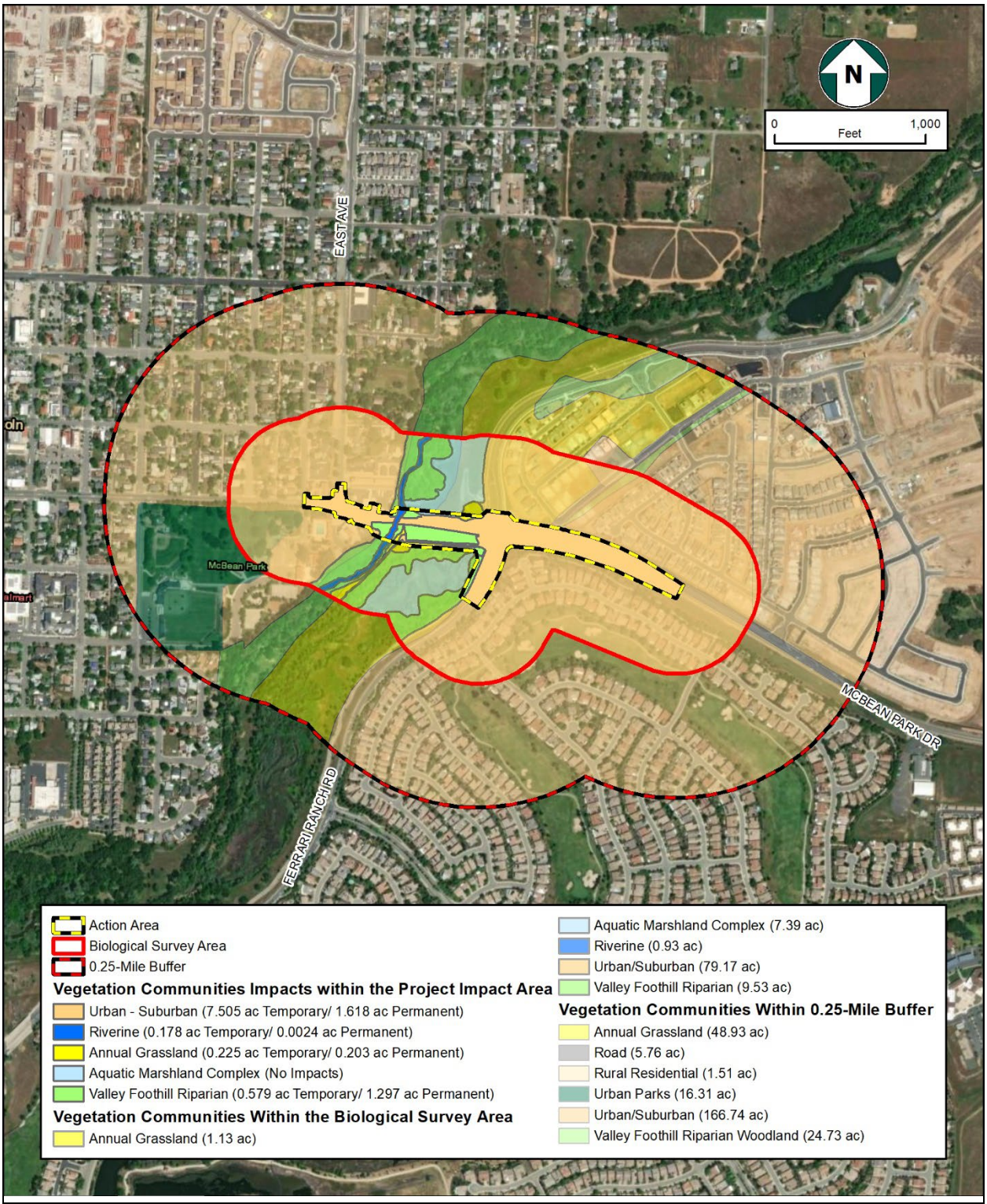


Figure 16
Vegetation Communities within the PIA, BSA, and 0.25 miles of the PIA, McBean Park Drive Bridge Replacement Project, City of Lincoln, California

the riparian habitat caused by the widening of the bridge and road approaches, water diversion, rock slope protection, staging, and grubbing will be 1.06 acres, which includes the 0.56 acres of riparian habitat expected to be cleared and grubbed. Construction of the two laydown areas south of McBean Park Drive (0.93 acres), the water diversion structures (0.12 acres), and a portion of the total bridge work area (0.44 acres) will be temporary impacts. The PIA encourages the enhanced freshwater emergent wetland on the northeast side of Auburn Ravine (see Figure 16). This freshwater emergent wetland will be avoided, and avoidance fencing (described in the avoidance and minimization) measures will be installed between the work site and the wetland. No temporary or permanent Project impacts will occur to this wetland.

Construction activities will remove 70 trees, of which 30 are protected trees. There will be 28 trees removed that would require compensation.

Avoidance and Minimization

Community Condition 3.1, Valley Oak Woodland Avoidance and Minimization

This Project avoids impacting >1 acre of valley oak woodland, so valley oak stands can be considered avoided. Therefore, the area may not be subject to land conversion fees. Trees will be removed as part of the Project, so Community Condition 3.2 should be followed. Community Condition 3.2 of the PCCP is provided below.

Community Condition 3.2, Valley Oak Woodland and Individual Valley Oak Trees Restoration

Covered Activities must compensate for the loss of valley oak woodland natural community and individual valley oak trees. Projects that affect individual valley oak trees or stands of valley oak woodland will pay the plan land conversion fee. All revenue will be provided to the PCA and applied to in-kind mitigation of effects on valley oaks and valley oak woodlands (see Section 9.4.1.3, Land Conversion Fee).

General Protection Guidelines for Trees Planned for Preservation

To minimize impacts to protected trees, avoidance and minimization measures were outlined in the November 2021 Arborist Report prepared by Helix Environmental Consulting.

The following measures are based on the City of Lincoln Department of Public Works Design Criteria and Procedure Manual. These measures should be implemented to protect protected oak trees within the site, which are slated to be avoided during construction, measuring six inches DBH or larger. For native oak trees, the plan shall show the protected zone and the approved protective fencing locations. Encroachments into the protected zone require tree permit approval (Helix 2021).

Grading near trees - No person shall conduct any activity within the protected zone of a native oak tree or landmark tree without an approved grading permit issued in conformance with the tree permit conditions. Great care must be exercised when work is conducted upon or around

protected trees. The purpose of this section is to define procedures necessary to protect the health of the protected trees. The policies and procedures described in this section apply to all encroachments into the protected zone of protected trees. All tree permits shall be deemed to incorporate the provisions of this section except as the tree permit may otherwise specifically provide.

General

a. Trenching within the protected zone of a protected tree, when permitted, may only be conducted with hand tools to avoid root damage.

b. Minor roots less than one inch in diameter may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked, or damaged area.

c. Major roots over one inch in diameter may not be cut without the approval of an arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the root and the tree.

d. If any native ground surface fabric within the protected zone must be removed for any reason, it shall be protected within 48 hours.

e. An independent low-flow drip irrigation system may be used for establishing drought-tolerant plants within the protected zone of a protected tree. Irrigation shall be gradually reduced and discontinued after two years.

f. Planting live material under native oak trees is generally discouraged, and it will not be permitted within 6 feet of the trunk of a native oak tree with a DBH of 18 inches or less or within 10 feet of the trunk of a native oak tree with a DBH of more than 18 inches. Only drought-tolerant plants will be permitted within the protected zone of native oak trees.

g. A minimum 4-foot chain link or orange mesh fence shall be installed at the outermost edge of the protected zone of each protected tree or group of protected trees. The fence shall not be removed until written authorization is received from the Planning Director. Exceptions to this policy may occur in cases where protected trees are located on slopes that will not be graded. However, approval must be obtained from the Planning Department to omit fences in any area of the Project. The fences must be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the approving body. The developer shall call the Planning Department and Public Works Department for an inspection of the fencing prior to grading operations.

   Signs must be installed on the fence in four locations (equidistant) around each individual protected tree. The size of each sign must be a minimum of 2 feet by 2 feet and must contain the following language:

WARNING
THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE PLANNING DEPARTMENT

On fencing around a grove of protected trees, the signs shall be placed at approximately 50-foot intervals.

h. Once approval has been obtained, the fences must remain in place throughout the entire construction period and may not be removed without obtaining written authorization from the Planning Department.

i. A minimum $10,000 deposit, or amount deemed necessary by the approving body, shall be posted and maintained to ensure the preservation of protected trees during construction. The deposit shall be posted in a form approved by the City Attorney prior to any grading or movement of heavy equipment onto the site or issuance of any permits. Each violation of any tree permit condition regarding tree preservation shall result in the forfeiture of a portion or the entirety of the deposit at the discretion of the approving body.

j. In cases where a tree permit has been approved for the construction of a retaining wall(s) within the protected zone of a protected tree, the developer will be required to provide immediate protection of exposed roots from moisture loss during the time prior to completion of the wall. The retaining wall shall be constructed within 72 hours after completion of the grading.

k. If required, preservation devices such as aeration systems, oak tree wells, drains, special paving, and cabling systems must be installed per approval.

Compensatory Mitigation

All areas of temporary disturbance will be revegetated by hydroseeding using a species list that is approved by the California Department of Fish and Wildlife. For each species of shrub that is removed, compensatory shrubs greater than 4 inches DBH will need to be planted at a ratio of 3:1. Compensatory measures will also be required to mitigate impacts to oak trees and other species of trees. Where impacts to oak trees greater than 4 inches DBH occur, one or more of the following compensatory mitigation measures should be implemented:

1. Conserve oak woodlands through the use of conservation easements.
2. Plant and maintain an appropriate number of trees (a minimum 4:1 ratio). Monitor the success of plantings for a minimum of five years following a restoration and monitoring plan approved by CDFW.
3. Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Wildlife Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. The city that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the Project.

Cumulative Effects

With the implementation of the avoidance measures and/or compensatory mitigation, adverse impacts will be minimized, and impacts from the Project will not contribute to cumulative effects to the riparian and oak habitat.

4.2.2. Wetlands, Waters of the State, and Waters of the United States

The Auburn Ravine is a Water of the U.S. and Water of the State that is present in the PIA. The Auburn Ravine is listed by NHD as an intermittent stream and by NWI as a Riverine feature. No other wetlands or water features were identified by NWI or NHD as occurring within the BSA (see Figure 8).

Survey Results

Auburn Ravine traverses the BSA from north to south and crosses the Project footprint. Bridge construction activities and components, including abutment stabilization, temporary construction easements, water diversion structures, and roadway approach widening, will affect 0.18 acres within the OHWM of Auburn Ravine (see Table 4) in the PIA. Because Auburn Ravine experiences periods of high, fast-moving water during the rainy season and low to zero flow (1 to 2 cfs) during the dry season, it is considered a semi-permanent or seasonal stream.

Two wetlands were present within the BSA, both east of the McBean Park Drive Bridge. Wetland 1, which is south of McBean Park Drive, occurs within the McBean Park Expansion Preserve. A small portion of this wetland occurs within the PIA (see Figure 10). Wetland 2 is north of McBean Park Drive, and a portion of this wetland encroaches into the PIA. This wetland is part of a broader enhancement project in that area. The USACE would likely assert jurisdiction over these two wetlands because they are adjacent to a tributary to a Traditionally Navigable Water (Auburn Ravine). No other wetlands occur within the BSA. One roadside drainage ditch occurs southwest of the bridge within the BSA and flows into Auburn Ravine. Two additional roadside drainage ditches occur east of the bridge within the BSA, and both ditches flow along McBean Park Drive.

Project Impacts

The Project will impact 0.178 acres of temporary impacts, and 0.002 acres of permanent impacts within the OHWM of Auburn Ravine. Approximately 0.064 acres of temporary impacts, and 0.027 acres of permanent impacts beyond the OHWM and within the bank of Auburn Ravine will be impacted and within the PIA. Riparian habitat within the PIA that will be impacted includes, 1.0 acres that will be permanently impacted, which includes 0.56 acres expected to be cleared and grubbed, and 0.18 acres that will be temporarily impacted. The PIA encompasses 0.24 acres of the OHWM of the ditches, but Ditches 1 and 2 will be avoided. The Project will only impact 0.013 acres of the OHWM of Ditch 3. Although 0.0007 acres of Wetland 1 and 0.04 acres of Wetland 2 encroach into the PIA, these two wetlands will be avoided, and no direct impacts to these wetlands would occur.

Avoidance and Minimization

The PCCP includes conditions to avoid, minimize, and mitigate effects on the stream system:

Community Condition 2.3, Riverine and Riparian Restoration Covered Activities that affect riverine or riparian constituent habitat must contribute to restoration as mitigation to compensate for the loss of riverine or riparian constituent habitat. The Project affects riverine and riparian and must

contribute to the replacement of these resources. Restoration and replacement actions will be undertaken by the PCA and funded by additional fees imposed on the Project. Riverine and riparian restoration to offset project effects may be implemented on site to replace the functions of the riparian woodland degraded or lost to the Covered Activity. Riparian restoration implemented on site will be credited to plan restoration targets if the restoration helps to meet the biological goals and objectives of the plan. When it is deemed infeasible to implement restoration at the Project site, the in-kind restoration will be required at an off-site location or through the payment of fees to the PCA. Stream enhancement will be implemented in concert with Community Condition 2.2, Minimize Riverine and Riparian Effects, which is described in Section 4.1.1.

PCCP Stream System Condition 1, Stream System Avoidance and Minimization Design and implement Covered Activities in such a way as to avoid and minimize adverse effects on the Stream System. This condition allows applicants to avoid portions of the Stream System and therefore avoid paying fees. This condition was applied during the design of the bridge and associated infrastructure by limiting the portions of the structure that are within the Stream System (see Figure 4 and Tables 1 and 4 for impacts). Additionally, avoidance and minimization measures for Covered Species are incorporated into the Project and described in Chapter 4, Section 4.2.5.

PCCP Stream System Condition 2, Stream System Mitigation Restoration Where Covered Activities result in permanent or temporary impacts on the Stream System, regardless of the affected community or constituent habitat type, effects shall be mitigated by appropriate restoration or enhancement. This measure works in concert with Community Condition 2.3, Riverine and Riparian Restoration, which is described in Chapter 4, Section 4.2.5.

The CARP requires avoidance and minimization measures to be implemented to protect aquatic resources:

CARP Condition 1a: All work within the Project that impacts aquatic resources of Placer County shall be completed according to the plans and documents included in the PCCP/CARP application, Standard USACE 404 permit, and Water Quality Certification. All changes to those plans shall be reported to the local jurisdiction.

CARP Condition 1b: All deviations from plans and documents provided with the application and approved by the local jurisdiction must be reported to the local jurisdiction immediately.

CARP Condition 2: Any construction within the Stream System shall be implemented in a way to avoid and minimize impacts to vegetation outside the construction area. All preserved wetlands, other aquatic resources of Placer County, and the stream zone shall be protected with bright construction fencing. Temporary fencing shall be removed immediately upon completion of the Project.

CARP Condition 3: Erosion control measures are specified as part of the CARP application. All erosion control specified in the permit application shall be in place and functional before the beginning of the rainy season and shall remain in place until the end of the season. Site supervisors shall be aware of weather forecasts year-round and shall be prepared to establish

erosion control on short notice for unusual rain events. Erosion control features shall be inspected and maintained after each rainfall period. Maintenance includes, but is not limited to, the removal of accumulated silt and the replacement of damaged barriers and other features.

CARP Condition 4: All required setbacks shall be implemented according to the HCP/NCCP Condition 4 (HCP/NCCP Section 6.1.2).

CARP Condition 5: All work in aquatic resources within the Stream System shall be restricted to periods of low flow and dry weather between April 15 and October 15 unless otherwise permitted by local jurisdictions and approved by the appropriate State and federal regulatory agency. Work within aquatic resources in the Stream System outside of the specified periods may be permitted under some circumstances. If it is determined that the Project needs to work outside of the low flow period, the applicant shall provide the local jurisdiction with the following information: (a) the extent of work already completed; (b) specific details about the work yet to be completed; and (c) an estimate of the time needed to complete the work in the Stream System.

CARP Condition 6: Weather forecasts shall be monitored, and erosion control established before all storm events.

CARP Condition 7: Following work in a stream channel, the low flow channel shall be returned to its natural state to the extent possible. The shape and gradient of the streambed shall be restored to the same gradient that existed before the work to the extent possible.

CARP Condition 8: Except for site preparation for the installation and removal of dewatering structures, no excavation is allowed in flowing streams unless dredging WDRs are issued by the RWQCB. Detailed plans for dewatering shall be part of the application.

CARP Condition 10: No vehicles other than necessary earth-moving and construction equipment shall be allowed within the Stream System after the section of the stream where work is performed is dewatered. The equipment and vehicles used in the Stream System are described in the application.

CARP Condition 11: Staging areas for equipment, materials, fuels, lubricants, and solvents shall be located outside the stream channel and banks and away from all preserved aquatic resources. All stationary equipment operated within the Stream System must be positioned over drip pans. Equipment entering the Stream System must be inspected daily for leaks that could introduce deleterious materials into aquatic resources. All discharges, unintentional or otherwise, shall be reported immediately to the local jurisdiction. The local jurisdiction shall then immediately notify the appropriate state and federal agencies.

CARP Condition 12: Cement, concrete, washings, asphalt, paint, coating materials, oil, other petroleum products, and other materials that could be hazardous to aquatic life shall be prevented from reaching streams, lakes, or other water bodies. These materials shall be placed a minimum of 50 feet away from aquatic environments. All discharges, unintentional or otherwise, shall be reported immediately to the local jurisdiction. The local jurisdiction shall then immediately notify the appropriate State and federal agencies.

CARP Condition 13: During construction, no litter or construction debris shall be dumped into water bodies or other aquatic resources, nor shall it be placed in a location where it might be moved by wind or water into aquatic resources. All construction debris shall be removed from the site upon completion of the Project.

CARP Condition 15: Before beginning construction, the City must have a valid CARP authorization or waiver notice. To obtain a permit, the applicant must pay all mitigation fees or purchase appropriate credits from an agency-approved mitigation bank.

CARP Condition 16: A copy of the CARP conditions and Water Quality Certification and WDRs shall be given to individuals responsible for activities on the site. Site personnel (employees, contractors, and subcontractors) shall be adequately informed and trained to implement all permits, Water Quality Certification, and WDR conditions and shall have a copy of all permits available on-site at all times for review by site personnel and agencies.

CARP Condition 17: Work shall not disturb active bird nests until young birds have fledged. To avoid impacts to nesting birds, any disturbance shall occur between September 1 and February 1 prior to the nesting season. Tree removal, earthmoving or other disturbance at other times is at the local jurisdiction's discretion and will require surveys by a qualified biologist to determine the absence of nesting birds prior to the activity.

CARP Condition 18: All trees marked for removal within the Stream System must be shown on maps included with the application. Native trees over five inches in diameter at breast height (DBH) shall not be removed without the consent of the local jurisdiction.

CARP Condition 19: The local jurisdiction shall be notified immediately if threatened or endangered species that are not Covered Species are discovered during construction activities. The local jurisdiction shall suspend work and notify the USFWS, NMFS, and the CDFW for guidance.

CARP Condition 20: Wildlife entering the construction site shall be allowed to leave the area unharmed or shall be flushed or herded humanely in a safe direction away from the site.

CARP Condition 21: All pipe sections shall be capped or inspected for wildlife before being placed in a trench. Pipes within a trench shall be capped at the end of each day to prevent entry by wildlife, except for those pipes that are being used to divert stream flow.

CARP Condition 22: At the end of each workday, all open trenches will be provided with a ramp of dirt or wood to allow trapped animals to escape.

CARP Condition 23: If human remains or cultural artifacts are discovered during construction, the applicant shall stop work and notify the local jurisdiction immediately. Work will not continue in the area until a qualified coroner and archaeologist have evaluated the remains, conducted a survey, prepared an assessment, and required consultations are completed.

4.2.3. Critical Habitat and Essential Fish Habitat

Auburn Ravine supports habitat for protected anadromous fish species, federally designated Critical Habitat for the Central Valley steelhead, and designated Essential Fish Habitat (EFH) for chinook salmon (see Figure 15). This habitat can be utilized for adult spawning, migration, juvenile rearing, and juvenile migration.

Survey Results

No salmonid species were observed during fish habitat assessment surveys (QK 2021a and QK 2022b). Habitat in Auburn Ravine within, directly downstream, and directly upstream of the McBean Park Drive Bridge was generally poor. There were scattered areas of cobbles and gravel that would be suitable for spawning, but most of the substrate was sand. There were no pools or riffles, few large boulders, and few areas with undercut banks or overhanging vegetation that would provide shade and protection. Because of severely degraded conditions, salmonids have been absent from Auburn Ravine. However, small numbers of salmons were present in upstream areas, first sighted in 2015 after extensive management actions were implemented. It is reasonable to assume that small numbers of salmonids are present in Auburn Ravine and that the area of Auburn Ravine occurring within the PIA supports migrating salmon, but it is less likely that spawning occurs. Local records indicate that adult steelhead have been observed, and juvenile steelhead have been collected in Auburn Ravine. The PCCP identifies the stream system where the Project is located as Stream ID 23: Auburn Ravine between Lincoln Boulevard and Fowler Road.

Project Impacts

The Project will permanently impact 0.0024 acres and temporarily impact 0.178 acres within the OHWM of Auburn Ravine. The installation of water diversion structures will temporarily impact Auburn Ravine, and no permanent impacts are expected to occur from the water diversion.

Avoidance and Minimization

Avoidance and minimization measures specific to protected anadromous fish species are described in a separate report titled *McBean Bridge Project Biological Assessment* (QK 2022b). This report was submitted to the PCA as part of the PCCP/CARP application package.

Cumulative Effects

With the implementation of the avoidance measures, adverse impacts would be ameliorated, and therefore no cumulative effects will occur to Critical Habitat or Essential Fish Habitat.

4.2.4. Special-Status Plant Species

Twenty-one special-status plant species were identified to be historically present within the nine USGS quadrangles by the USFWS, CDFW, or CNPS (see Appendix A). Of these 21 species, two

have the potential to occur in or immediately adjacent to the BSA. These species include the Ahart's dwarf rush and Red Bluff dwarf rush. These species were not observed during the surveys.

Ahart's Dwarf Rush

Ahart's dwarf rush is listed as CNPS List 1B.2 species. This species is not currently addressed by a recovery plan.

Life History

Ahart's dwarf rush is an annual plant. It occurs in mesic habitat within valley and foothill grasslands. The species blooms from March to May. It occurs in the eastern Central Valley between 98 and 751 feet AMSL (CNPS 2021).

Survey Results

The BSA contains vegetation associations that could support this species. This species was not observed during the surveys, but there is a limited possibility that Ahart's dwarf rush could occur within the wetlands and drainage ditch south of McBean Park Drive on the eastern side of the BSA. There is one CNDDB record of this species occurring within 10 miles of the BSA. This record is approximately 2.4 miles northwest of the BSA.

Project Impacts

Habitat for the Ahart's dwarf rush exists within the BSA but outside the PIA. The mesic grassland, wetland habitat, and drainage ditch south of McBean Park Drive on the eastern side of the PIA where this species would occur are within the PIA but will be avoided and are not expected to be impacted by Project activities. If this species is identified prior to or during construction, avoidance and minimization measures will be implemented to ensure that no significant impacts occur.

Avoidance and Minimization

A qualified biologist should conduct a pre-construction survey for the Ahart's dwarf rush during the appropriate blooming periods (March to May) and within 14 days before the commencement of ground-disturbance activities. If Ahart's dwarf rush is detected during pre-construction surveys, it will be avoided. If seasonal constraints for surveys cannot be met, all rush species will be avoided.

Compensatory Mitigation

If Ahart's dwarf rush is determined to be present and impacts cannot be avoided, then salvage of those individual plants will need to occur. Salvaged plants will need to be replanted in a suitable habitat outside of the PIA.

Cumulative Effects

With the implementation of the avoidance measures and/or compensatory mitigation, no adverse impacts will occur, and therefore no cumulative effects will occur to Ahart's dwarf rush.

Red Bluff Dwarf Rush

The Red Bluff dwarf rush is listed as CNPS List 1B.1 species. This species is not currently addressed by a recovery plan.

Life History

Red Bluff dwarf rush is an annual plant. The plant flowers between March and June. It occurs in vernally mesic habitat, within chaparral, cismontane woodlands, meadows and seeps, valley and foothill grasslands, and vernal pools. It occurs in the Inner North Coast Ranges, Cascade Range foothills, Sierra Nevada foothills, northern Sacramento Valley, and Modoc Plateau between 114 and 4,104 feet AMSL (CNPS 2021).

Survey Results

The BSA contains vegetation associations and mesic habitat that is suitable to support this species. This species was not observed during biological surveys of the BSA, but there is a limited possibility that the Red Bluff dwarf rush could occur within the PIA. There is one CNDDB record of this species occurring within 10 miles of the BSA. This record is approximately 5.9 miles south of the BSA.

Project Impacts

Habitat for the Red Bluff dwarf rush exists within the BSA, but there is limited habitat for this species within the PIA. The mesic valley and foothill grasslands, wetland habitat, and the drainage ditch south of McBean Park Drive on the eastern side of the PIA where this species would occur are within the PIA but can be avoided, and this species is not expected to be impacted by Project activities. If this species is identified prior to or during construction, avoidance and minimization measures will be implemented to ensure that no significant impacts occur.

Avoidance and Minimization

A qualified biologist should conduct a pre-construction survey for the Red Bluff dwarf rush during the appropriate blooming periods (March to June) and within 14 days before the commencement of ground-disturbance activities. If Red Bluff dwarf rush is detected during pre-construction surveys, it will be avoided. If seasonal constraints cannot be met, all rush species will be avoided.

Compensatory Mitigation

If Red Bluff dwarf rush is determined to be present and impacts cannot be avoided, then salvage of those individual plants will need to occur. Salvaged plants will need to be replanted in a suitable habitat outside of the PIA.

Cumulative Effects

With the implementation of the avoidance measures and/or compensatory mitigation, no adverse impacts will occur, and therefore no cumulative effects will occur to Red Bluff dwarf rush.

4.2.5. Special-Status Animal Species

A total of 32 special-status wildlife species were identified as having historic records of occurrence within a 10-mile radius of the BSA (CDFW 2021a; see Table 6). Of these 32 species, there are 18 species that have the potential to occur in or near the BSA. These wildlife species include Central Valley steelhead, Central Valley spring-run chinook salmon, Sacramento River winter-run chinook salmon, western pond turtle, Swainson's hawk, burrowing owl, western yellow-billed cuckoo, tricolored blackbird, grasshopper sparrow, white-tailed kite, yellow-breasted chat, the Modesto population of the song sparrow, yellow warbler, giant garter snake, foothill yellow-legged frog, black rail, pallid bat, and Townsend's big-eared bat (see Table 6). None of these special-status wildlife species or diagnostic signs of these species were observed during surveys conducted within the BSA. Migratory bird nests (likely passerines) and raptor nests were present in the BSA. None of those nests were active during the time of the surveys but could become active during the avian nesting season (February 15 through September 30). General and community avoidance and mitigation measures that are included in Chapter 4, Section 4.1 apply to most or all covered species and protected resources. In addition to these measures, species-specific resources are included within the PCCP and described below each covered species that has the potential to occur on the Project. If a special-status species has the potential to occur on the Project but is not covered by the PCCP, it is included below with avoidance and minimization measures that have been developed by a qualified biologist or as part of a standard avoidance protocol that is approved by the regulatory agencies that have jurisdiction over that species.

Central Valley Steelhead and Central Valley/Sacramento River Chinook Salmon

The Central Valley steelhead and Central Valley spring-run chinook salmon are federally threatened species, and the Sacramento River winter-run chinook salmon is a federally and State endangered species. The *Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead* (NMFS 2014) was prepared to guide the recovery of these species using appropriate management and protection. The PCCP conservation strategy provides for the removal of fish passage barriers and other projects that improve fish passage. Stream systems were divided into distinct stretches based on the quality of fish habitat.

Life History

Chinook salmon is the most important commercial species of anadromous fish in California (NMFS 2014). Chinook salmon have evolved a broad array of life history patterns that allow them to take advantage of diverse riverine conditions throughout the year. This species has been divided into two basic types of life history strategies: (1) stream-type and (2) ocean-type (Healy, 1991). Stream-type chinook salmon have adults that swim up streams in spring or summer before they have reached full maturity. Chinook salmon adults spawn in summer and fall soon after entering freshwater, and juveniles spend a relatively short time (3–12 months) in freshwater before migrating to the Pacific Ocean. Four principal life history variants are recognized and are named for the timing of their upstream migration: fall-run, late fall-run, winter-run, and spring-run (NMFS 2014).

Young salmonids (e.g., Chinook salmon and steelhead) require clean water, low water temperatures, abundant food, natural cover (shade), submerged and overhanging large woody material, log jams, aquatic vegetation, substrate consisting of large rocks and boulders, side channels, and undercut banks. Both spawning areas and migratory corridors provide rearing habitat for juvenile salmonids, which feed and grow before and during their emigration out to sea (parr-smolt transformation or smoltification). The Sacramento River supports all four runs of Chinook salmon. The larger tributaries to the Sacramento River (American, Yuba, and Feather rivers) and rivers in the San Joaquin Basin also provide habitat for one or more of these runs (NMFS 2014). Winter-run Chinook salmon are unique because they spawn during summer when air temperatures usually reach their yearly maximum (NMFS 2014). As a result, winter-run Chinook salmon require stream reaches with cold water sources that will protect embryos and juveniles from the warm ambient conditions in summer (NMFS 2014).

Steelhead are the anadromous counterpart to the resident rainbow trout. However, similar to other California steelhead, the Central Valley steelhead population has non-anadromous rainbow trout in their population (Moyle 2002).

> *"Steelhead typically migrate to marine waters after spending two years in fresh water. They reside in marine waters for typically two or three years prior to returning to their natal stream to spawn as four- or five-year-old [fish]. Unlike Pacific salmon, steelhead are capable of spawning more than once before they die. However, it is rare for steelhead to spawn more than twice before dying, and most that do so are females. Currently, Central Valley steelhead are considered "ocean-maturing" (also known as winter) steelhead, although summer steelhead may have been present prior to construction of large dams. Ocean maturing steelhead enter fresh water with well-developed gonads and spawn shortly after river entry. Central Valley steelhead enter fresh water from August through April. They hold until flows are high enough in tributaries to enter for spawning. Steelhead adults typically spawn from December through April, with peaks from January through March in small streams and tributaries where cool, well-oxygenated water is available year-round. Depending on water temperature, steelhead eggs may incubate in redds for over one month before hatching as*

alevins. Following yolk sac absorption, alevins emerge from the gravel [spawning sites] as young juveniles or fry and begin actively feeding" (NMFS 2014).

Winter-run steelhead were once distributed widely throughout the Sacramento-San Joaquin River System. The primary remaining wild populations are in Deer and Mill creeks in Tehama County and a population of unknown size in the Yuba River (Moyle 2002). Apparently, wild steelhead are found elsewhere in the Sacramento system, primarily in the cold tailwaters of dams, but their identity is confused by the presence of hatchery fish (of Eel River origin in the American and Mokelumne rivers) and by the presence of various strains of rainbow trout of hatchery origin.

Survey Results

No salmonid species were observed during fish habitat assessment surveys. Habitat in Auburn Ravine, 0.93 acres, within, directly downstream, and directly upstream of the McBean Park Drive Bridge was generally poor. There were scattered areas of cobbles and gravel that would be suitable for spawning, but most of the substrate was sand. There were no pools or riffles, few large boulders, and few areas with undercut banks or overhanging vegetation that would provide shade and protection. Because of severely degraded conditions, salmonids have been absent from Auburn Ravine. However, small numbers of salmons were present in upstream areas, first sighted in 2015 after extensive management actions were implemented. It is reasonable to assume that small numbers of salmonids are present in Auburn Ravine and that the area of Auburn Ravine occurring within the PIA supports migrating salmon, but it is less likely that spawning occurs.

During the spring, when smoltification would be occurring, the PIA would serve as a migration route and rearing area. During the spring and early summer, there would be more water in the ravine for rearing salmonids, although high water temperatures during late summer (July and August) would potentially preclude salmonids from remaining in this area. Two CNDDB records of Central Valley steelhead occurred within 10 miles of the BSA (CDFW 2021a), one of which occurs within the Auburn Ravine. There are no CNDDB records of the Central Valley and Sacramento River chinook salmon within the BSA.

Auburn Ravine is designated by the USFWS as Critical Habitat for Central Valley steelhead (USFWS 2021b; CDFW 2021b; see Figure 15). This habitat can be utilized for adult spawning, migration, juvenile rearing, and juvenile migration (USFWS 2021b). Local records indicate that adult steelhead have been observed, and juvenile steelhead have been collected in Auburn Ravine. The stretch of Auburn Ravine that is located within the PIA is classified by the PCCR as Stream Identification #23, and stream name Auburn Ravine between Lincoln Boulevard and Fowler Road.

Project Impacts

The potential negative impacts of the proposed Project on chinook salmon and steelhead are expected to be short-term. The activities that could negatively affect the fish include:

1. Collecting and relocating fishes prior to the installation of water diversion structures and while conducting fish rescue and relocation activities during the operation of the water diversion structures.
2. Noise caused by construction-related activities.
3. Reduced water quality (silt, other contaminants, debris) in Auburn Ravine caused by construction-related activities.

Any or all of these potential impacts could negatively affect chinook salmon and steelhead.

Avoidance and Minimization

Avoidance and minimization measures for salmonid species are included in the PCCP as Species Condition 7, Central Valley Steelhead, and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids). The following avoidance and minimization measures from the PCCP should be implemented for this Project.

General Condition 1, *Watershed Hydrology and Water Quality* (see Chapter 4, Section 4.1.1).

Community Condition 2.1, *Riverine and Riparian Avoidance* (see Chapter 4, Section 4.2.1).

Community Condition 2.2, *Minimize Riverine and Riparian Effects (*see Chapter 4, Section 4.2.1*).*

Guidelines for Salmonid Passage at Stream Crossings

All Covered Activities within salmonid habitat will adhere to the NMFS Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001) where feasible. The California Salmonid Stream Habitat Restoration Manual (CDFW 2011) will be consulted for specific in-stream design features and protocols to enhance habitat for salmonids. Guidelines from these documents that are applicable to this Project are:

1. The new bridge is designed to accommodate the 100-year peak flood flow with appropriate clearance to prevent structural damage to the crossing, where feasible. In the Valley, the 100-year floodplain can be thousands of feet wide on some Stream Systems, so it may not be feasible to build stream crossings to accommodate the 100-year peak flood flow. Unless culverts are intentionally designed to be undersized for stormwater detention or retention, culverts must, at a minimum, accommodate the 100-year flood without causing any adjacent flooding around the crossing that could result in mass erosion of the bank or the structural support of the crossing. (Note: State or local requirements may require that the 200-year floodplain be considered for stream crossings. The standards contained in this section do not supersede those more stringent requirements). This requirement will reduce the risk of channel degradation, stream diversion, and failure that may lead to adverse effects on salmonids over the lifespan of the crossing (National Marine Fisheries Service 2001).

2. A free-span bridge is not feasible, so bridge piers and footings were designed to have minimum impact on the stream. A hydraulic analysis, including a Hydraulic Analysis Report, a Location Hydraulic Study Form, and a Preliminary Hydraulic Study, was prepared to show piers or footings will not cause significant scour or channel erosion (Appendix C). Native plantings, natural debris, or large rocks (not riprap) will be installed under bridges to provide wildlife cover and encourage the use of crossings.

3. The bridge will be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing (see Appendix C).

The PCCP includes additional applicable measures that the Project will follow during water diversion and Project activities:

Salmonid 1. Fish Passage Design. Streamflow through new and replacement culverts, bridges, and over stream gradient control structures must meet the velocity, depth, and other passage criteria for salmonid streams as described by NMFS and CDFW guidelines or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions *(Guidelines for Salmonid Passage at Stream Crossings* [National Marine Fisheries Service 2001]). This measure has been met with the Project design and is incorporated in the hydraulic reports included in Appendix C.

Salmonid 2. Fish Passage During Construction. Fish passage through dewatered channel sections shall be maintained at all times during the adult and juvenile migration season on streams with Covered Species to allow for unimpeded passage of migrating adults and juveniles (smolts). In addition, fish passage shall be maintained during summer on streams supporting summer rearing of Covered Species to allow for seasonal movement of resident (over- summering) fish when the natural channel segment within the vicinity of work areas also supports the movement of resident fish.

To allow for fish passage, the diversion shall:

- Maintain continuous flows through a low flow channel in the channel bed or an adjacent artificial open channel.

- Present no vertical drops exceeding six inches and follow the natural grade of the site.

- Maintain water velocities that shall not exceed 1.5 feet per second and provide velocity refugia, as necessary.

- Maintain adequate water depths consistent with normal conditions in the Project reach.

- Be lined with cobble/gravel to simulate stream bottom conditions.

- Be checked daily to prevent accumulation of debris at diversion inlet and outlet.

A closed conduit pipe shall not be used for fish passage. Pipes may be used to divert flow through dewatered channel segments on streams that do not support migratory species or during low flow conditions when the channel segment within the vicinity of work areas at the time of construction does not support the movement of fish.

Salmonid 3. Pre-construction Relocation. Prior to the start of work or during the installation of water diversion structures, if fish Covered Species are present and it is determined that they could be injured or killed by construction activities, a qualified biologist will first attempt to gently herd fish Covered Species away from work areas and exclude them from work areas with nets, if practicable. If herding is not practicable or ineffective, a qualified biologist shall capture fish Covered Species and transfer them to another appropriate reach. In considering the relocation, the qualified biologist will determine whether relocation is ecologically appropriate using a number of factors, including site conditions, system carrying capacity for potential relocated fish, and flow regimes (e.g., if flows are managed). If fish Covered Species are to be relocated, the following factors will be considered when selecting release site(s):

- Similar (within 3.6°F [2 degrees Celsius (°C)]) water temperature as capture location. In addition, fish must be held in water that is at the same temperature as release sites at the time of release. If raising or lowering of water temperature in the holding apparatus is required, water temperatures in the holding apparatus containing fish should not be changed at a rate that exceeds l.8°F (1°C) every two minutes and should not exceed 41°F (5°C) per hour.

- Ample habitat availability prior to the release of captured individuals.

- Presence of others of the same species so that relocation of new individuals will not upset the existing prey/predation function.

- Carrying capacity of the relocation location.

- Potential for the relocated individual to transport disease.

- Low likelihood of fish reentering work site or becoming impinged on exclusion net or screen.

Capture and relocation of fish Covered Species is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment or when the safety of the biologist conducting the capture may be compromised.

Salmonid 4. Spawning Gravel Cleaning. Spawning gravel cleaning and replacement activities should be timed to occur during the dry season and after the fry have emerged from the gravel (generally July 1 through October 1). Based on the Project timeframe, a request may be submitted to the PCA for review by CDFW and NMFS if an extension of this work window is necessary. Spawning gravel cleaning and replacement activities should be timed to occur when stream flows are at a minimum to minimize the need for site dewatering and to minimize the potential for

downstream turbidity and sedimentation effects. If dewatering is needed, other applicable avoidance and minimization measures shall be implemented prior to commencing spawning gravel cleaning and replacement activities. Gravel to be placed in streams shall be washed (to remove fines), rounded (i.e., non- angular), and spawning-sized (between 0.4 and 4.0 inches [10 to 100 millimeters] in diameter). If gravel augmentation is needed, gravels should be placed such that high flows naturally sort and distribute the material.

Salmonid 5. Use of Riprap When Necessary. Riprap is not planned to be placed within the OHWM of the Project. If it is required to be placed below the OHWM at a later date, it shall have a cleanliness value of no less than 85 percent and shall be covered with clean, uncrushed rock consistent with NMFS spawning gravel size requirements (currently 98 to 100 percent of the clean, uncrushed rock must pass through a 4-inch sieve, and 60 to 80 percent must pass through a 2-inch sieve). Of the total volume of rock placed, 50 percent shall consist of clean, uncrushed rock. This measure may be updated with more current standards.

Foothill Yellow-Legged Frog, and Western Pond Turtle

The foothill yellow-legged frog and western pond turtle rely on aquatic habitats for their life cycle. Because of their similar life history, these species are covered by the same avoidance and mitigation measures within the PCCP.

Foothill Yellow-Legged Frog

The foothill yellow-legged frog is a federal candidate that is under review by USFWS for listing. In 2019, the California Department of Fish and Wildlife (CDFW) divided the species into six clades based on geographic location and the status of the species in these locations. The McBean Park Drive Bridge Replacement Project is located within the Northeast/Northern Sierra clade, which is listed as threatened under CESA.

Life History

The foothill yellow-legged frog (*Rana boylii*) is a medium-sized frog with a slim waist, long legs, and webbing on the hind feet. Their skin is grainy rather than smooth. Identification of adults of this species can be made by observing banding on the hind legs, a triangular light patch on the snout, and indistinct dorsolateral folds (Stebbins 2003). This species ranges from the Coast Mountain Ranges at the Oregon/California border south to the Transverse Mountains in Los Angeles County, California. It is found in most of Northern California west of the Cascade crest and along the western flank of the Sierra south to Kern County. Its elevation range extends from near sea level to 1,940 meters (6,370 feet) in the Sierra Nevada Range.

It is commonly found in streams and rivers with rocky substrates and open, sunny banks, and sometimes within isolated pools, vegetated backwaters, and deep, shaded spring-fed pools. Habitat used by this species includes valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types (USFWS 2022). Adults prey on a variety of invertebrates, including aquatic, terrestrial, and flying insects, spiders, and grasshoppers. Larvae graze the surface of rocks and

vegetation for algae and detritus. The foothill yellow-legged frog lays eggs on the downstream side of rocks in shallow, slow-moving water. Egg masses can be identified in slow-moving water on edge waters as bluish-hued masses containing approximately 300 to 2,000 eggs (California Herps 2022).

Survey Results

The foothill yellow-legged frog was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021. The breeding season is timed with the streamflow levels but generally occurs in the spring after winter runoff has ended. Only one survey was conducted during the appropriate breeding season (March 2015). No surveys were conducted in the late summer (late August to early October) when the subadults and adults may still be in the vicinity after the breeding season. There are no CNDDB records of foothill yellow-legged frog on or within 10 miles of the BSA (CDFW 2022a).

Habitat that could support this species is present on the PIA. In summer, Auburn Ravine is a slow-moving stream, and it provides areas where eggs can be laid. This species could also potentially forage and breed on and near the PIA. Supporting habitat within the BSA includes the Valley Foothill Riparian (9.53 acres) and Riverine (0.93 acres) that are located within and immediately adjacent to the Project (see Figure 16) and may support this species. The remaining habitat within the biological survey area does not support foothill yellow-legged frog due to expanding urban/suburban development (e.g., residential and commercial development, 79.17 acres), and habitat that does not provide suitable foraging or breeding habitat such as Annual Grassland (1.13 acres).

Project Impacts

This species should not be impacted by the Project if the Project avoidance and minimization measures are followed. These measures are provided in the section of this report below titled "Avoidance and Minimization Measures for Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle."

Western Pond Turtle

The western pond turtle is listed as a California Species of Special Concern. This species has no federal-listing status and is not addressed in a recovery plan.

Life History

Western pond turtles are medium-sized aquatic turtles that can reach sizes of up to 8.5 inches long. They have an olive-brown or blackish-brown carapace (dorsal shell). Plastron (belly) markings range from no markings to dark brown blotches. This species is an aquatic turtle, which is highly associated with permanent ponds, lakes, reservoirs, canals, and low-gradient streams. While adults are habitat generalists, hatchlings and first-year young require shallow, warm-water habitats with emergent vegetation. They occur in a wide variety of terrestrial habitats below 6,000 feet AMSL in elevation as long as there is a permanent water source.

Pond turtles are omnivorous and feed on aquatic plants, terrestrial and aquatic insects, crustaceans, fish, frogs, and carrion. Habitat quality is determined by the presence of permanent water, prey availability, and basking sites. Western pond turtles require upland sites in the vicinity of aquatic habitats for oviposition. Nest sites are typically dug about 4 inches deep in dry soils with high clay or silt content (or in sand) and are usually within 200 meters of water. Eggs are laid from March to August depending on local conditions, and clutch size varies from 3 to 12 eggs. Incubation takes about 70 to 90 days. In warmer areas of central and southern California, hatchlings may emerge in the fall, but most hatchlings overwinter and emerge in the spring (Jennings and Hayes 1994, Stebbins 2003).

Survey Results

The western pond turtle was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021, but none were conducted during the optimal surveying window (May to July) which is during the breeding season. There are two CNDDB records of this species occurring within 10 miles of the PIA. The closest known record of this species is approximately 1.7 miles east of the BSA.

The BSA contains habitat that could potentially support this species, specifically the Auburn Ravine (0.93 acres). The BSA also provides potential upland habitat, Valley Foothill Riparian (9.53 acres), and Annual Grassland (1.13 acres), for this species on the banks of Auburn Ravine and near the Aquatic Marshland Complex (7.39 acres) features (Figure 16). Basking and breeding sites occur within the banks of Auburn Ravine, particularly on the portion south of the bridge.

Project Impacts

These species could potentially occur within the Auburn Ravine and/or the adjoining wetland and riparian habitat. Project construction and staging within these areas may impact these species. The following avoidance and minimization measures will be implemented to ensure that impacts to these species are avoided. These measures are provided below.

Avoidance and Minimization Measures for Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle

California red-legged frog, foothill yellow-legged frog, and western pond turtle are grouped under Species Conditions 6 in the PCCP. No habitat for California red-legged frog is present within the Project, so this species does not need to be considered in this document (see Table 6). No specific measures solely for the foothill yellow-legged frog and western pond turtle are directed by the PCCP. Instead, avoidance and minimization measures specific to other protected resources and Covered Species that require aquatic habitat are referenced in the PCCP as needing to be implemented if these species could be located on a Project. Because these conditions are either required for all should have been conditions described in the PPCP on Covered Activities that provide avoidance and minimization for include:

- General Condition 1, *Watershed Hydrology and Water Quality* (see Chapter 4, Section 4.1.1).

- Community Condition 2, *Riverine and Riparian Avoidance and Minimization* (see Chapter 4, Section 4.1.1).

- Community Condition 3, *Valley Oak Woodland Avoidance, Minimization, and Mitigation* (see Chapter 4, Section 4.2.1).

- Stream System Condition 1, *Stream System Avoidance and Minimization* (see Chapter 4.1.1).

- Species Condition 4, *Tricolored Blackbird,* (see Avoidance and Minimization Measures for the Tricolored Blackbird in Chapter 4, Section 4.2.5).

- Species Condition 7, *Central Valley Steelhead and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids)* (see Chapter 4, Section 4.2.5).

Swainson's Hawk

The Swainson's hawk is listed as a State threatened species and is protected under the MBTA.

Life History

The Swainson's hawk was historically one of the most common raptors in the State, but its abundance has declined by an estimated 91 percent (Bloom 1980) since the early 1900s. As with many sensitive species, the primary threat to the Swainson's hawk is the loss of nesting and foraging habitats. This hawk typically prefers nesting in trees along riparian corridors, but it will also nest in trees scattered among agricultural fields or pastures. Trees commonly used as nesting sites include valley oak, Fremont's cottonwood, willows, sycamores (*Platanus* sp.), and walnuts. Open fields (e.g., annual grasslands, pasture lands, alfalfa, grain, and row crops) are the primary foraging areas for the Swainson's hawk, which mainly consumes small vertebrates such as rodents, reptiles, and passerines during the nesting season. Nesting habitats must be within energetically efficient flight distances to foraging areas for successful breeding to occur. Telemetry studies suggest that the upper threshold of this flight distance is approximately 18 miles, but an average flight distance of approximately 10 miles is more typical. The Swainson's hawk is a migratory species, spending the spring and summer in the western and central United States, Western Canada, and Alaska while spending the winter in Mexico and Central and South America.

Survey Results

Swainson's hawk was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021. The surveys were conducted within Period I (January – March 20) as described in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFW 2000). During Period I potential nest sites and competing species that can also nest within the vicinity will be identified. During survey Periods II through V, surveyors identify adult Swainson's hawks, breeding/nesting behaviors, nest building, incubation, hatching, and post-fledgling activities. However, no additional surveys were

conducted during Periods II – V. Ten Swainson's hawk CNDDB records occurred within 10 miles of the BSA (CDFW 2021a). The closest of these records was located approximately 1.7 miles west, northwest of the BSA. No Swainson's hawk nests reported to the CNDDB were recorded within a half mile of the PIA.

Nesting and foraging habitat was present within the BSA. Nesting habitat occurs within the Valley Foothill Riparian (9.53 acres), and foraging habitat occur within the Annual Grassland area (1.13 acres) within and near the BSA (Figure 16). Urban habitat, totaling 79.17 acres within the BSA, has some trees that can be used by nesting Swainson's hawk. No Swainson's hawks were observed within the survey area, but 20 inactive nests were identified within the BSA (see Figure 13). No active nests were observed.

Project Impacts

Construction activities could have direct impacts to the Swainson's hawk if trees with active nests are removed. Indirect impacts could also occur to nesting individuals in the vicinity because this species is sensitive to disturbance, particularly during the nesting season. No direct or indirect impacts are expected to occur from the loss of riparian habitat as any loss will be minimal and will occur close to the road, which is a significant disturbance to potential nesting and foraging activities. Direct and indirect impacts are unlikely to occur with the implementation of avoidance and minimization measures.

Avoidance and Minimization

To reduce Project-related impacts to active Swainson's hawk nests and to reduce the potential for construction activities to interrupt breeding and rearing behaviors of birds, the following measures from the PCCP shall be implemented prior to and during construction activities scheduled to occur within the nesting season (February 15 to August 31):

PCCP Species Condition 1; Swainson's Hawk Surveys

Surveys for Swainson's hawk nests are required on the following communities in the Valley within 0.25 miles (1,320 feet) of the PIA:

- Grassland
- Riparian
- Urban (trees that are present within the Urban community)

A CNDDB record search was conducted on August 29, 2022. No active nests were present within 1,320 feet of the PIA. If the regulatory agencies have other records of nests within 1,320 feet of the PIA that could be provided, those nests will be checked as part of the Swainson's hawk surveys described below.

Pre-construction Surveys

The PCCP requires pre-construction surveys and construction monitoring for Swainson's hawk to be conducted. The following are Swainson's Hawk Protocol Surveys 1 through 4 from the PCCP.

Swainson's Hawk 1. Protocol level Swainson's hawk surveys are required prior to Project construction to determine whether Swainson's hawk is nesting on or within 1,320 feet of the PIA. Surveys will be conducted consistent with current guidelines (Swainson's Hawk Technical Advisory Committee 2000), with the following exceptions:

- Surveys will be required within a 1,320-foot radius around the PIA. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest tree(s) from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without Placer County Program Participation and Conditions on Covered Activities PCCP Western Placer County HCP/NCCP 6-60 February 2020 ICF 506.10 trespassing, using binoculars and/or a spotting scope to look for Swainson's hawk nesting activity.

- Surveys will be required from February 1 to September 15 (or sooner if it is found that birds are nesting earlier in the year).

- If a Swainson's hawk nest is located and presence confirmed, only one follow-up visit is required (to avoid disturbance of the nest due to repeated visits).

If surveys determine that a Swainson's hawk nest is occupied, the Project must adopt the minimization measure listed below that are described in the PCCP:

Swainson's Hawk 2. During the nesting season (approximately February 1 to September 15 or sooner if it is found that birds are nesting earlier in the year), ground-disturbing activities within 1,320 feet of occupied nests or nests under construction will be prohibited to minimize the potential for nest abandonment. While the nest is occupied, activities outside the buffer can take place, provided that they do not stress the breeding pair.

If the active nest site is shielded from view and noise from the PIA by other development, topography, or other features. The City can apply to the PCA for a reduction in the buffer distance or waiver of this avoidance measure. A qualified biologist would be required to monitor the nest and determine that the reduced buffer does not cause nest abandonment. If a qualified biologist determines nestlings have fledged, Covered Activities can proceed normally.

Swainson's Hawk 3. Active (within the last five years) nest trees on a PIA will not be removed during the nesting season. If a nest tree must be removed (as determined by the PCA), tree removal shall occur only between September 15 and February 1, after any young have fledged and are no longer dependent on the nest and before breeding activity begins.

Construction Monitoring

Swainson's Hawk 4. Construction monitoring will be conducted by a qualified biologist and will focus on ensuring that activities do not occur within the buffer zone. The qualified biologist performing the construction monitoring will ensure that effects on Swainson's hawks are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If space does not

allow, construction will cease until the young have fledged from the nest (as confirmed by a qualified biologist).

The frequency of monitoring will be approved by the PCA and based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on Swainson's hawks are minimized. The qualified biologist will train construction personnel on the avoidance procedures and buffer zones.

California Black Rail

The California black rail is a California state fully protected species and listed under CESA as threatened.

Life History

The California black rail is small bird that is primarily active at dusk and occasionally during daylight hours. It is a year-round resident and ranges throughout California but is most prolific in the fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay, the Salton Sea, and lower Colorado River area (Zeiner et al. 1990).

The California black rail is commonly found around tidal emergent wetlands or in brackish marshes with supporting bulrushes. They can also be found in freshwater, commonly in areas with bulrushes (*Blysmus species*), cattails (*Typha species*), and saltgrass (*Distichlis spicata*, Zeiner et al. 1990). Adults glean isopods, insects, and other arthropods from the surface of the mud or from aquatic vegetation.

California black rails are monogamous during the breeding season (March to June), and a mated pair select a nest site together. Nests are typically set on or near the ground, usually at the base of taller vegetation where the ground is moist. The nest is a circular bowl made of fine grasses, rushes, and sedges. Both adults share incubation duties and monitor the chicks after they have hatched.

Survey Results

The California black rail was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021, but only one survey was conducted during the breeding season. No protocol-level California black rail surveys were conducted. The are no CNDDB records of California black rail on or within 10 miles of the BSA (CDFW 2022a).

Marginal habitat that could support movement and foraging for this species is present on the PIA. No brackish marshes were in the vicinity of the PIA, but Aquatic Marshland Complex (7.39 acres), and Valley Foothill Riparian (9.53 acres), are located within and immediately adjacent to the Project (see Figure 16) and may support this species. Remaining habitat within the biological survey area does not support California black rail due to expanding urban/suburban development (e.g., residential and commercial development, 79.17 acres), and habitat that does not provide

suitable foraging or breeding habitat for the California black rail such as Annual Grassland (1.13 acres) and Riverine (0.93 acres). Breeding habitat is present south of the Project within the McBean Park Expansion Preserve.

Project Impacts

This species could potentially occur within the wetlands adjacent within and adjacent to the BSA. No construction activities should occur within the nesting habitat for this species, but noise and disturbance due to construction activities that occur within 500 feet of active nests may cause nest failure. The following avoidance and minimization measures will be implemented to ensure that impacts to this species are avoided.

Avoidance and Minimization

California back rail species is covered by the PCCP under Species Condition 2, black rail. If construction activities occur during nesting season between March 15 and July 31 within habitat that could be used by nesting black rails during the nesting. The following measures will be implemented to avoid or minimize the effects of Covered Activities on California black rail.

PCCP Species Condition 2; California Black Rail Surveys include:

Pre-construction Surveys

California Black Rail 1. Surveys will be initiated sometime between March 15 and May 31, preferably before May 15. A minimum of four surveys will be conducted. The survey dates will be spaced at least 10 days apart and will cover the time period from the date of the first survey through the end of June to early July. This will allow the surveys to encompass the time period when the highest frequency of calls is likely to occur. Projects must conduct surveys during this time period, regardless of when the Project is scheduled to begin, and shall be conducted the year in which ground disturbance activities commence.

Surveys must be conducted using survey protocol based on the methods used in Richmond et al. (2008) or guidance agreed upon by the Permittees and Wildlife Agencies. Surveys will be conducted because a fresh emergent wetland greater than 0.2 acres in size occurs on an adjacent parcel that is within 500 feet of the PIA, using survey methods that rely on call playback to elicit a response from California black rails (e.g., those used by Richmond et al. 2008). Calls will be played from the edge of the adjacent parcel, or where most appropriate to elicit a response, without trespassing.

If a California black rail is determined to be present, no Project activities are permitted within 500 feet of the outside perimeter of the occupied wetland. The City may conduct activities within 500 feet of an occupied wetland based on site-specific conditions (e.g., noise barriers) and if approved by the PCA and the Wildlife Agencies and a qualified biologist monitors construction activities within 500 feet to ensure that California black rail nests are not disturbed.

California Black Rail 2. If the PCA does not grant coverage, a buffer around the avoided wetland will be demarcated 500 feet from the outside perimeter of the occupied wetland with Placer County Program Participation and Conditions on Covered Activities Placer County Conservation Program Western Placer County HCP/NCCP 6-62 February 2020 ICF 506.10 an exclusion fence to prevent construction activities from encroaching into the buffer zone and to identify the occupied wetland and buffer zone as a no-work area within the covered project.

Construction Monitoring

California Black Rail 4. A qualified biologist will monitor on-site during construction to ensure that no Covered Activities occur within the buffer zone established around the occupied wetland, or if take allowance is granted outside of the breeding season, to ensure that adverse effects are minimized. The frequency of monitoring will be approved by the PCA based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on California black rail are minimized. The qualified biologist may increase the buffer size if s/he determines that activities are particularly disruptive (e.g., use of dynamite or other explosives). Prior to the start of construction, the qualified biologist will train construction personnel on the avoidance procedures and buffer zones.

Burrowing Owl

The burrowing owl is listed as a California Species of Special Concern and is protected under the MBTA.

Life History

The western burrowing owl is a small, ground-dwelling raptor that is designated as a California Species of Special Concern and protected by the MBTA. It is approximately 9 to 10 inches tall, boldly spotted, and barred with round yellow eyes and long, featherless legs. It nests and forages in open grasslands, deserts, sagebrush scrub, agricultural areas, earthen levees and berms, coastal uplands, and urban vacant lots, as well as the margins of airports, golf courses, and roads. The western burrowing owl selects sites that support short vegetation, even bare soil, presumably because this landscape increases visibility. It is opportunistic when selecting nesting sites, usually nesting in abandoned burrows dug by small-sized mammals such as California ground squirrels (*Otospermophilus beecheyi*), but western burrowing owls will sometimes occupy abandoned American badger (*Taxidea taxus*), desert tortoise (*Gopherus agassizii*), or kit fox dens (*Vulpes* sp.), and it may even use abandoned or unused pipes, culverts, or other human-made structures of suitable size.

Western burrowing owls are primarily crepuscular in their foraging habits but will hunt for insects and small vertebrates during both day and night. Their nesting season begins in March or April and extends through August. The average clutch size is five or six eggs, and they rarely produce a second brood. Where site conditions are optimal, burrowing owls sometimes form loose colonies, which is unusual for avian predators (Haug et al. 1993).

Burrowing owls are summer residents in the western half of the United States and year-round residents in the southwestern portion of the U.S. and northern and central Mexico. In California, their range extends through the lowlands south and west from north central California to Mexico, with small, scattered populations occurring in the Great Basin and desert regions of the State (DeSante et al. 1997). Burrowing owls are absent from the coast north of Sonoma County and from high mountain areas such as the Sierra Nevada and the ranges extending east from Santa Barbara to San Bernardino. Burrowing owl populations have been greatly reduced or extirpated from the San Francisco Bay Area and along the California coast to Los Angeles. They have also apparently disappeared from the Coachella Valley. The remaining major population densities of the burrowing owls in California are in the Central Valley and the Imperial Valley (DeSante et al. 1997).

Survey Results

The burrowing owl was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021, but only one survey was conducted during the early breeding and nesting season (March to April), which is the time of the year when adults are most active and are paired up for the nesting season. Four western burrowing owl CNDDB records occurred within 10 miles of the BSA (CDFW 2021a). The closest of these records was located approximately 3.4 miles northwest of the BSA.

Limited nesting and foraging habitat were present within the BSA. Nesting habitat and foraging habitat occurs within the annual grassland area (1.13 acres) within and near the BSA south and east of the bridge (see Figure 16). The annual grassland is adjacent to and surrounded by wetlands and may be seasonally flooded. Limiting the burrowing owl from inhabiting the annual grassland. No diagnostic sign (e.g., existing burrows, whitewash) was observed during the surveys.

Project Impacts

This species could potentially occur within the grassland habitat within the PIA and BSA. This species could be impacted by construction activities that occur within grassland habitats or the construction noise and increased disturbance adjacent to grassland habitats. The following avoidance and minimization measures will be implemented to ensure that impacts to this species are avoided.

Avoidance and Minimization

Burrowing owls are a Covered Species under the PCCP and included in the PCCP under Species Condition 3, Western Burrowing Owl. Surveys for burrowing owl must be conducted fin the

following communities and features within the BSA to ensure that occupied burrowing owl nests are not taken:

- Grassland
- Man-made structures such as underground pipes, irrigation canal banks, ditches

PCCP Required Pre-construction Surveys for Species Condition 3, burrowing owl:

Burrowing Owl 1. Two surveys will be conducted within 15 days prior to ground disturbance to establish the presence or absence of burrowing owls. The surveys will be conducted at least seven days apart (if burrowing owls are detected on the first survey, a second survey is not needed) for both breeding and non-breeding season surveys. All burrowing owls observed will be counted and mapped.

During the breeding season (February 1 to August 31), surveys will document whether burrowing owls are nesting in or within 250 feet of the PIA.

During the non-breeding season (September 1 to January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any area to be disturbed. Survey results will be valid only for the season (breeding or non-breeding) during which the survey was conducted.

The Qualified Biologist will survey the proposed footprint of disturbance and a 250-foot radius from the perimeter of the proposed footprint to determine the presence or absence of burrowing owls. The site will be surveyed by walking line transects, spaced 20 to 60 feet apart, adjusting for vegetation height and density. At the start of each transect and, at least every 300 feet, the surveyor, with use of binoculars, shall scan the entire visible project area for burrowing owls. During walking surveys, the surveyor will record all potential burrows used by burrowing owls, as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls; therefore, observers will also listen for burrowing owls while conducting the survey. Adjacent parcels under different land ownership will be surveyed only if access is granted. If portions of the survey area are on adjacent sites for which access has not been granted, the qualified biologist will get as close to the non-accessible are as possible and use binoculars to look for burrowing owls.

The presence of burrowing owl or their sign anywhere on the site or within the 250-foot accessible radius around the site will be recorded and mapped. Surveys will map all burrows and the occurrence of sign of burrowing owl on the PIA. Surveys must begin one hour before sunrise and continue until two hours after sunrise (three hours total) or begin two hours before sunset and continue until 1 hour after sunset.

Applicable Measures If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the PIA, the following measures must be implemented:

Burrowing Owl 2. If burrowing owls are found during the breeding season (approximately February 1 to August 31), the City will:

- Avoid all nest sites that could be disturbed by Project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).

- Establish a 250-foot non-disturbance buffer zone around nests. The buffer zone will be flagged or otherwise clearly marked. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, or otherwise display agitated behavior, then the exclusionary buffer will be increased such that activities are far enough from the nest so that the bird(s) no longer display this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist. Construction may only occur within the 250-foot buffer zone during the breeding season only if a qualified raptor biologist monitors the nest and determines that the activities do not disturb nesting behavior, or the birds have not begun egg-laying and incubation, or that the juveniles from the occupied burrows have fledged and moved off-site. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and provided a biological monitor confirms that such measures do not cause agitated behavior.

Burrowing Owl 3. If burrowing owls are found during the non-breeding season (approximately September 1 to January 31), a 160-foot buffer zone will be established around active burrows. The buffer zone will be flagged or otherwise clearly marked. Measures such as visual screens may be used to further reduce the buffer with Wildlife Agency approval and provided a biological monitor confirms that such measures do not cause agitated behavior.

Burrowing Owl 4. During the non-breeding season only, if a project cannot avoid occupied burrows after all alternative avoidance and minimization measures are exhausted, as confirmed by the Wildlife Agencies, a qualified biologist may passively exclude birds from those burrows. A burrowing owl exclusion plan must be developed by a qualified biologist consistent with the most recent guidelines from the Wildlife Agencies (e.g., California Department of Fish and Game 2012) and submitted to and approved by the PCA and the Wildlife Agencies. Burrow exclusion will be conducted for burrows located in the project footprint and within a 160-foot buffer zone as necessary.

Construction Monitoring

Burrowing Owl 5. A biological monitor will be present on-site daily to ensure that no Covered Activities occur within the buffer zone. The qualified biologist performing the construction monitoring will ensure that effects on burrowing owls are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If space does not allow, construction will cease until the young have fledged from all the nests in the colony (as confirmed by a qualified biologist) or until the end of the breeding season, whichever occurs first.

A biological monitor will conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone (i.e., outside the buffer zone).

Giant Garter Snake

The giant garter snake is a federally threatened species. The *Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake (Thamnophis gigas) Habitat* (USFWS 2017) identifies recovery actions for the giant garter snake.

Life History

The giant garter snake is one of the largest garter snakes, reaching sizes up to 64-inches long (UFWS 2017). The markings on this species can vary, but most individuals will have two light cream or orange-colored stripes running down their back. The body is brown to olive with a checkered pattern of black spots. The belly is uniformly a light brown or gray color.

Giant garter snakes are mostly located near waterbodies where they hunt and seek refuge if threatened. Giant garter snakes inhabit marshes, sloughs, small creeks, agricultural canals, and irrigation ditches and prefer areas with vegetation (CDFW 2014). During the winter months, between November and February, giant garter snakes are mostly fossorial and rarely come above ground. Between March and October, giant garter snakes mostly remain above ground and bask on the edges of their waterbody, often on top of vegetation like cattails. During hot weather, they take refuge in small mammal burrows and under leaflitter. Mating activity will occur soon after the emergence of spring, with young hatching between July and September (CDFW 2014). Native fish and amphibian species, which likely served as food sources for this species in the past, have been replaced by invasive counterparts like bullfrogs, mosquito fish, and carp.

Survey Results

The giant garter snake was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021, but only one survey was conducted during mating season (March to May), which is the time of year when this species is most active and likely to be observed. There are no CNDDB records of giant garter snake on or within 10 miles of the BSA (CDFW 2022a).

Marginal habitat that could support this species was present within the PIA. No marshes or slough were in the vicinity of the PIA, but irrigation ditches and the aquatic habitat, including the Aquatic Marshland Complex (7.39 acres), and Valley Foothill Riparian (9.53 acres) are located within and immediately adjacent to the Project (see Figure 16) and may support this species. The remaining habitat within the biological survey area does not support giant garter snake due to expanding urban/suburban development (e.g., residential and commercial development).

Project Impacts

This species could potentially occur within the BSA. This species may be present within the wetland habitats or Auburn Ravine. Work within the Auburn Ravine may impact this species. The following avoidance and minimization measures will be implemented to ensure that impacts to this species are avoided.

Avoidance and Minimization

The following measures outlined in the PCCP and based on the USFWS's *Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake* (Thamnophis gigas) *Habitat* (U.S. Fish and Wildlife Service 1999a) will be implemented to avoid or minimize effects of Covered Activities on PCCP Species Condition 5, giant garter snakes.

PCCP Giant Garter Snake 1. If the City cannot avoid effects on construction activities, the City will implement the following measures to minimize effects of construction projects,

- Conduct preconstruction clearance surveys using USFWS and CDFW-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of 2 weeks or more, conduct another preconstruction clearance survey within 24 hours of resuming construction activity.

- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced because snakes are expected to actively move and avoid danger.

- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, cancels, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.

- Provide environmental awareness training for construction personnel. Training may be implemented through the distribution of approved brochures and other materials that describe resources protected under the Plan and methods for avoiding effects. If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or, if it leaves the site, does not return. The qualified biologist will work with the PCA, USFWS, and CDFW to redirect the snake away from the disturbance area within

three days of reporting the snake's presence at the construction site to USFWS and CDFW.

- Employ the following management practices to minimize disturbances to habitat:
    - Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.
    - Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic monofilament, jute, or similar erosion control matting that could entangle snakes or other wildlife will be permitted.

Tricolored Blackbird

The tricolored blackbird is listed under CESA as threatened.

Life History

Tricolored blackbirds historically nested in wetlands with cattails, bulrushes, or willows. However, with wetlands being converted to agricultural fields or urban development, the species has adapted to nesting in agricultural fields. If there are no wetlands or marshes available tricolored blackbirds' have been observed nesting in triticale fields, a type of agriculture.

Tricolored blackbirds are colonial breeders and occur in colonies of 50 pairs are greater. Male tricolored blackbirds will defend only their nesting territory and can also have multiple females within a territory. The male will attract females to him through a song, display of the wings and tail, and fluffing of the feathers around the neck area. There are three site characteristics for nest sites: (1) accessible freshwater, (2) protected nest sites (flooded or surrounded by thorn or spined vegetation), and (3) foraging area with an abundance of arthropod prey. The nests are typically built by the females in a male's territory and are placed in cattails, bulrushes, or willows near the edge of the water. The nest is cup-shaped and made of grasses or cattails. The nest is built in approximately three days and is about 7 inches tall and 5 inches wide. The female will lay about three to four eggs per brood and can have one or two broods per year. The incubation and nesting periods are each 11 to 14 days long.

Tricolored blackbirds eat seeds and invertebrates, including grasshoppers, beetles, caterpillars, and weevils. They typically pick up their prey from the ground or from a shrub, but they have been known to catch prey in mid-flight.

Survey Results

The tricolored blackbird was not detected during the surveys conducted within the BSA. Three surveys were conducted between 2015 and 2021, but only one survey was conducted during the breeding season. Eight CNDDB records of tricolored blackbird are located within 10 miles of the BSA, including one observation located adjacent to the Project (CDFW 2022a).

Marginal habitat that could support movement and foraging for this species is present on the PIA. Aquatic Marshland Complex (7.39 acres) and Valley Foothill Riparian (9.53 acres) are located within and immediately adjacent to the Project (see Figure 16) and may support this species. The remaining habitat within the biological survey area does not support tricolored blackbird due to expanding urban/suburban development (e.g., residential and commercial development, 79.17 acres), and habitat that does not provide suitable foraging or breeding habitat such as Annual Grassland (1.13 acres) and Riverine (0.93 acres). Breeding habitat may be available south of the Project within the McBean Park Expansion Preserve.

Project Impacts

This species could potentially occur within the BSA. This species could be impacted by Project activities that occur within the Auburn Ravine or adjacent to wetland habitat where nests could be located. The following avoidance and minimization measures will be implemented to ensure that impacts to this species are avoided.

Avoidance and Minimization

PCCP Species Condition 4 tricolored blackbird includes avoidance and mitigation measures for Projects that may impact tricolored blackbird nesting habitat.

The PCA will provide a map of active colony sites to help determine where a survey for tricolored blackbird must occur. A colony site is considered active if it has been used for nesting in the prior 10 years. Surveys for nesting tricolored blackbird must occur if the PCA-provided map indicates an active colony site occurs on the PIA or within 1,300 feet of a colony site. Surveys for nesting tricolored blackbird must also be conducted for PIAs below 300 feet elevation within the following communities.

- Aquatic/Wetland complex
- Patches of thorny or spiny vegetation such as blackberry, nettle, or thistle which is associated with the Aquatic Marshland Complex, and Valley Foothill Riparian.

If an active colony site is within 3 miles of the PIA and construction will occur within the nesting season (March 15 to July 31), then a survey of foraging habitat at and immediately surrounding the PIA will be conducted within the following communities.

- Aquatic Marshland Complex
- Valley Foothill Riparian

Pre-Construction Surveys for Tricolored Blackbird

Tricolored Blackbird 1. *Preconstruction Surveys - Nest Colony Sites.* Prior to initiation of Covered Activities in all Project work areas and within 1,300 feet of Project work areas, the qualified biologist(s) shall conduct preconstruction surveys to evaluate the presence of tricolored

blackbird nesting colonies. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all potential nest colony site(s) from the adjacent property, road sides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for tricolored blackbird nesting activity.

Surveys should be conducted at least twice with at least one month between surveys during a year of ground-disturbing for the Covered Activity. If Covered Activities occur in the Project work area during the nesting season, three surveys shall be conducted within 15 days prior to the Covered Activity, with one of the surveys occurring within five days prior to the start of the Covered Activity. The survey methods will be based on Kelsey (2008) or a similar protocol approved by the PCA and the Wildlife Agencies based on site-specific conditions.

If the first survey indicates that suitable nesting habitat is not present on the PIA or within 1,300 feet of the Project work area, additional surveys for nest colonies are not required. Preconstruction surveys are still required, however, as described below in Tricolored Blackbird 2.

Tricolored Blackbird 2. *Foraging Habitat.* If an active colony is known to occur within 3 miles of the PIA, a qualified biologist will conduct two surveys of foraging habitat within the PIA and within a 1,300-foot radius around the PIA to determine whether foraging habitat is being actively used by foraging tricolored blackbirds. The qualified biologist will map foraging habitat, as defined by the land cover types listed above, within a 1,300-foot radius around the PIA to delineate foraging habitat that will be surveyed. The surveys will be conducted approximately one week apart, with the second survey occurring no more than five calendar days prior to ground-disturbing activities. Two surveys are required because tricolored blackbirds may not visit a site during a single survey period as they may be foraging elsewhere.

Each survey shall last four hours and begin no later than 8:00 a.m. The qualified biologist will survey the entire PIA and a 1,300-foot radius around the PIA by observing and listening from accessible vantage points that provide views of the entire survey area. If such vantage points are not available, the qualified biologist will survey from multiple vantage points to ensure that the entire survey area is surveyed. In instances where an adjacent parcel is not accessible to survey because the qualified biologist was not granted permission to enter, the qualified biologist will scan all foraging habitat from the adjacent property, roadsides, or other safe, publicly accessible viewpoints, without trespassing, using binoculars and/or a spotting scope to look for tricolored blackbird foraging activity. The qualified biologist will map the locations on the site, and within a 1,300-foot radius around the PIA where tricolored blackbirds are observed and record an estimate of the numbers of tricolored blackbirds observed (estimated by 10s, 100s, or 1,000s), the frequency of visits (e.g., if individuals or a flock makes repeated foraging visits to the site during the survey period), whether tricolored blackbirds are leaving the site with food in their bills, and the direction they fly to/from.

Avoidance Measures

If a tricolored blackbird nesting colony is found, the City will abide by the following measures:

Tricolored Blackbird 3. *Nesting Colony -Avoidance and Minimization.* Construction activity or other covered activities that may disturb an occupied nest colony site, as determined by a qualified biologist, will be prohibited during the nesting season (March 15 through July 31 or until the chicks have fledged or the colony has been abandoned on its own) within a 1,300-foot buffer zone around the nest colony, to the extent practicable. The intent of this condition is to prevent disturbance to occupied nest colony sites on or near PIAs so they can complete their nesting cycle. This condition is not intended to preserve suitable breeding habitat on PIAs but to ensure impacts to active colony sites only take place once the site is no longer occupied by the nesting colony. The buffer will be applied to extend beyond the nest colony site as follows.

- If the colony is nesting in a wetland, the buffer must be established from the outer edge of all hydric vegetation associated with the colony.

- If the colony is nesting in non-wetland vegetation (e.g., Himalayan blackberry), the buffer must be established from the edge of the colony substrate.

This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies, in areas with dense forest, buildings, or other features between the Covered Activities and the occupied active nest colony; where there is sufficient topographic relief to protect the colony from excessive noise or visual disturbance; where sound curtains have been installed; or other methods developed in consultation with the Wildlife Agencies where conditions warrant reduction of the buffer distance. If tricolored blackbirds colonize habitat adjacent to Covered Activities after the activities have been initiated, the City shall reduce disturbance through the establishment of buffers or noise reduction techniques or visual screens, as determined in consultation with the Wildlife Agencies and PCA. The buffer must be clearly marked to prevent Project-related activities from occurring within the buffer zone.

Tricolored Blackbird 4. *Actively used Foraging Habitat -Avoidance and Minimization.* Construction activity or other covered activities that may disturb foraging tricolored blackbirds, as determined by a qualified biologist, will be prohibited within 1,300 feet of the foraging site to the extent feasible during the nesting season (March 15 through July 31 or until the chicks have fledged or the colony has been abandoned on its own) if the foraging habitat was found to be actively used by foraging tricolored blackbirds during at least one of the two foraging habitat surveys conducted under Tricolored Blackbird 2. If survey results indicate that the area provides marginal foraging habitat (e.g., tricolored blackbirds were observed foraging, but only briefly, and most were not successfully capturing prey), or site-specific conditions may warrant a reduced buffer, the PCA technical staff will consult with the Wildlife Agencies to evaluate whether the Project needs to avoid the foraging habitat or whether a reduced buffer may be appropriate. In such cases, additional surveys may be needed to assess site conditions and the value of the foraging habitat.

The buffer must be clearly marked to prevent Project-related activities from occurring within the buffer zone. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies, in areas with dense forest, buildings, or other features between the Covered Activities and the actively used foraging habitat; where there is sufficient topographic relief to

protect foraging birds from excessive noise or visual disturbance; or in consultation with the Wildlife Agencies if other conditions warrant reduction of the buffer distance. If tricolored blackbird begins using foraging habitat adjacent to Covered Activities after the activities have been initiated, the City shall reduce disturbance through the establishment of buffers or noise reduction techniques or visual screens, as determined in consultation with the Wildlife Agencies and PCA.

As with Tricolored Blackbird 3, the intent of this condition is to allow actively nesting colonies on or near PIAs to complete their nesting cycle prior to the loss of the foraging habitat on site. Protecting actively used-foraging habitat during the nesting season will help to enable the tricolored blackbird nesting colony to complete its nesting cycle, as loss of valuable foraging habitat could cause the nesting colony to fail. This condition is not intended to preserve suitable foraging habitat on PIAs in the long term).

Construction Monitoring

Tricolored Blackbird 5. *Nesting Colony - Construction Monitoring.* Active nesting colonies that occur within the no-disturbance buffer shall be monitored by the qualified biologist(s) to verify the Covered Activity is not disrupting the nesting behavior of the colony. The frequency of monitoring will be approved by the PCA and based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on tricolored blackbirds are minimized. The biologist will train construction personnel on the avoidance procedures and buffer zones.

If the qualified biologist(s) determines that the Covered Activity is disrupting nesting and/or foraging behavior, the qualified biologist(s) shall notify the City immediately, and the City shall notify the PCA within 24 hours to determine additional protective measures that can be implemented. The qualified biologist(s) shall have the authority to stop Covered Activities until additional protective measures are implemented. Additional protective measures shall remain in place until the qualified biologist(s) determine(s) tricolored blackbird behavior has normalized. If additional protective measures are ineffective, the qualified biologist(s) shall have the authority to stop Covered Activities as needed until the additional protective measures are modified, and nesting behavior of tricolored blackbird returns to normal.

Additional protective measures may include increasing the size of the buffer (within the constraints of the PIA), delaying Covered Activities (or the portion of Covered Activities causing the disruption) until the colony is finished breeding and chicks have left the nest site, temporarily relocating staging areas, or temporarily rerouting access to the Project work area. The City shall notify the PCA and Wildlife Agencies within 24 hours if nests or nestlings are abandoned. If the nestlings are still alive, the qualified biologist(s) shall work with the Wildlife Agencies to determine appropriate actions for salvaging the eggs or nestlings.

Notification to PCA and Wildlife Agencies shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident.

Tricolored Blackbird 6. *Actively used Foraging Habitat- Construction Monitoring.* Foraging habitat within the buffer shall be monitored by the qualified biologist(s) to verify that the Covered Activity is not disrupting tricolored blackbird foraging behavior. The frequency of monitoring will be approved by the PCA and based on the frequency and intensity of construction activities and the likelihood of disturbance of foraging tricolored blackbirds. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that effects on tricolored blackbirds are minimized. The biologist will train construction personnel on the avoidance procedures and buffer zones.

If the qualified biologist(s) determines that the Covered Activity is disrupting foraging behavior, the qualified biologist(s) shall notify the City immediately, and the City shall notify the PCA within 24 hours to determine additional protective measures that can be implemented. The qualified biologist(s) shall have the authority to stop Covered Activities until additional protective measures are implemented. Additional protective measures shall remain in place until the qualified biologist(s) determine(s) tricolored blackbird behavior has normalized. If additional protective measures are ineffective, the qualified biologist(s) shall have the authority to stop Covered Activities as needed until the additional protective measures are modified, and foraging behavior of tricolored blackbird returns to normal. Additional protective measures may include increasing the size of the buffer (within the constraints of the PIA), temporarily relocating staging areas, or temporarily rerouting access to the Project work area.

Cumulative Effects

With the implementation of the avoidance measures and/or compensatory mitigation, no adverse impacts will occur, and therefore no cumulative effects will occur to tricolored blackbird.

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is listed as a federally threatened and State endangered species and is protected under the MBTA.

Life History

The western yellow-billed cuckoo is a migratory bird that historically bred throughout riparian system of western North America from southern British Columbia to Mexico, as well as in most of the eastern United States. In California, breeding pairs were detected along the upper Sacramento River, the lower reaches of the Feather River, the South Fork Kern River, and the Santa Ana River. Yellow-billed cuckoo populations appear to have dramatically declined in recent decades, and cuckoos have become extirpated over much of their western range. The decline and extirpation of the yellow-billed cuckoo is likely due to the loss and fragmentation of riparian habitat by a variety of factors, including inundation by reservoirs, the construction of flood control facilities, and the conversion of riparian habitat to agricultural and urban development (Halterman et al. 2009).

The yellow-billed cuckoo breeds in large blocks of riparian habitat, particularly riparian woodlands with cottonwoods and willows. The yellow-billed cuckoo prefers open woodland with clearings

and low, dense, scrubby vegetation, often associated with a watercourse. Occupied habitat is usually comprised of Fremont cottonwood, willows, velvet ash (*Fraxinus pennsylvanica*), mesquite (*Prosopis* spp), netleaf hackberry (*Celtis reticulate*), condalia (*Condalia lycioides*), whitebrush (*Aloysia* spp.), nettles, and other herbaceous wetland plants (Hughes 1999). This species nests in patches that are as large as 80 hectares (ha) (approximately 200 acres) but will also nest in areas as small as 10 to 20 ha (25 to 50 acres). The yellow-billed cuckoo has not been found breeding in isolated patches 1 to 2 acres or arrow, linear riparian habitats that are less than 33 to 66 feet wide, but single birds were detected during the migration or early nesting season. This species is generally absent from heavily forested areas and large urban areas.

Survey Results

Narrow linear riparian habitat consisting of Fremont's cottonwood, black cottonwood, Pacific willow, arroyo willow, sandbar willow, and black walnut is present along the Auburn Ravine within and adjacent to the BSA. The Valley Foothill Riparian, approximately 9.53 acres, within the BSA is narrow (150 to 300 feet), relatively open (as opposed to dense riparian thickets preferred by the species), associated with an occasional fast-moving stream, and is adjacent to the edge of the City of Lincoln boundary. The riparian habitat present within the BSA could provide nesting habitat for this species but considering the adjacent urban settings, it is unlikely that this species would nest and breed within the BSA (see Figure 16). The habitat is suitable to be used during the species migration as a resting stop and for foraging. No CNDDB records of this species occurred within 10 miles of the BSA; the nearest record was located approximately 14.5 miles west of the BSA and situated along the Feather River (CDFW 2021a). No western yellow-billed cuckoo was observed within the BSA.

Project Impacts

This species could potentially occur as a transient and/or forager within the BSA. Direct impacts to the species and foraging habitat could potentially occur. The following avoidance and minimization measures will be implemented to ensure that no significant impacts occur.

Avoidance and Minimization

Pre-construction surveys shall be conducted on the PIA and within the surrounding 500 feet as stated below in the Avoidance and Minimization for migratory birds and other raptors.

Migratory Birds and Other Raptors

This discussion applies to all migratory birds, including special-status species such as the tricolored blackbird, grasshopper sparrow, white-tailed kite, yellow-breasted chat, song sparrow, and yellow warbler.

Survey Results

Various species of migratory birds and raptors that are protected by the MBTA and various provisions of the California Fish and Game Code are likely to forage and nest within the BSA.

Some potentially occurring species include the tricolored blackbird, grasshopper sparrow, white-tailed kite, yellow-breasted chat, song sparrow, and yellow warbler. None of these species were identified on the site during site surveys. A pair of potentially breeding red-shouldered hawks (*Buteo lineatus*) and a juvenile red-shouldered hawk were observed within the PIA during surveys. A great horned owl (*Bubo virginianus*) was flushed from the riparian area north of the PIA (see Figure 13). Passerines and other small species could potentially nest within the riparian shrub habitat (which is approximately 9.53 acres), under the bridge, in nearby trees or cattails, and on the ground. Raptors could also potentially nest within trees occurring within the PIA, within the BSA, or within a broader area near the Project (see Figure 16).

Project Impacts

Trees and vegetation that could support nests may be removed or trimmed during Project activities. Nesting birds could be impacted by noise and increased commotion at the construction site. The following avoidance and minimization measures will be implemented to reduce/eliminate impacts to nesting birds.

Avoidance and Minimization

Pre-construction surveys for nesting raptors or other migratory birds shall be conducted on and within 500 feet of the PIA if construction begins during the nesting season (February 15 to September 30). Surveys shall include examining trees, shrubs, or other structures that are suitable for the establishment of nests. Surveys will also be conducted within any non-native annual grassland habitat, which provides potential breeding habitat for ground-nesting birds such as burrowing owls. Wetland 1 shall be examined for nesting tricolored blackbirds. The pre-construction survey shall be conducted within 14 days of construction. Active raptor nests shall be avoided by 500 feet, and all other active migratory bird nests shall be avoided by 250 feet unless otherwise directed by CDFW. Construction monitoring by a qualified biologist will be implemented to ensure the avoidance of species and adherence to all avoidance and minimization measures.

Townsend's Big-eared Bat and Pallid Bat

The Townsend's big-eared bat and pallid bat are listed as California Species of Special Concern. These species have no federal-listing status and are not addressed in a recovery plan.

Life History

The Townsend's big-eared bat's habitat associations include coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. The pallid bat's habitat associations include grasslands, shrublands, woodlands, and a wide range of forests types through mixed conifer forests. The Townsend's big-eared bat is strongly correlated with the availability of caves and cave-like roosting habitat such as mines. Both species prefer open, large, rocky areas for roosting, but pallid bats may also day roost in caves, crevices, mines, and occasionally hollow trees and buildings, including bridges (Erickson et al. 2002).

Survey Results

The Townsend's big-eared bat and pallid bat were not detected during "flyout" surveys or during bat acoustic monitoring conducted at the bridge. However, habitat that is suitable to support these species is present. Auburn Ravine and the associated riparian habitat (which consists of approximately 9.53 acres) provide potential foraging habitat. These species are not known to occur within the Auburn Ravine drainage. The closest CNDDB record of Townsend's big-eared bat to the Project is approximately 5.6 miles east of the BSA near Dutch Ravine. The only CNDDB closest record of pallid bat to the Project is approximately 5.8 miles to the northwest of the BSA (CDFW 2021a).

Avoidance and Minimization

Pre-construction surveys shall be performed within the PIA in areas where there is a potential for Townsend's big-eared bat or pallid bat to forage or roost. These include all areas that contain or are within 500 feet of riparian areas that could be used for foraging. Surveys shall include a daytime examination to identify roosts, potential roosts, and signs of bats (e.g., guano, urine stains). At areas where bat sign is found, flyout surveys at dusk will be conducted. These surveys shall be performed between 14 and 30 days prior to construction. If bats are found to be present, then acoustical sampling shall be conducted to determine species (H.T. Harvey and Associates et al. 2004).

If a Townsend's big-eared bat or pallid bat roost is identified within the PIA, the roost will be protected by the installation of exclusion fencing. Bats may be excluded from roosting sites by installing exclusion devices such as one-way doors. Solid barriers can be placed over the cavity opening once bats are excluded. Bats may also be excluded from using ultrasonic bat deterrent devices. Bats may only be excluded after replacement roosts are installed and once an exclusion plan has been prepared and subsequently approved by CDFW.

Bat Maternity Colonies

Survey Results

The biological surveys of the BSA identified bat maternity colonies occurring at the McBean Park Drive Bridge. Roosting bats were present along the entire length of the McBean Park Drive Bridge expansion joint, and urine staining, body staining, and guano deposits were directly below the joint. Four bat species were recorded during acoustic monitoring in 2017, including the Mexican free-tailed bat (*Tadarida braziliensis*), Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), and big brown bat (*Eptesicus fuscus*). Bat species that were detected during 2021 acoustic monitoring included Mexican free-tailed bats and either Yuma myotis or California myotis. The existing bridge supports a substantial maternity colony of Mexican free-tailed bats, which is not a special-status species. The bridge is also used as a night roost by other bat species (QK 2017).

None of these species are State or federally listed as threatened or endangered or are classified as a California Species of Special Concern, but maternity colonies of any bat species are protected.

Project Impacts

Roosting bats, including maternity colonies, are known to use the McBean Bridge. The removal of the existing bridge could impact roosting bats, particularly during the maternity season when young cannot fly. The following avoidance and minimization measures will be implemented to reduce/eliminate impacts to roosting bats.

Avoidance and Minimization

To avoid take, harm, or harassment of roosting individuals, all roosting bats identified during the maternity season (approximately May 1 through August 31) must be left undisturbed until the season ends (i.e., early- to mid-September) and the pups are volant. Demolition and construction activities occurring at the bridge have the potential to adversely affect the Mexican free-tailed bat and small numbers of other bat species like Yuma myotis, California myotis, and big brown bat. Bridge demolition activities should occur between October 1 and March 15 because the number of roosting bats present would be minimal at those times.

If construction activities can occur exclusively between October 1 and March 15, a pre-construction survey should be conducted between 14 and 30 days prior to the start of any demolition activities to gather information on current conditions at the bridge immediately prior to construction. The survey shall include a daytime assessment to identify roosts and signs of bats and a follow-up flyout observation at dusk. If bats are found to be roosting under the bridge, acoustic monitoring should be conducted to determine the species. If roosting bats are not present, no further action would be necessary, and demolition activities could proceed.

If roosting bats are present and exclusion is necessary. Bats may only be excluded once an exclusion plan has been prepared and subsequently approved by CDFW. The bats shall be excluded by a qualified biologist and exclusion devices installed to prevent bats from occupying the bridge. If bridge demolition and removal activities are scheduled to begin during the bat maternity season (approximately May 1 through August 31), the exclusion devices shall be installed no later than March 15. If a maternity roost is established prior to or during construction, the Project will be delayed and the bridge must be left undisturbed until the season ends (i.e., early- to mid-September) and the pups are volant. Exclusion devices shall be examined on a weekly basis by a qualified biologist throughout the construction period to ensure they remain functional and effective.

Because the bridge is known to house a maternity colony, an alternative roost site shall be installed. In 2017, it was estimated that 600 bats were roosting within the bridge. The roosting habitat has not changed since that survey, so it is likely that the population of the maternity colony remains stable at 600 bats. Because some young may not have been volant when the survey occurred, it is recommended that one bat box capable of harboring 100 bats be installed for each

50 bats that were estimated to be present. The design and placement of the bat boxes should meet standards approved by “Bat Conservation International (www.batcon.org)l.” Types of bat boxes and placement of these bat boxes will be included in the bat exclusion plan.

Chapter 5 – References

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California. 2nd ed. University of California Press, Berkeley, California. 1600pp.

Bloom, P. H. 1980. The status of the Swainson's hawk in California, 1979. U.S. Department of the Interior, Bureau of Land Management, Sacramento, CA. Project W-54-R-12, Job II-8. Final Rep. 42pp.

California Department of Fish and Wildlife (CDFW). 2021a. California Natural Diversity Database (CNDDB) RareFind 5, California Department of Fish and Wildlife. Sacramento, CA

California Department of Fish and Wildlife (CDFW). 2021b. Biogeographic Information and Observation System (BIOS). Retrieved from www.wildlife.ca.gov/data/BIOS.

California Department of Fish and Wildlife (CDFW). 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Wildlife. Sacramento, CA

California Department of Food and Agriculture (CDFA). 2021. Pest Rating Proposals and Final Ratings.

California Invasive Plant Council (CAL-IPC). 2021. California Invasive Plant Inventory Database.

California Native Plant Society (CNPS). 2021. Inventory of Rare and Endangered Plants. California Native Plant Society. Sacramento, CA. http://www.cnps.org/inventory

City of Lincoln. 2004. Preserve Management Plan for Rodeo Ground Preserve and the McBean Park Expansion.

City of Lincoln. 2008. City of Lincoln 2050 General Plan, Adopted 2008. Available at http://www.lincolnca.gov/city-hall/departments-divisions/community-development/planning/general-plan-2050

City of Lincoln. 2018. Preliminary Environmental Study (PES) with Detailed Project Description.

DeSante, D. F., E. D. Ruhlen, S. L. Adamany, K. M. Butron, and S. Amin. 1997. A census of Burrowing Owls in central California in 1991. Pages 38-48 in J. Lincer and K. Steenhof, editors. The Burrowing Owl, its biology and management including the proceedings of the First International Burrowing Owl Symposium. Raptor Research Report Number 9.

Erickson, Gregg A., et al. 2002. Bat and Bridges Technical Bulletin (Hitchhikers Guide to Bat Roosts), California Department of Transportation, Sacramento CA.

Federal Emergency Management Agency (FEMA). 2021. FEMA Flood Map Service Center. City of Lincoln, California, The Department of Homeland Security. Retrieved from

https://msc.fema.gov/portal/search?AddressQuery=lincoln%2C%20ca#searchresultsanchor

Halterman et al., 2009. Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology.

Haug, E. A., B. A. Millsap, and M. S. Martell. 1993. Burrowing Owl (Speotyto cunicularia). In A. Poole and F. Gill, editors. The birds of North America, No. 61. The Academy of 26 Natural Sciences, Philadelphia, Pennsylvania; The American Ornithologists' Union, Washington, D.C.

Healy, M.C. 1991. Life history of chinook salmon (Oncorhynchus tshawytscha). In: Groot, C., Margolis, L., editors. Pacific Salmon Life Histories. 311-394.

Helix Environmental. 2021. McBean Bridge Replacement: Arborist Report.

H.T. Harvey and Associates, G. Tatarian, and E. Pierson. 2004. California Bat Mitigation, Techniques, Solutions, and Effectiveness.

Hughes, J. M. 1999. Yellow-billed Cuckoo. The Birds of North America, No 418, 1999.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Rancho Cordova, CA: California Department of Fish and Game.

Lichvar, R.W. et al. 2016. Arid West 2014 Regional Wetland Plant List to Determine Plant Wetland Status.

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

Moyle, P. 2002. Inland Fishes of California, 2nd Edition, Berkeley, University of California Press.

National Marine Fisheries Service (NMFS). 2014. *Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead*. California Central Valley Area Office. July 2014.

National Oceanic and Atmospheric Administration (NOAA). 2021. NOAA Fisheries West Coast. "California Species List Tools." NOAA Fisheries West Coast Region, October 22, 2012. https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html.

Placer County. 2020. Placer County Conservation Program Final Environmental Impact Statement/ Environmental Impact Report.

Placer County. 2002. Auburn Ravine/Coon Creek Ecosystem Restoration Plan. County of Placer, California

Placer Legacy Program. 2000. Placer Legacy Open Space and Agricultural Conservation Program, Implementation Report. Placer County, California.

Quad Knopf, Inc. (QK). 2022a. Aquatics Resources Delineation Report. McBean Park Drive Bridge Replacement Project.

Quad Knopf, Inc (QK). 2022b. McBean Park Drive Bridge Replacement Project Biological Assessment-Fisheries.

Quad Knopf (QK). 2021a. Evaluation of Fisheries Resources.

Quad Knopf (QK). 2021b. Roosting Bats Survey Report, McBean Park Drive Bridge Project, Lincoln, California.

Quad Knopf (QK). 2017. Roosting Bats Survey Report, McBean Park Drive Bridge Project, Lincoln, California.

Spencer, W.D., et al. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Stebbins, Robert C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd Edition. Houghton Mifflin Company.

Swainson's Hawk Technical Advisory Committee. 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.

United States Army Corps. of Engineers (USACE). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Army Corps. of Engineers (USACE). 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western Unites States: A Delineation Manual. U.S. Army Engineer Research and Development Center. Published August 2008.

United States Army Corps. of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual. Wetlands Research Program, Technical Report Y-87-1. Waterways Experiment Station, Vicksburg, Mississippi.

United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS). 2021. Noxious Weeds Program. Retrieved from: https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-diseases/SA_Weeds/SA_Noxious_Weeds_Program/CT_Noxious_Weeds_Program_Home.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2021a. Web Soil Survey. Soil Survey Area: Lincoln, California. Soil Survey Data: Version 8, April 9, 2019. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2021b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Retrieved from: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

United States Fish and Wildlife Service (USFWS). 2021a. Information for Planning and Consultation (IPaC) online project planning tool. Available at: https://ecos.fws.gov/ipac/

United States Fish and Wildlife Service (USFWS). 2021b. Critical Habitat Portal. Available at: https://ecos.fws.gov/ecp/report/table/critical-habitat.html

United States Fish and Wildlife Service (USFWS). 2021c. National Wetlands Inventory Wetlands Mapper. https://www.fws.gov/wetlands/data/mapper.html

United States Geological Survey (USGS). 2021. National Hydrography Dataset. https://www.usgs.gov/core-science-systems/ngp/national-hydrography

Chapter 6 – Preparers

Primary Author

- Danielle Temple, Senior Associate Environmental Scientist

Technical Review

- Curtis Uptain, Principal Environmental Scientist

Graphics

- Sarah Yates, Associate Environmental Scientist
- Karissa Denney, Senior Associate Environmental Scientist

Appendix A – Sensitive Species Database Search Results

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2021-SLI-0741
Event Code: 08ESMF00-2021-E-02155
Project Name: McBean Park Drive Bridge Replacement Project

January 18, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2021-SLI-0741
Event Code: 08ESMF00-2021-E-02155
Project Name: McBean Park Drive Bridge Replacement Project
Project Type: BRIDGE CONSTRUCTION / MAINTENANCE
Project Description: McBean Park Drive bridge replacement.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.9375011,-121.31250097499681,14z

Counties: California

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
El Dorado Bedstraw *Galium californicum ssp. sierrae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5209	Endangered
Layne's Butterweed *Senecio layneae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4062	Threatened
Pine Hill Ceanothus *Ceanothus roderickii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3293	Endangered
Pine Hill Flannelbush *Fremontodendron californicum ssp. decumbens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4818	Endangered
Stebbins' Morning-glory *Calystegia stebbinsii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3991	Endangered

Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* https://ecos.fws.gov/ecp/species/498#crithab	Final
Vernal Pool Tadpole Shrimp *Lepidurus packardi* https://ecos.fws.gov/ecp/species/2246#crithab	Final

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lincoln (3812183) OR Wheatland (3912114) OR Camp Far West (3912113) OR Wolf (3912112) OR Sheridan (3812184) OR Pleasant Grove (3812174) OR Roseville (3812173) OR Gold Hill (3812182) OR Rocklin (3812172))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Andrena subapasta An andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hydrochara ricksecker Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Wolffia brasiliensis Brazilian watermeal	PMLEM03020	None	None	G5	S2	2B.3

Record Count: 40

CNPS California Native Plant Society — Inventory of Rare and Endangered Plants

Home | About the Inventory | CNPS Home | Join CNPS | Simple Search | Advanced Search

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

17 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3611987, 3611986, 3611985, 3611977, 3611976, 3611975, 3611967 3611966 and 3611965;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S2	G2
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4? T2T3
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	1B.1	S1	G1
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	2B.1	S3	G4
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	Apr-May	1B.1	S2	G2
Leptosiphon serrulatus	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	1B.1	S2	G2
Pseudobahia peirsonii	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	1B.1	S1	G1
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 02 March 2021].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

NOAA Fisheries Database Search Results

Quad Name **Lincoln**
Quad Number **38121-H3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Wheatland**

Quad Number **39121-A4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Camp Far West**
Quad Number **39121-A3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - X
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Wolf**
Quad Number **39121-A2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Sheridan**
Quad Number **38121-H4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -

Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Gold Hill**
Quad Number **38121-H2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Pleasant Grove**
Quad Number **38121-G4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**

Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Roseville**
Quad Number **38121-G3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Rocklin**
Quad Number **38121-G2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species

MMPA Cetaceans -
MMPA Pinnipeds -

Appendix B – Representative Photographs

Photograph 1: View of the northside of the existing McBean Park Drive Bridge.
38.89046111 N°, -121.28284444 W° facing south, southwest.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 2: View of the southside of the existing McBean Park Drive Bridge.
38.889821 N°, -121.283272 W° facing north.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 3: View of the southern portion of Auburn Ravine from the McBean Park Drive Bridge.
38.89018888 N°, -121.28303611 W° facing south, southwest.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 4: View of the northern portion of Auburn Ravine from the McBean Park Drive Bridge.
38.89026388 N°, -121.28299444 W° facing north.
Photograph taken by Lisa Sandoval on February 5, 2021.

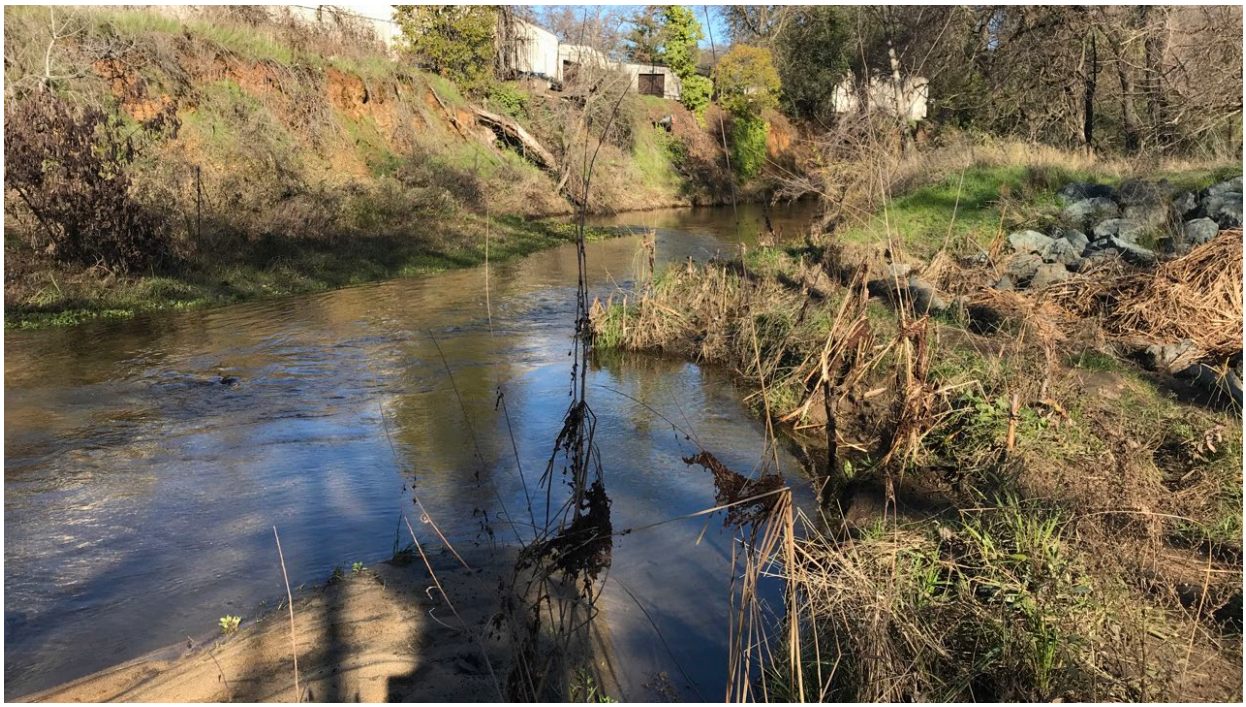
Photograph 5: View of the established wetland south of McBean Park Drive, east of Auburn Ravine. 38.88978 N°, -121.28124 W° facing southwest.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 6: View of the wetland restoration project north of McBean Park Drive, east of Auburn Ravine. 38.89051944 N°, -121.28282777 W° facing east.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 7: View of eastern drainage with standing water south of McBean Park Drive.
38.88894444 N°, -121.27633333 W° facing east.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 8: View of eastern drainage with erosion control measures north of McBean Park Drive.
38.88920833 N°, -121.27616388 W° facing east.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 9: View of drainage ditch that flows into Auburn Ravine southwest of bridge within the PIA.
38.890152 N°, -121.283468 W° facing south east.
Photograph taken by Danielle Temple on February 5, 2021.



Photograph 10: View of the northern section of Auburn Ravine with the steep western bank.
38.89046111 N°, -121.28133333 W° facing northwest.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 11: View of representative riparian habitat proposed for removal south of McBean Park Drive. 38.89008055 N°, -121.28205555 W° facing west.
Photograph taken by Sarah Yates on February 5, 2021.

Photograph 12: View of soil pit and core from the delineation of the wetland south of McBean Park Drive. 38.88973611 N°, -121.28133333 W° facing southwest.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 13: View of potential burrow/tunnel near Auburn Ravine north of the Project site. 38.89042500 N°, -121.28285000 W° facing south.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 14: View of migratory bird nest (in red) in a valley oak south of the staging area within the PIA. 38.889664 N°, -121.281073 W° facing west, southwest.
Photograph taken by Danielle Temple on February 4, 2021.

Photograph 15: View of stick nest (in red) in a cottonwood west of Auburn Ravine within the southern PIA. 38.89008055 N°, -121.28363611 W° facing north.
Photograph taken by Danielle Temple on February 5, 2021.

Photograph 16: View of cavity nests (in red) in a cottonwood east of Auburn Ravine, north of the PIA. 38.89097222 N°, -121.28231944 W° facing southeast.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 17: View of remnant swallow mud nests (in red) on the underside of the bridge over the main channel. 38.890331 N°, -121.283007 W° facing east.
Photograph taken by Danielle Temple on February 4, 2021.

Photograph 18: View of t-post at southwest location of bat acoustic monitoring and flyout survey. 38.890060 N°, -121.283181 W° facing northeast.
Photograph taken by Danielle Temple on February 4, 2021.

McBean Park Drive Bridge Replacement Project

Aquatic Resources Delineation Report

Federal Project No. BRLS-5089(021)

Placer County, California

Submitted August 2022

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

MCBEAN PARK DRIVE BRIDGE REPLACEMENT PROJECT
Aquatic Resources Delineation Report

Federal Project No. BRLS-5089(021)
Placer County, California

Prepared for:

Quincy Engineering
11017 Cobblerock Drive, Suite 100
Rancho Cordova, California 95670
Contact Person: Mike Sanchez, Senior Engineer
Phone: (916) 761-5278
FAX: (916) 368-1308
mikes@quincyeng.com

Consultant:

Quad Knopf, Inc. DBA QK
601 Pollasky Avenue, Suite 301
Clovis, California 93612
Contact Person: Curtis Uptain
Phone: (559) 449-2400
Fax: (559) 435-2905

Submitted August 2022

TABLE OF CONTENTS

List of Figures

List of Tables

Acronyms and Abbreviations

ARSA	Aquatic Resources Study Area
CDFW	California Department of Fish and Wildlife
LSAA	Streambed Alteration Agreement
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
ROW	right-of-way
TNW	Traditional Navigable Water
USACE	United States Army Corps of Engineers
WOS	Waters of the State
WOUS	Waters of the Unites States

Executive Summary

The Community Development Department of the City of Lincoln, (City), in cooperation with the California Department of Transportation (Caltrans), is proposing to replace the existing two-lane McBean Park Drive Bridge (19C-0059) over Auburn Ravine (Project) near downtown Lincoln, California. The Project encompasses 11.60 acres that includes the footprint of the existing bridge, staging areas, water diversion structures, rock slope protection, and enlarged bridge approach roadways of McBean Park Drive to the west and east of the bridge.

The bridge currently becomes overtopped during storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. Caltrans has deemed the bridge "functionally obsolete." The existing bridge, which was built in 1923, widened in 1963, and includes five spans for a total length of approximately 148 feet and width of 43 feet, will be removed and replaced. The new bridge will be longer and wider than the existing bridge to accommodate three travel lanes, two shoulders, and two sidewalks. It is presumed that cast-in-drilled hole piles will be the supporting foundation at the abutments and piers. Large flow events under the bridge will be accommodated by increasing the height of the bridge and by extending the length of the bridge. Three temporary staging areas will be used, one will be along unused portions of McBean Park Drive, and the other two will be south of McBean Park Drive. One will be on the west side of Auburn Ravine and the other will be west of Ferrari Ranch Road.

The purpose of this report is to identify and describe aquatic resources within and near the Project, provide Project background information, to document aquatic resource boundary determinations, and to documentation impacts to aquatic resources for review by regulatory agencies. The aquatic resource delineation was conducted in accordance with United States Army Corps of Engineers guidelines and this report includes the results of a delineation of wetlands and other waters.

All wetland and water features were delineated by Quad Knopf (QK) Environmental Scientists on February 4 and 5, 2021 using standard methods described in both the *1987 Army Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the most recent version of the *Arid West Regional Supplement Version 2.0* (USACE 2008a) and/or *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b).

A small portion of two wetlands occur within the Project Impact Area. Both are east of the bridge, with one being to the north and one to the south of McBean Park Drive. There will be no direct impacts to these wetland features. Indirect impacts to these features will be avoided. Auburn Ravine, a seasonal stream that connects with the Sacramento River, is the major feature within the Project. Three ditches are also present within the Project, one of which feeds into Auburn Ravine on the west side of the Project, and the other two run parallel to McBean Park Drive on the east side of the Project. Project impacts will occur within the OHWM of the ditch on the west side and Auburn Ravine. The other two ditches are outside of the Project footprint and would not be directly impacted by the Project. Auburn Ravine has a significant nexus with a Traditional Navigable Water (the Sacramento River) and is thus under the jurisdiction of the United States Army Corps of Engineers (USACE). The Auburn Ravine is also a water of the State and would be

under the regulatory authority of the Regional Water Quality Control Board (RWQCB) and the California Department of Fish and Wildlife (CDFW). Impacts to Auburn Ravine, and other features as they apply, would necessitate the acquisition of a 404 permit (NWP#14), a Section 401 Water Quality Certification, and a Section 1602 Lake and Streambed Alteration Agreement.

Chapter 1 – Introduction

This report includes the results of a delineation of wetlands and other waters that Quad Knopf, Inc. (dba QK) conducted for the McBean Park Drive Bridge Replacement Project (Project). This aquatic resource delineation was conducted in accordance with United States Army Corps of Engineers (USACE) guidelines.

The purpose of this report is to identify and describe aquatic resources within the study area, provide background information on the Project site, to document aquatic resource boundary determinations, and to provide information on project impacts for review by regulatory authorities.

1.1. Project Location

The Project is in the Sacramento Valley floristic province an average elevation of 170 feet above mean sea level (AMSL), at the east edge of the City of Lincoln in Placer County, California (Figures 1 and 2). It is within the USGS Quadrangle of Lincoln in the northwest quarter of Section 14 and a portion of Section 15, Township 12 North, Range 06 East, Mount Diablo Base & Meridian. The Project is bordered on the north, south, and portions of the east by open space, which includes riparian habitat, stands of trees, and grassland. The Project is bordered on the west by commercial and residential development and is bordered on portions of the east by existing and future residential developments.

1.2. Project Description and Background

The Project is along the eastern edge of the City of Lincoln, approximately 1.5 miles east of downtown Lincoln, between commercial buildings to the west and open space to the east (Figure 3). The Project site includes the area encompassed by the existing bridge, the area of the replacement bridge, the area where water diversion structures (dam and conveyance pipe) will be installed, areas where additional Right-of-Way (ROW) south and north of the existing ROW will be acquired for the installation of widened road approaches, and three laydown areas (Figure 4). The banks of Auburn Ravine within a work area for bridge replacement will be cleared and grubbed to remove above-ground material, vegetation, non-salvageable trees, and other debris. The existing bridge, guard rail, pier, and abutments will be removed and replaced with a cast in place, reinforced concrete box girder bridge. It is presumed that cast-in-drilled hole piles will be the supporting foundation at the abutments and piers. The bridge will require pile placement, abutment construction with wingwalls, superstructure construction, followed by construction of the bridge sidewalks and barrier rails. The new bridge will be longer and wider than the existing bridge to accommodate three travel lanes, two shoulders, and two sidewalks. The new bridge will be higher in elevation and longer to accommodate water flows during flood events. Rock Slope Protection will be placed above the Ordinary High Water Mark along the banks of the Ravine where the new bridge will be elevated. The Project will be completed in two phases to allow traffic access through the area while the bridge is under construction.

The temporary diversion of water in Auburn Ravine is necessary to remove portions of the existing bridge and widen and construct the new bridge structure. Temporarily dewatering the Project site

and diverting creek flows through two culverts for controlled enclosed conveyance through the Project site will be necessary. A containment dam or bladder dam will be constructed within the channel banks of Auburn Ravine and will consist of pipes, sandbags filled with clean crushed rocks, and impermeable plastic sheeting. The containment dam will be established in conformance with City specifications and regulations as required by the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS).

The existing bridge is categorized as an “on-system” bridge. It is hydraulically inadequate with a history of frequent flooding events. Due to poor integrity of the deck and superstructure, the bridge has a sufficiency rating of 58.6. The five primary goals of the reconstruction of the bridge include replacing the hydraulically inadequate existing bridge to provide reliable general and emergency vehicle access during peak storm events, establishing an enhanced river crossing, improving the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding, improving McBean Park Drive between the intersections of Ferrari Ranch Road and East Avenue to provide improved multi-modal connectivity for pedestrians, bicycles and, neighborhood electric vehicles, and maintaining traffic on McBean Park Drive during construction (City of Lincoln 2018).

Biological field surveys were conducted to identify vegetative communities that occur on the site, to evaluate the site for the presence or absence of special-status species and habitats, to evaluate the presence of other sensitive or important biological or aquatic resources and to delineate all potential Waters of the State (WOS) and Waters of the US (WOUS). Field surveys included an aquatic resources delineation survey, bat surveys, fishery habitat assessment, bird surveys, and arborist surveys. An initial fishery survey was conducted in August 2014 and verified in February 2021. An initial arborist survey was conducted in March 2015 and verified in March 2021. An initial bat survey including “flyout” surveys and acoustic monitoring was conducted in August 2017 and similar bat surveys were conducted in February 2021 to update and verify results. Initial delineations of WOS and WOUS were conducted in March 2015 and verified in January 2019 and then again in February 2021.

Figure 1
Regional Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

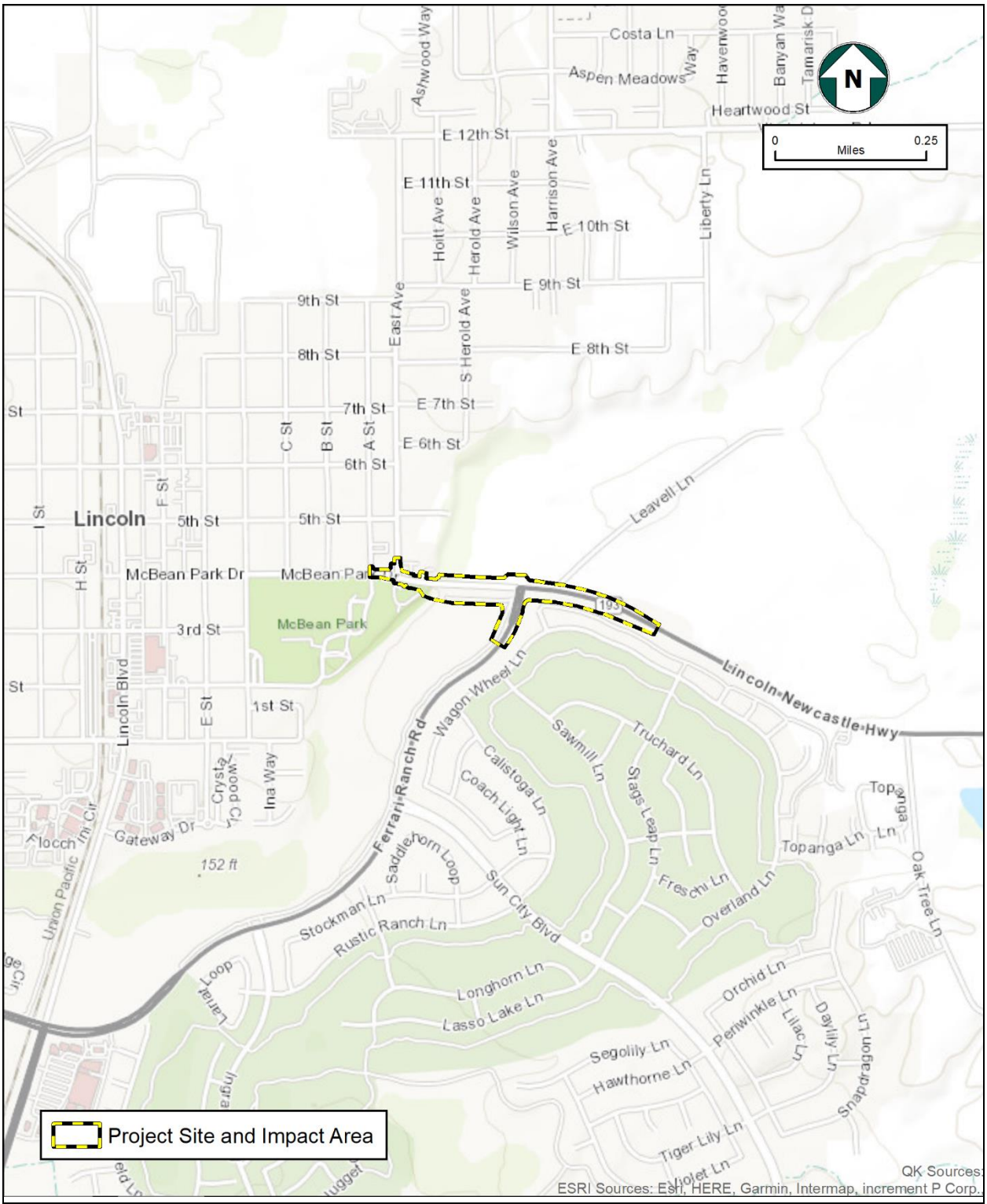


Figure 2
Vicinity Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Figure 3
Project Site Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Figure 4
Project Footprint and Component Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Chapter 2 – Methods

2.1. Definition of Study Area

The Aquatic Resources Study Area (ARSA) that was assessed for the Project was approximately 19.13 acres that included the footprint of the existing bridge, staging areas along unused portions of McBean Park Drive and to the south of McBean Park Drive adjacent to the Project, and a 50-foot buffer around each of these Project components. The Project site is 11.60 acres that includes the footprint of the existing bridge, staging areas, water diversion structures, rock slope protection, portions of McBean Park Drive to the west and east of the bridge, and a portion of Ferrari Ranch Road. All urban and natural areas that were accessible were evaluated for the presence of water resources and all water features within the ARSA were delineated and mapped (Figure 5).

2.2. Desktop Review

A literature review and database search were conducted prior to performing field investigations. The National Wetlands Inventory (NWI; USFWS 2021a) was searched for known occurrences of wetlands, and United States Geological Survey (USGS) 7.5-minute topographic maps were examined for the presence of known natural drainage features ("blue-line") and other potential waters occurring on and near the Project. Aerial imagery (ESRI 2021; Google Earth 2021) was reviewed to identify differences in vegetative cover, slope, and general terrain that can be indicative of the presence of waters. Information on regional hydrology was obtained from the National Hydrography Dataset (NHD; USGS 2021) and Federal Emergency Management Agency (FEMA) flood zone databases were reviewed (FEMA 2021). Information on soils was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS) database (NRCS 2021a).

2.3. Survey Methods

A biological survey was conducted by QK Environmental Scientists Julie Hausknecht, Lisa Sandoval, Sarah Yates, and Danielle Temple on February 4 and 5, 2021. The examination of the Project site and a surrounding buffer of 500 feet was conducted by walking pedestrian transects throughout area in a manner to ensure 100-percent visual coverage. All water features, including the Ordinary High Water Mark (OHWM) and bank of Auburn Ravine, wetlands, and drainage ditches were delineated and mapped within the Project Site and a surrounding 50-foot buffer (see figure 5). The locations of sample points and the edges of all waters were mapped at a sub-meter resolution using an EOS Arrow Series Global Positioning System (GPS) unit with real-time submeter accuracy. All features were delineated using standard methods described in both the *1987 Army Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the most recent version of the *Arid West Regional Supplement Version 2.0* (USACE 2008a).

When possible, paired soil sample points were placed on either side of each feature boundary to obtain information describing both wetland and upland conditions. At each soil sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was evaluated following standard procedures. Hydrologic indicators that were documented, if

present, included drainage patterns, drift deposits, saturation, high-water table, saturation visible on aerial imagery, reduced iron, and other diagnostic characteristics. Soil samples were excavated, and soils were examined to characterize soil profiles at each sample plot, and to compare site observations with soil conditions described in the Web Soil Survey (NRCS 2021a; NRCS 2021b). Soil horizonation, texture, moisture content, depth to saturation, and/or standing water was noted for each soil pit. The presence or absence of particulate organic matter, redoximorphic features, depleted matrices, and other diagnostic characteristics were noted. Soil colors were determined using Munsell soil color charts (Munsell 2000).

The cover (percent) of plant species was visually estimated and recorded. Dominant plant species were identified in accordance with the USACE 50/20 Rule. Plant identification was determined using the *Jepson Manual: Vascular Plants of California of Higher Plants* (Baldwin et al. 2012). The wetland indicator status of each plant species was determined using *The National Wetland Plant List: 2016 wetland ratings* (Lichvar et al. 2016). The hydrologic, soil, and vegetative data recorded at the sample points were transcribed onto USACE Arid West Region Wetland Determination Data Forms. The Cowardin system was used to classify wetland types (Cowardin et al. 1979).

For non-wetland aquatic features, including the Auburn Ravine and drainages, the Ordinary High-Water Mark (OHWM) was delineated using methodologies and diagnostic characteristics in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Linear distance in feet of each non-wetland aquatic feature was measured along the feature centerline from where the crosses through the Project site and/or where it crosses through the ARSA.

2.4. Limitations that May Influence Survey Results

The delineation was conducted during a time when weather conditions were clear and sunny, water levels were low, and there was available access to the ARSA; poor weather conditions, higher water levels limiting access to Auburn Ravine, or other access restrictions did not bias the results of the delineation.

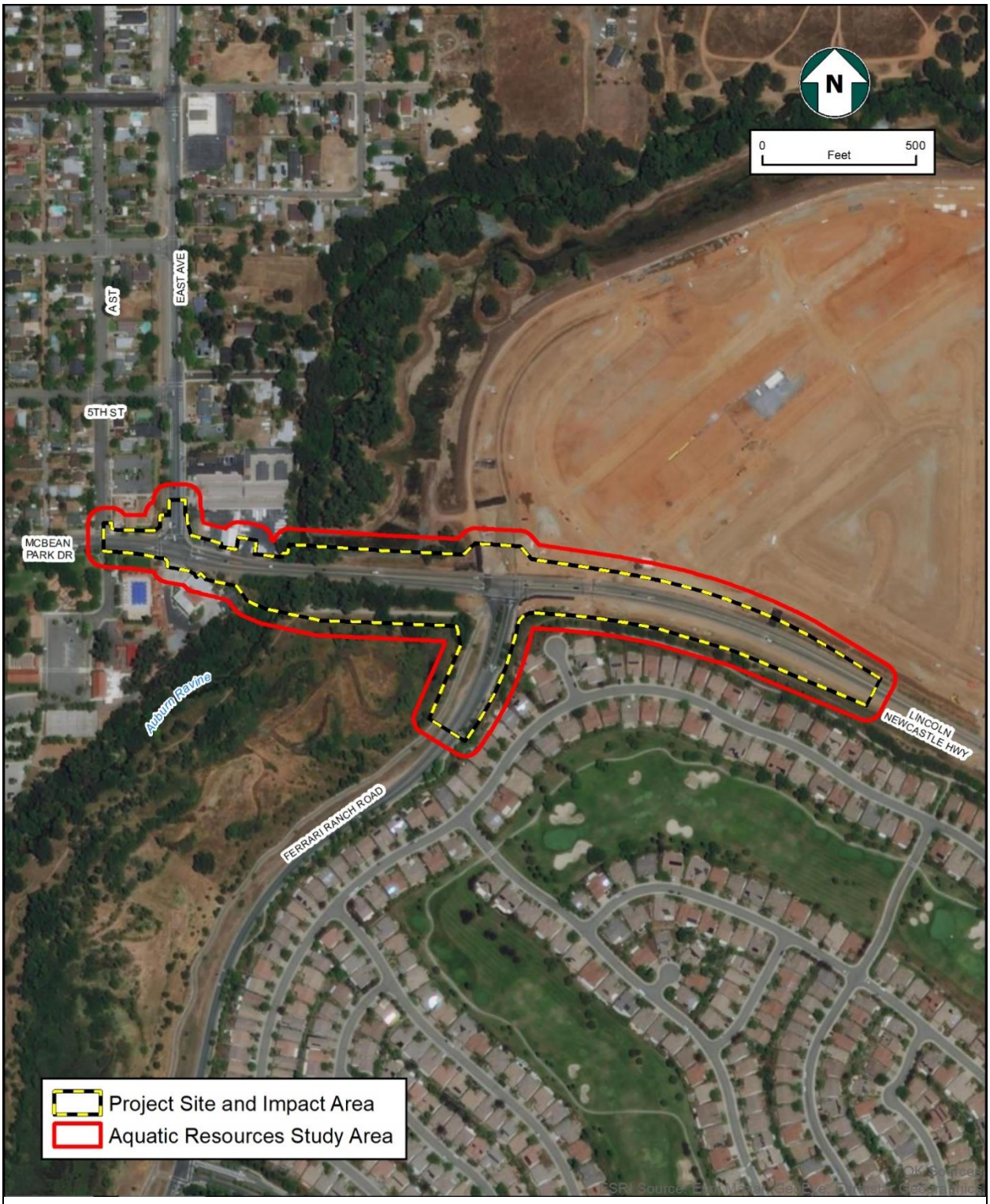


Figure 5
Project Site and Aquatic Resource Study Area Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Chapter 3 – Regulatory Setting

Regulated or sensitive resources that were studied and analyzed include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement areas, and locally protected resources, such as protected trees. Regulatory authority over water resources is shared by federal, State, and local authorities. Primary authority for regulation of water resources lies with the USACE.

Potential impacts to biological resources were analyzed based on the following list of statutes.

- Federal Clean Water Act (CWA) Sections 404 and 401
- California Fish and Game Code Section 1600 et seq.
- Porter-Cologne Water Quality Control Act
- Executive Order No. 11990
- Magnuson-Stevens Fishery Conservation and Management Act
- Recovery Plan for the Evolutionarily Significant Units of the Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and The Distinct Population Segment of California Central Valley Steelhead
- Auburn Ravine/Coon Creek Ecosystem Restoration Plan
- City of Lincoln 2050 General Plan

Chapter 4 – Existing Conditions

The Project is in the Sacramento Valley floristic province at the east edge of the City of Lincoln in Placer County, California. The ARSA and vicinity is at an elevation of approximately 170 feet AMSL in the City of Lincoln (Appendix A, Figure A-1) within a commercial area and open space area. Historically, McBean Park Drive/SR 193 began in downtown Lincoln at the intersection of Old Highway 65/Lincoln Boulevard and would head east where it passes through the ARSA toward Roseville. The portion of the road between the Old Highway 65/Lincoln Boulevard intersection and McBean Park Drive Bridge is known as McBean Park Drive.

Outside of Auburn Ravine, the majority of the ARSA is topographically flat with a gentle slope south of the Project site down into the wetland area. A riparian assemblage of tall black cottonwoods (*Populus trichocarpa*), valley oaks (*Quercus lobata*), willow (*Salix* sp.) and Himalayan blackberry (*Rubus armeniacus*) occurs southeast of the Project in a depression between McBean Park Drive to the north and a walking trail to the south.

4.1. Project Settings

The ARSA is at the edge of a commercial district and beginning of open space, rural lands with some residential development (Figure 5). Parcels adjacent to the ARSA include private, commercial, City and County owned. The Project includes existing ROW, private land to the north, public land to the south and west, and additional ROW south on Ferrari Ranch Road. Existing residential development is present east of Ferrari Ranch Road and current residential construction is present in the northeast of the ARSA (see Figure 4). An easement consisting of an open space McBean Park Expansion Preserve is located south of the Project site and occurs within the ARSA. The McBean Park Expansion Preserve was created in 2004 for on-site mitigation of residential development, which impacted wetlands and waters of the U.S. (City of Lincoln 2004; Placer County 2020). The McBean Park Expansion Preserve is approximately 66 acres and includes created wetland habitat, which consists of wetland marsh, emergent vegetation, and streams.

4.2. Existing Conditions

The Project site consists of Auburn Ravine, including the OHWM, banks, and densely vegetated riparian areas, paved roadways and existing bridge, ROWs consisting of sparsely vegetated non-native grassland, and a very small portion of wetland. Auburn Ravine flows from north to south and is a tributary to the Sacramento River. Riparian vegetation within the ARSA includes valley oak, Pacific willow (*Salix lucida*), sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), black cottonwood, Fremont's cottonwood (*Populus fremontii*), Himalayan blackberry, mugwort (*Artemisia douglasiana*), and deergrass (*Muhlenbergia rigens*).

Vegetation within the non-native annual grassland included winter vetch (*Vicia villosa*), miner's lettuce (*Claytonia perfoliata*), mustard (*Brassica* sp.), yellow starthistle (*Centaurea solstitialis*), redstem filaree (*Erodium cicutarium*), brome grasses (*Bromus* sp.), wild oat (*Avena fatua*), and medusahead (*Elymus caput-medusae*). Ruderal vegetation including medusahead, foxtail barley (*Hordeum murinum* ssp. *leporinum*), little quaking grass (*Briza minor*), rose clover (*Trifolium*

hirtum), sweet fennel (*Foeniculum vulgare*), cutleaf geranium (*Geranium dissectum*), Italian ryegrass (*Festuca perennis*), redstem filaree, and mustard dominated vegetation within the ROW (including the roadside drainage ditches) and disturbed areas.

Both staging areas south of McBean Park Drive are located within riparian and non-native annual grassland habitat. A row of riparian trees and Himalayan blackberry thicket occurs along the east and southern border of the eastern staging area. The southwest staging area is primarily non-native grassland but is surrounded by riparian habitat.

4.3. Hydrophytic Vegetation

The vegetation on most of the Project site consists almost entirely of riparian vegetation, upland non-native grasses and ruderal species. At the time of the year that the examination was conducted, some species were difficult to identify to the species level. The dense canopy of the riparian area contained cottonwoods (*Populus* sp.), willows (*Salix* sp.), alder (*Alnus rhombifolia*), and oaks (*Quercus* sp.) A mix of Himalayan blackberry and stinging nettle (*Urtica dioica*) dominated the banks of Auburn Ravine. Sub-dominant hydrophytic species found within the riparian area and throughout the Project site include poison hemlock (*Conium maculatum*), Italian rye (*Festuca perennis*), rose clover (*Trifolium hirtum*), cutleaf geranium (*Geranium dissectum*), and ripgut brome (*Bromus diandrus*).

Within the wetland to the south of McBean Park Drive there are multiple native and some non-native hydrophytic plant species including cattails (*Typha latifolia*), curly dock (*Rumex crispus*), tall flatsedge (*Cyperus eragrostis*), mosquito fern (*Azolla filiculoides*), valley sedge (*Carex barbarae*), pennywort (*Hydrocotyle* sp.), swamp verbena (*Verbena hastata*), English plantain (*Plantago lanceolata*), and rush (*Juncus* sp.). The wetland north of the Project and McBean Park Drive is undergoing restoration and is lined with small boulders with little mature vegetation other than clumps of desiccated unknown vegetation.

Table C-1 in Appendix C contains a list of plant species identified within the ARSA.

4.4. Soils

The ARSA is underlain by four soil types: San Joaquin sandy loam, Ramona sandy loam, Cometa-Ramona sandy loams, and Xerofluvents (Appendix A, Figure A-2).

The San Joaquin series consists of well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources and is moderately deep to a duripan (NRCS 2021a). This soil type occurs on undulating low terraces with slopes of 0 to 9 percent. San Joaquin soils are on hummocky, nearly level to undulating terraces at elevations of about 20 to 500 feet. Some areas have been leveled. They formed in alluvium from mixed but mainly granitic rock sources. The climate is dry with hot dry summers and cool moist and foggy winters. These soils are well and moderately well drained. Some areas are subject to rare or occasional flooding. It is used for cropland and livestock grazing. This is a hydric soil (NRCS 2021b).

The Ramona series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs (NRCS 2021a). The Ramona soils are nearly level to moderately steep. They are on terraces and fans at elevations of 250 to 3,500 feet. They formed in alluvium derived mostly from granitic and related rock sources. The climate is dry subhumid mesothermal with warm dry summers and cool moist winters. Mean annual precipitation is 10 to 20 inches. Used mostly for production of grain, grain-hay, pasture, irrigated citrus, olives (*Olea europaea*), truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, forbs, chamise, or chaparral. This is a hydric soil (NRCS 2021b).

The Cometa soil series consists of moderately deep, and moderately to well drained soils (NRCS 2021a). These soils formed in alluvium derived from granitic rock sources. These soils occur on gently sloping, slightly dissected older stream terraces. They have very slow permeability and slow to medium runoff. This soil type is used for growing rice (*Oryza sativa*), vineyards, orchards, and dry-farmed grain. Vegetation consisting of annual grasses, forbs, and weedy species grow in uncultivated areas of this soil type. This soil is hydric (NRCS 2021b).

Xerofluvents are groups consisting of Entisols, which exhibit little to no soil horizon development (NRCS 2021a). Some Entisols have steep, actively eroding slopes, and others are on flood plains This is due to repeated inundation and deposition of alluvial materials. These soils are typically found in valleys or river systems. This soil type is hydric (NRCS 2021b).

4.5. Hydrology

Auburn Ravine is a seasonal stream that includes natural flows generated by fall/winter rainfall events and augmented flows generated from irrigation water from other sources, such as the Middle Fork American River. The banks of Auburn Ravine are relatively steep along most of the northern portion within the ARSA. The banks along the southern portion of Auburn Ravine within the ARSA are less steep and include washed out areas of bank. Winter flow peaks of Auburn Ravine can range from a few hundred cubic feet per second (cfs) to an estimated 100-year flow event exceeding 17,000 cfs (Placer County 2002). During dry periods, parts of Auburn Ravine may have flows as low as 1 to 2 cfs with only a few inches of water in the stream and may even become dry in areas (Placer County 2002).

The NHD depicts one blue-line drainage identified as an intermittent stream river occurring within the Project (USGS 2021; Appendix A, Figure A-3). This blue-line drainages is the Auburn Ravine. The NWI database shows one water feature identified as riverine within the Project (USFWS 2021a; see Appendix A, Figure A-3). This water feature is as also the Auburn Ravine. The NHD and NWI refer to Auburn Ravine as intermittent or riverine but because a few inches to zero flow can occur within parts of the stream during dry periods, Auburn Ravine at the location of the Project is, in reality, a semi-perennial or seasonal water feature.

There are no other records within the Project or the ARSA but one record of R5UBFx east of the ARSA. This feature is described as an unknown perennial riverine system with an unconsolidated bottom that is semi permanently flooded and has been artificially excavated. Also, outside the ARSA, the nearest records are for Freshwater Forested/Shrub Wetland (PFOA), north and south

of the Project, and multiple records of Freshwater Emergent Wetland (PEM1A, PEM1Ah, and PEM1Fh) occur southeast of the Project (see Appendix A, Figure A-3).

The ARSA occurs within a regulatory floodway, except for the most western and eastern portions along McBean Park Drive (Appendix A, Figure A-4). That regulatory floodway follows the Auburn Ravine and extends to the east of Auburn Ravine to the north and south of McBean Park Drive (see Appendix A, Figure A-4). Most of the open space along Auburn Ravine is within a 100-year flood zone, as is a portion of the commercial and residential area to the northwest of McBean Bridge (FEMA 2021).

Auburn Ravine, two wetlands, and three drainage ditches are present within the ARSA. Auburn Ravine is the major feature occurring on the west side of the ARSA. Auburn Ravine originates north of the Project and crosses the Project in a north-south direction and continues flowing southwest eventually flowing into the Sacramento River. Auburn Ravine is a seasonal stream with a dense riparian corridor and occasionally steep banks. Small areas of both wetlands are within the Project site and ARSA. One wetland is east of the bridge but south of McBean Park Drive. This wetland is fully established and is present within the protected McBean Park Expansion Preserve. Another wetland is east of the bridge and to the north of McBean Park Drive. This wetland is currently in the process of being enhanced. This wetland is lined with small boulders and contains little mature vegetation other than clusters of unidentifiable desiccated vegetation. A manmade rocky berm separating this wetland and Auburn Ravine has slightly eroded away to allow water from the wetland to flow into Auburn Ravine.

Three manmade intermittently wet drainage ditches are present within the ARSA. One ditch is north of McBean Park Drive, east of the bridge. This ditch consisted of little to no vegetation and mainly consisted of erosion control devices such as straw wattles and jute matting, but some areas had standing water. Another ditch is south of McBean Park Drive, east of the bridge. This ditch consisted of dense ruderal vegetation with areas of flowing water. On the western section of this ditch, water was being diverted through a PVC pipe and the ditch was mostly dry. A third ditch flows from a drainage culvert under McBean Park Drive into Auburn Ravine west of the bridge and south of McBean Park Drive. At the time of the 2021 survey, this ditch carried some flowing water and was surrounded by riparian vegetation. Characteristics of all water features were gathered, and current photographs of each water feature was taken (Appendix B).

No sections of Auburn Ravine or the Sacramento River are considered Wild and Scenic Rivers (USFWS 2020b).

Chapter 5 – Aquatic Resources On-Site

All aquatic resources identified within the ARSA (Figure 6) were evaluated. Each feature was categorized as either a federal or State water. Features that were found to meet the federal definition of wetlands or non-wetland waters that also exhibit a connection with a Traditional Navigable Water (TNW) will be evaluated by the USACE. Any impacts to Waters of the United States would require the issuance of a Section 404 permit from the USACE. All federal water features are as described in Section 5.1. If the Project would impact features under State regulatory authority, a Section 1600 Lake and Streambed Alteration Agreement (LSAA) would be needed from California Department of Fish and Wildlife (CDFW). The Regional Water Quality Control Board (RWQCB) may require a Section 401 permit if State waters are impacted. State waters do not necessarily conform to the definition of federal wetlands and non-wetland waters, but all federal waters do meet the less stringent definitions of State waters. All State water features are described in Section 5.2.

5.1. Federal Waters

Auburn Ravine originates north of the Project and crosses the Project in a north-south direction and continues flowing southwest after leaving the ARSA. Auburn Ravine occurs on the west side of the ARSA. Approximately 0.0024 acres within the OHWM of Auburn Ravine will be permanently impacted and 0.178 acre will be temporarily impacted by the Project (Figures 7 through 10). The OHWM of the ravine was present on the gentle sloping to moderately steep, sometimes vertical bank walls rising above the channel's sandy bed. A distinct variation in the frequency, condition, and type of vegetation along the banks exists between the northern area of the bridge and southern area. The northeast bank of Auburn Ravine was moderately steep with a wide riparian corridor. The northwest bank of Auburn Ravine was very steep with a narrow riparian corridor that abutted the fence along commercial and residential development. It is likely that the riparian corridor on the northwest side once extended much farther west and was abruptly cut off by urban development. Occasional organic debris (fallen trees, logs, roots) and non-organic debris (broken concrete with rebar, tires, trash) occurred near the extreme banks of the stream and near the bridge. The south banks were shorter and gentler than the northern banks. The southeast bank (and to some extent, the northeast) contained the greatest amount of Himalayan blackberry within the ARSA. The southwest bank was gentle and had several washed-out flat banks. Debris on this side of the stream was rare, and when present consisted of fallen tree debris. Indicators of the OHWM were consistently visible along the banks of the ravine, punctuated occasionally by areas of erosion caused by high flood events. Beneath the bridge the vegetative cover falls off abruptly, leaving an undulating series of sandy slopes in the upslope areas towards the riparian habitat. The riparian habitat surrounding the stream is supported by Auburn Ravine, a nearby drainage, and the adjacent wetlands. The presence of exposed tree and plant roots with adventitious growth occurs as a prevalent indicator of the OHWM in this area.

5.2. State Waters

Six water features were present within the ARSA (Table 1, see Figure 6) that are State waters that would likely be under the regulatory authority of RWQCB and the CDFW. These include the Auburn Ravine, three manmade ditches, and two wetlands. The three manmade drainage ditches are present with the Project. Two of these ditches run parallel to McBean Park Drive. One of these ditches (Ditch 1) is on the northeast side of McBean Park Drive and the other (Ditch 2) is south of McBean Park Drive. A third ditch (Ditch 3) is south of McBean Park Drive and west of the Auburn Ravine. Ditch 1 is a dry ditch located east of bridge that runs along the north border of McBean Park Drive and south of an active construction area where a residential development is being built. It terminates before the Ferrari Ranch Road intersection. Erosion control devices consisting of straw wattles and jute matting are present within this ditch because of the adjacent active construction. Ditch 2 is an intermittently wet ditch located east of bridge that runs along the south border of McBean Park Drive and terminates before Ferrari Ranch Road. Ditches 1 and 2 appear to be roadside ditches to catch road runoff and do not appear to flow into any other water features. Ditch 3 is a small intermittently wet ditch west of Auburn Ravine and south of McBean Park Drive. An inlet/outlet structure was present at this feature south of McBean Park Drive, and water from Ditch 3 flows from that structure into Auburn Ravine.

Table 1
Aquatic Resources and Upland Habitats,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Aquatic Resource	Cowardin Type	Latitude/Longitude	Acres/Linear Feet Within the ARSA (Acres/Linear Feet)	Temporary Impacts (Acres/Linear Feet)	Permanent Impacts (Acres/Linear Feet)
Auburn Ravine	R2UBH	38.890252, -121.283015	0.26/341	0.178	0.0024/77
Ditch 1	R6	38.890291, -121.280311	0.15/1306	0/0	0/0
Ditch 2	R6	38.889861, -121.279555	0.114/989	0/0	0/0
Ditch 3	R6	38.890137, -121.283484	0.013/114	0/0	0.013/114
Wetland 1	PAB	38.890430, -121.282428	0.112 /N/A	0/N/A	0/N/A
Wetland 2	PAB	38.889749, -121.281184	0.41 /N/A	0/N/A	0/N/A
		Total Wetlands and Waters	**1.059**	**0.178**	**0.015**
Upland Habitat	**Cowardin Type**	**Latitude/Longitude**	**Total Acreage/Linear feet (ARSA)**	**Temporary Impacts (Acres/Linear Feet)**	**Permanent Impacts (Acres/Linear Feet)**
Riparian 1	RP	38.8903282, -121.283083	0.039/62	0.02/51	0.005/11
Riparian 2	RP	38.890334, -121.282723	0.125/213	0.61/110	0.056/103
Riparian 3	RP	38.889789, -121.281048	0.078/150	0.051/76	0.02/74
Riparian 4	RP	38.89001, -121.282046	0.708/517	0/0	0.707/517
Riparian 5	RP	38.89004, -121.282972	0.079/119	0.011/24	0.058/95
Riparian 6	RP	38.89012, -121.283366	0.249/254	0.038/119	0.155/135

		Total Riparian:	**1.28**	**0.181**	**1.001**
Bank 1	RP	38.89021, -121.283124	0.04/235	0.013/111	0.027/124
Bank 2	RP	38.89022, -121.282960	0.051/240	0.051/240	0/0
		Total Bank	**0.09**	**0.064**	**0.027**

A total of 0.26 acres within the OHWM of Auburn Ravine was delineated, which including 0.18 acre within the Project site (see Table 1, see Figure 6). A total of 0.15 acre within the OHWM of Ditch 1 was delineated, including 0.12 acres within the Project site. A total of 0.114 acre within the OHWM of Ditch 2 was delineated, including 0.105 acre within the Project site. The Project site encompasses all of Ditch 3 (0.013 acre). Approximately 0.09 acre of bank habitat beyond the OHWM was delineated within Auburn Ravine within the Project site and approximately 1.28 acres of riparian habitat was mapped within the Project site. Small areas of both wetlands were delineated (0.52 acre) within the ARSA but only 0.04 acre was within the Project site.

Permanent and temporary impacts will result from widening the bridge road approaches, installing Rock Slope Protection, using staging areas, installing a water diversion structure, and using a work area at the bridge construction site (see Figures 7 through 10). Of the six water features present within the ARSA, only two will be directly impacted, Auburn Ravine and Ditch 3. The Project will permanently impact 0.0024 acre and temporarily impact 0.178 acre within the OHWM of the Auburn Ravine and permanently impact all of Ditch 3 (0.013 acre). Ditch 1, Ditch 2, and Wetland 1 will not be directly impacted because these features do not occur within the construction footprint. Indirect impacts will be avoided. Although Wetland 2 is shown to encroach into the Project impact area, the temporary, permanent, direct, and indirect impacts to this wetland will be avoided by the installation of Environmental Sensitive Area fencing to keep construction activities away from the wetland. Wetland 2 is not located within the construction footprint of the Project. Approximately 0.015 acre of aquatic resources will be permanently impacted, and 0.178 acre of aquatic resources will be temporarily impacted (see Table 1). Approximately 0.09 acre of bank habitat beyond the OHWM within Auburn Ravine will be impacted including 0.027 acre of permanent impacts and 0.064 acres of temporary impacts (see Figures 7 through 10). A total of 1.28 acre of riparian habitat was delineated, including 1.24 acres within the Project site (see Figure 6). Impacts to the riparian habitat caused by the widening of the bridge, road approaches, water diversion, rock slope protection, staging, and grubbing will be 1.001 acre (see Table 1 and Figures 7 through 10), which includes 0.56 acre of riparian habitat expected to be cleared and grubbed. Only 0.181 acre of riparian habitat is expected to be temporarily disturbed.

Two wetland features that were not included in the NWI are present within the ARSA and are partially within the Project site. A very small area (0.0007 acre) of Wetland 1 which is an established wetland within the protected McBean Park Expansion Preserve is present within the Project site, east of the bridge and south of McBean Park Drive (see Table 1, Figure 6). This wetland is just south of the temporary staging area south of McBean Park Drive. The perimeter of that wetland was delineated and paired sample points on either side of the feature boundary were taken to collect information describing both wetland and associated upland conditions. At each sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was analyzed. Wetland 1 is not expected to be directly or indirectly

impacted by the Project (see Figures 7 through 10). A small area (0.04 acre) of Wetland 2, which is currently being enhanced, is present within the Project site, east of the bridge and north of McBean Park Drive (see Figure 6). This wetland is directly adjacent to Auburn Ravine north of the bridge with a manmade rocky berm separating the two water features. That berm has slightly eroded away to allow water from Wetland 2 to flow into Auburn Ravine. Wetland 2 is not fully established and is currently being enhanced; it is lined with small boulders and contains little mature vegetation other than clusters of unidentifiable desiccated vegetation. Wetland 2 is not expected to be directly impacted by the Project (see Figures 7 through 10).

5.3. Significant Nexus

Water in Auburn Ravine flows southwest after leaving the ARSA, eventually entering the East Side canal which joins with the Sacramento River (Appendix A, Figure A-5), a TNW. This connection between the waters of Auburn Ravine and the Sacramento River is a significant nexus with a WOUS. Approximately 0.18 acre within the OHWM of Auburn Ravine is within the Project site including 0.178 acre of temporary impacts. Approximately 0.0024 acre within the OHWM of Auburn Ravine will be permanently impacted (see Table 1, Figures 7 through 10). There was no evidence that, when inundated, water in Ditch 1 or Ditch 2 would flow into the channel of Auburn Ravine, either as surface water or as underground water, and as such there is no nexus of those features with a TNW. Ditch 3 does flows into Auburn Ravine, so this feature would have a significant nexus with a WOUS. Wetland 1, south of McBean Park Drive and east of the bridge, is adjacent to Auburn Ravine and during flood events is connected to Auburn Ravine. Wetland 2, north of McBean Park Drive and east of the bridge, is also adjacent to Auburn Ravine. A manmade rocky berm separating this wetland and Auburn Ravine has slightly eroded away to allow water from the wetland to flow into Auburn Ravine establishing a connection. Both wetlands are adjacent to a tributary of a TNW, establishing a significant nexus with a WOUS.

Figure 6
Aquatic Resources Delineation Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

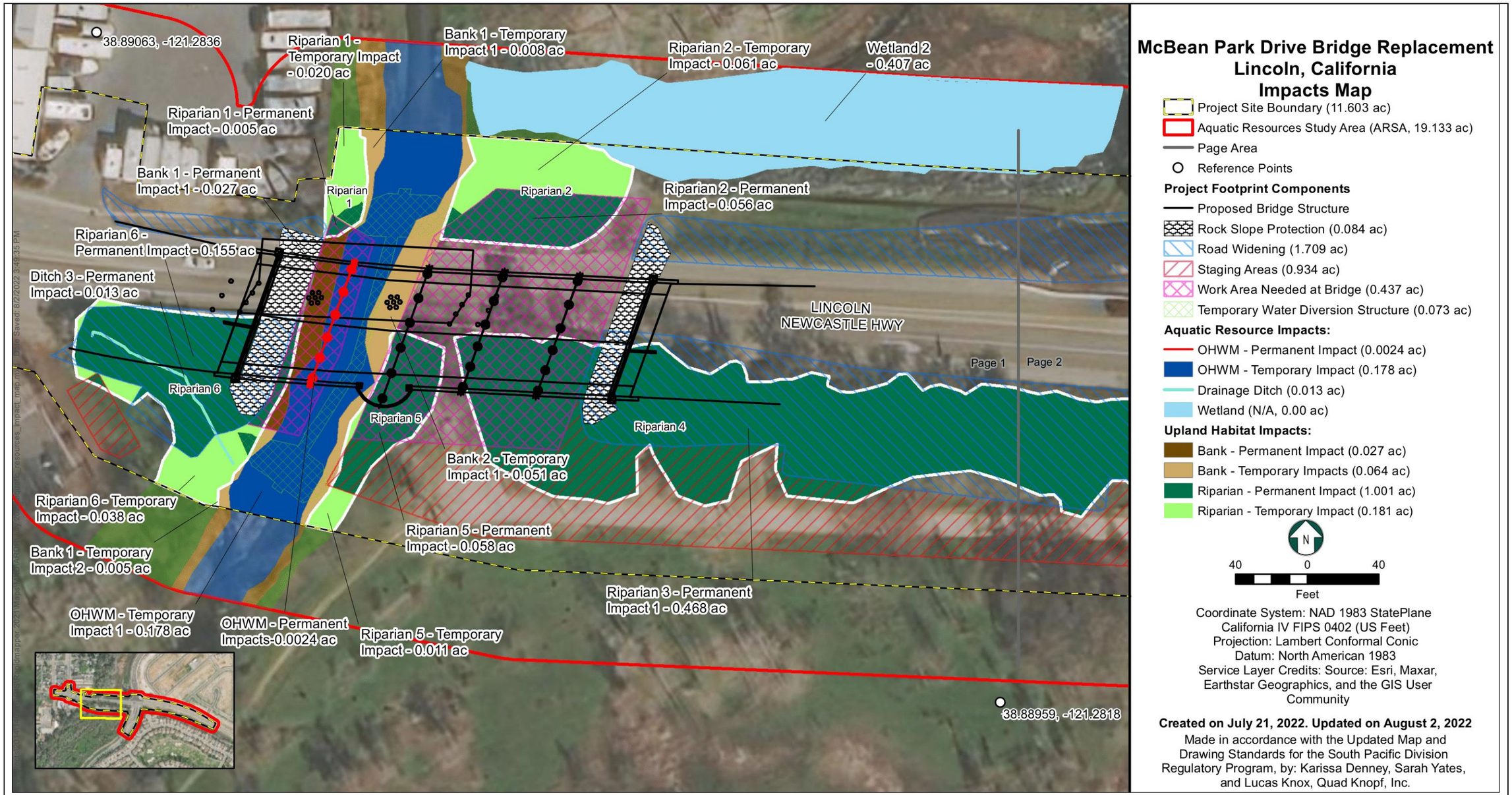


Figure 7
Aquatic Resources Impacts Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

McBean Park Drive Bridge Replacement
Lincoln, California
Impacts Map

- Project Site Boundary (11.603 ac)
- Aquatic Resources Study Area (ARSA, 19.133 ac)
- Page Area
- Reference Points
- Road Widening (1.709 ac)
- Staging Areas (0.934 ac)
- Drainage Ditch (0.013 ac)
- Wetland (N/A, 0.00 ac)
- Riparian - Permanent Impact (1.001 ac)
- Riparian - Temporary Impact (0.181 ac)

N

40 0 40

Feet

Coordinate System: NAD 1983 StatePlane California IV FIPS 0402 (US Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Created on July 21, 2022. Updated on August 2, 2022

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, by: Karissa Denney, Sarah Yates, and Lucas Knox, Quad Knopf, Inc.

Figure 8
Aquatic Resources Impacts Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

McBean Park Drive Bridge Replacement
Lincoln, California
Impacts Map

- Project Site Boundary (11.603 ac)
- Aquatic Resources Study Area (ARSA, 19.133 ac)
- Page Area
- Reference Points
- Road Widening (1.709 ac)
- Drainage Ditch (0.013 ac)

N

40 0 40

Feet

Coordinate System: NAD 1983 StatePlane California IV FIPS 0402 (US Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Created on July 21, 2022. Updated on August 2, 2022

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, by: Karissa Denney, Sarah Yates, and Lucas Knox, Quad Knopf, Inc.

Figure 9
Aquatic Resources Impacts Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

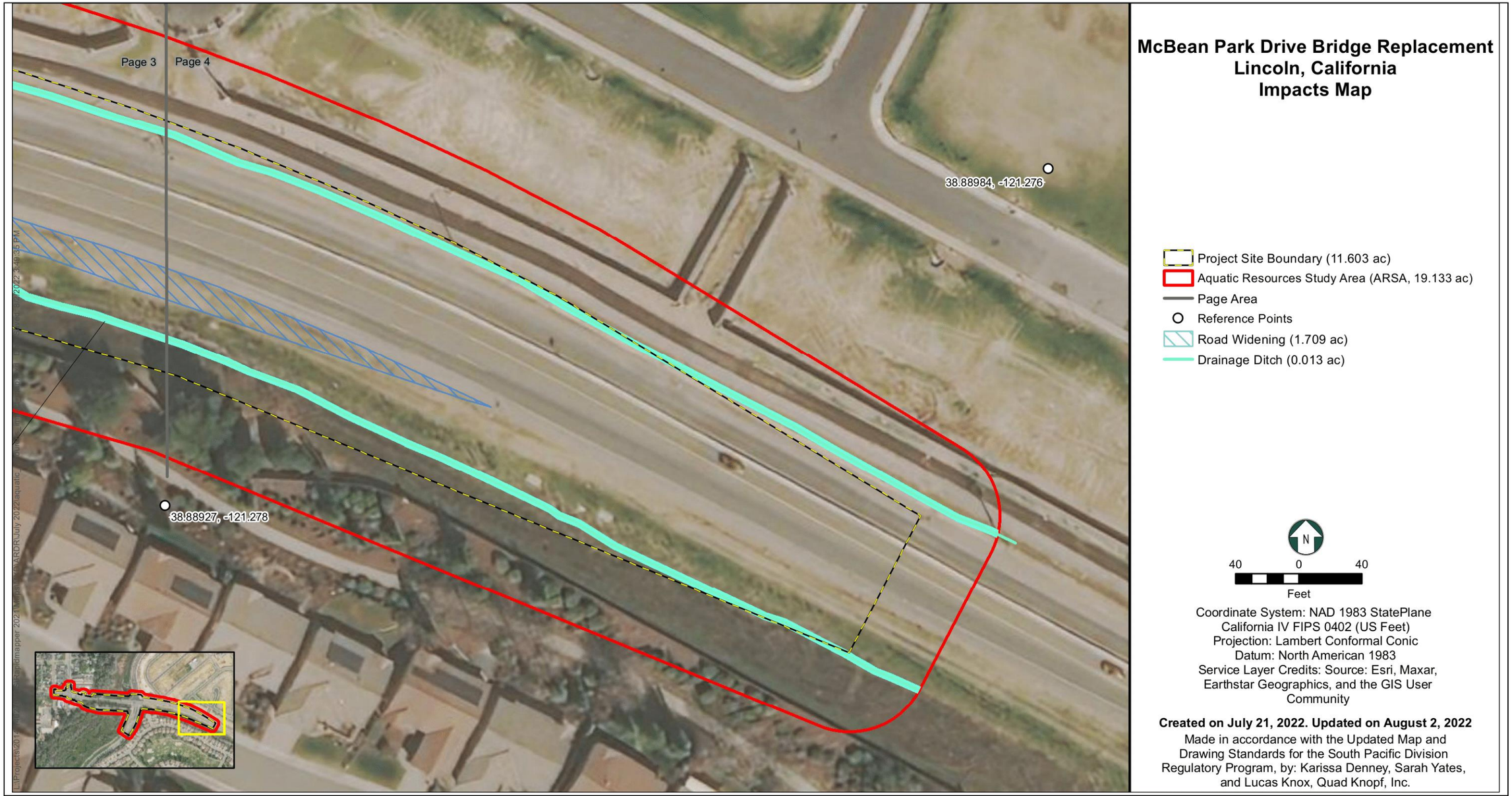


Figure 10
Aquatic Resources Impacts Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Chapter 6 – Summary and Conclusion

Six water features are present within the Project. These include Auburn Ravine, Ditches 1 through 3 and Wetland 1 and Wetland 2. Auburn Ravine occurs on the west site of the Project site and originates north of the Project and crosses the Project in a north-south direction and continues flowing southwest after leaving the ARSA. Manmade roadside ditches, Ditch 1 and Ditch 2, run parallel to McBean Park Drive on the east side of the Project and appear to catch road runoff and do not flow into any other water features. Ditch 3 is also a manmade ditch that feeds into Auburn Ravine on the west side of the Project, southwest of the bridge. Wetland 1 is an established wetland within a protected McBean Park Expansion Preserve, south of McBean Park Drive. Wetland 2 is an ongoing wetland restoration project north of McBean Park Drive. Wetland 2 is lined with small boulders and little mature vegetation growth is present other than clusters of unidentifiable desiccated vegetation.

Permanent and temporary impacts will result from widening the bridge road approaches, installing Rock Slope Protection, using staging areas, installing a water diversion structure, and using a work area at the bridge construction site. Of the six water features present within the ARSA, only two will be directly impacted, Auburn Ravine and Ditch 3. Project implementation will permanently impact 0.0024 acre and temporarily impact 0.178 acre within the OHWM of the Auburn Ravine and permanently impact all of Ditch 3 (0.013 acres). Ditch 1, Ditch 2, and both wetlands will not be permanently impacted, and temporary impacts will be avoided. Approximately 0.015 acre of aquatic resources will be permanently impacted, and 0.178 acre of aquatic resources will be temporarily impacted. Approximately 0.027 acre of bank habitat will be permanently impacted, and 1.001 acre of riparian habitat will be permanently impacted including 0.56 acre expected to be cleared and grubbed.

Auburn Ravine is a tributary of the Sacramento River, which is a Traditionally Navigable Water, and thus Auburn Ravine would be under the jurisdiction of the USACE. Auburn Ravine would also be a water of the State that would be under the regulatory authority of the Regional Water Quality Control Board and the California Department of Fish and Wildlife. All tributaries to Auburn Ravine, which includes Ditch 3 and Wetland 2 would also be under the jurisdiction of the USACE. All Project waters, including Ditches 1 and 2 are under the regulatory authority of the RWQCB and the CDFW. The RWQCB has regulatory authority over all surface waters in accordance with the Porter-Cologne Act. The CDFW has regulatory authority over the bed, bank, channel, and associated riparian habitats of waters in accordance with Section 1600 of the Fish and Game Code. Impacts to the water features would require a Section 404 permit through the USACE, a Section 401 permit (Water Quality Certification) through the RWQCB, and a Section 1600 Streambed Alteration Agreement with the CDFW.

Chapter 7 – References

Baldwin, Bruce G., Douglas Goldman, David Keil, Robert Patterson, Thomas Rosatti, and Dieter Wilken, eds. 2012. The Jepson Manual Vascular Plants of California. 2nd ed. Berkeley, Calif.: University of California Press.

City of Lincoln. 2018. Preliminary Environmental Study (PES) with Detailed Project Description.

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* USDI Fish and Wildlife Service, Washington D.C. Office of Biological Services.

ESRI 2021. ArcGIS Online. https://www.arcgis.com/home/signin.html

Federal Emergency Management Agency (FEMA). 2021. FEMA Flood Map Service Center. City of Lincoln, California, The Department of Homeland Security. Retrieved from https://msc.fema.gov/portal/search?AddressQuery=lincoln%2C%20ca#searchresultsanchor

Google LLC. 2021. Google Earth Pro.

Lichvar, R.W. et al. 2016. Arid West 2014 Regional Wetland Plant List To Determine Plant Wetland Status.

Munsell. 2000. *Munsell Soil Color Charts*. Munsell Color, Grand Rapids, MI. 10pp. plus 9 charts.

Placer County. 2002. Auburn Ravine/Coon Creek Restoration Plan.

United States Army Corps. of Engineers (USACE). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Army Corps. of Engineers (USACE). 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western Unites States: A Delineation Manual. U.S. Army Engineer Research and Development Center. Published August 2008.

United States Army Corps. of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual. Wetlands Research Program, Technical Report Y-87-1. Waterways Experiment Station, Vicksburg, Mississippi.

United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2016. The PLANTS Database (http://plants.usda.gov). National Plant Data Team, Greensboro, NC 27401-4901 USA.

United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2021a. Web Soil Survey. Soil Survey Area: Lincoln, California. Soil Survey Data: Version 8, April 9, 2019. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2021b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Retrieved from: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

United States Fish and Wildlife Service (USFWS). 2021a. National Wetlands Inventory Wetlands Mapper. https://www.fws.gov/wetlands/data/mapper.html

United States Fish and Wildlife Service (USFWS). 2021b. National Wild and Scenic River System: Owens River Headwaters, California. https://www.rivers.gov/rivers/owens.php

United States Geological Survey (USGS). 2021. National Hydrography Dataset (NHD). GIS data. https://nhd.usgs.gov/data.html. Accessed February 11, 2020.

Chapter 8 – Preparers

Primary Author

- Julie Hausknecht, Associate Environmental Scientist, QK
- Lucas Knox, Senior Associate Environmental Scientist, QK

Technical Review

- Curtis Uptain, Principal Environmental Scientist, QK

Graphics

- Michael Glietz, GIS Analyst, QK
- Sarah Yates, Associate Environmental Scientist, QK

Appendix A – Supporting Maps

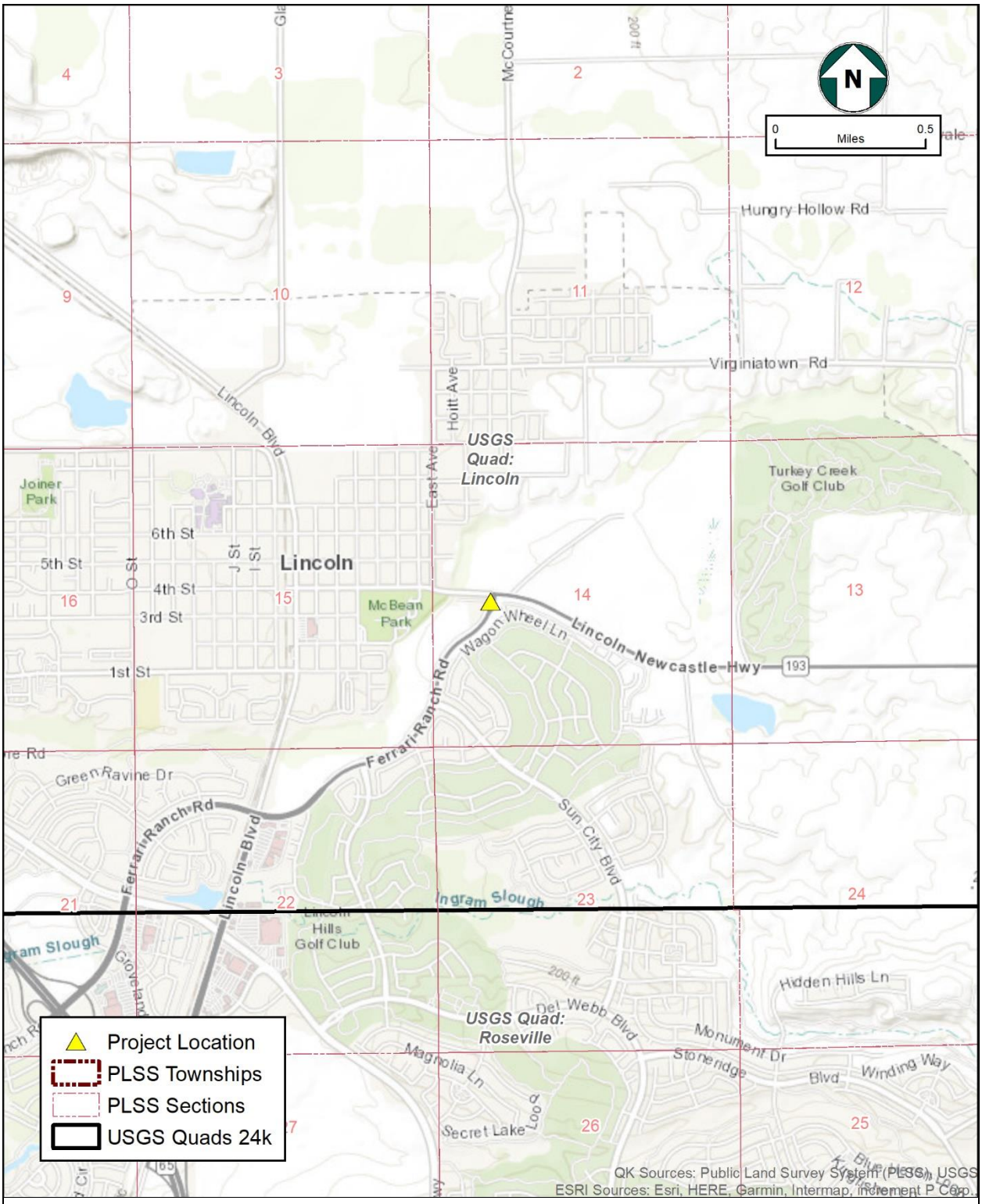


Figure A-1
7.5 USGS Quadrangle Map,
McBean Park Drive Bridge Replacement Project, Lincoln, California

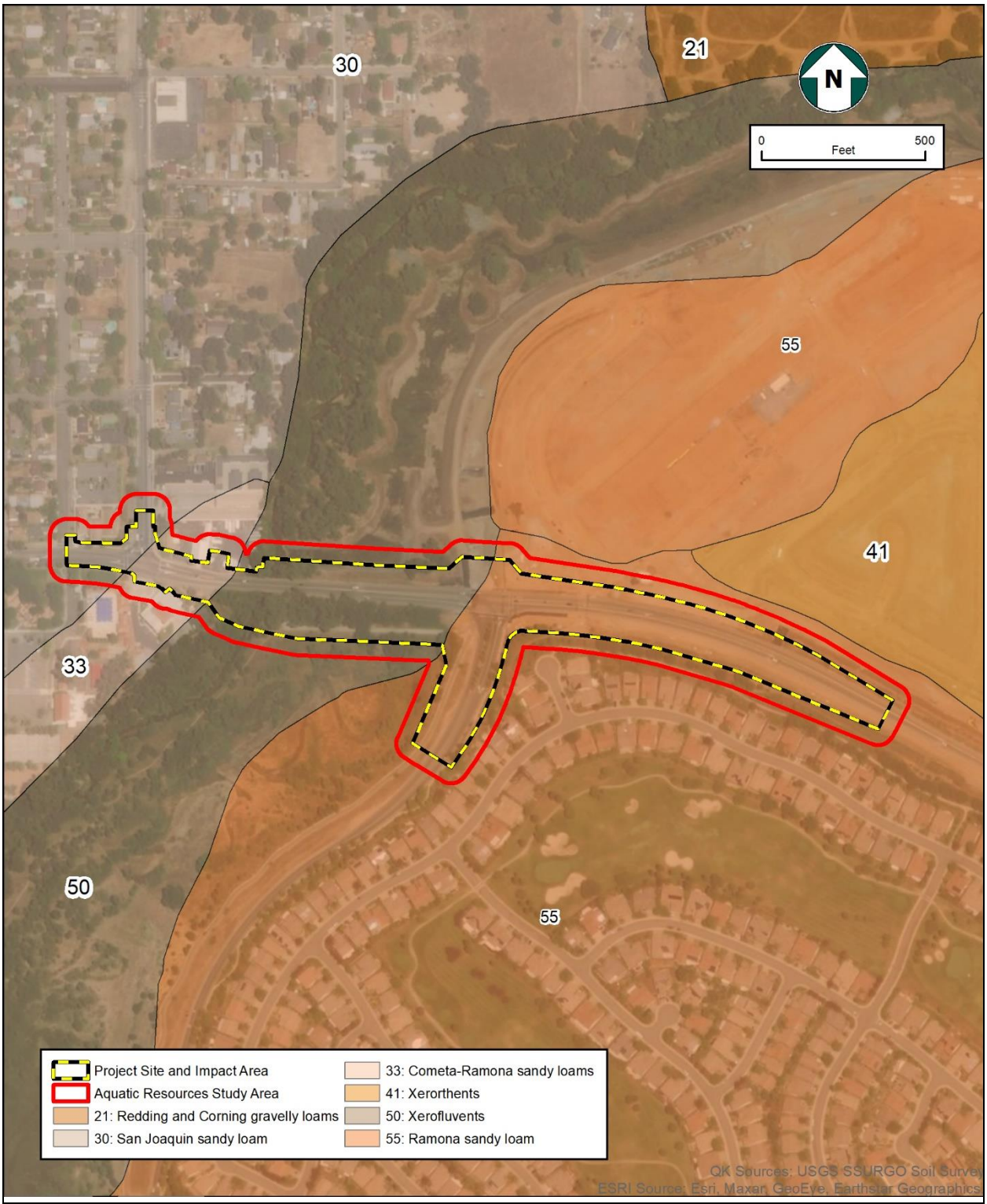


Figure A-2
Soils Map,
McBean Park Drive Bridge Replacement Project, Lincoln, California

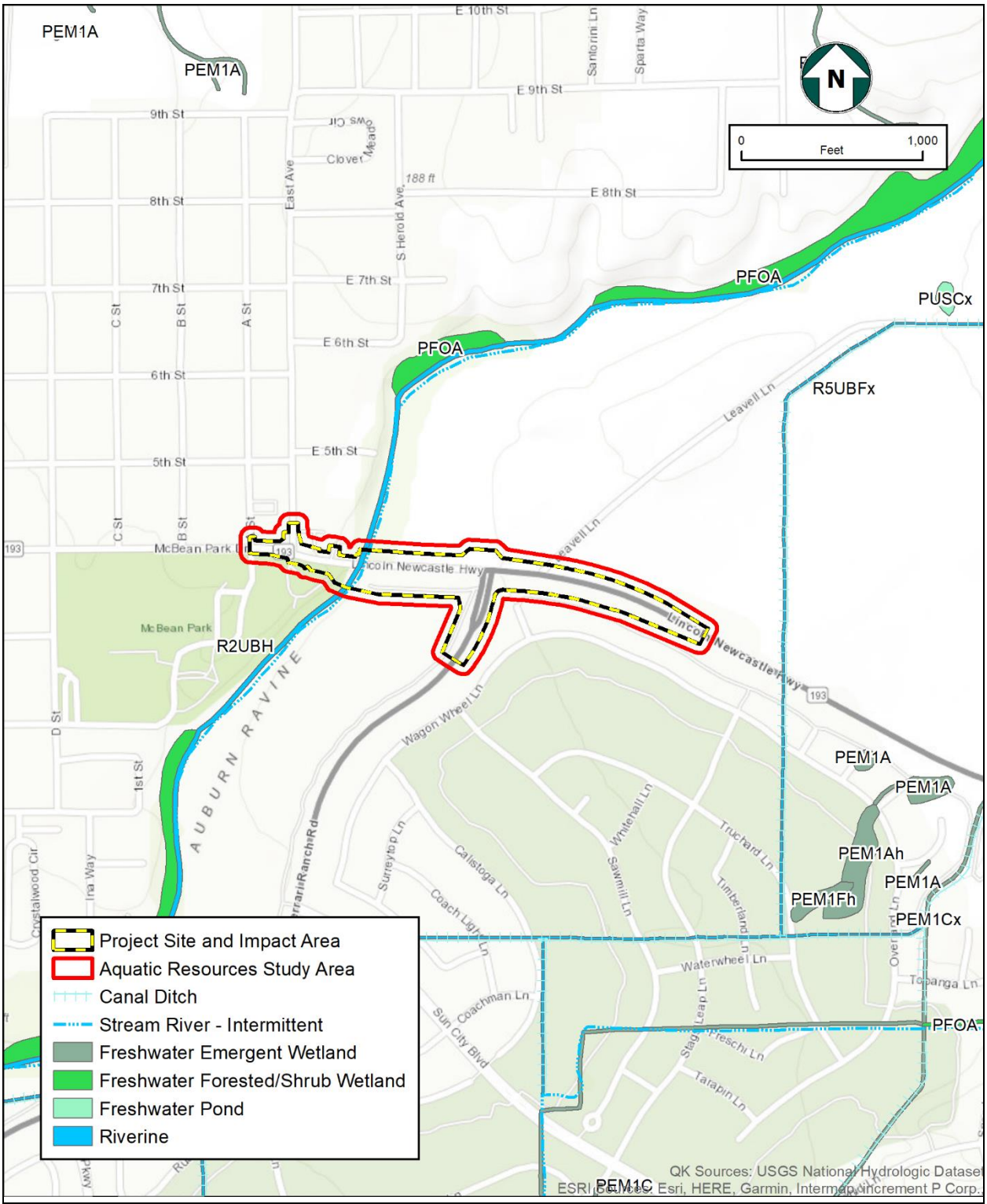


Figure A-3
National Wetlands Inventory and National Hydrography Dataset Map, McBean Park Drive Bridge Replacement Project, Lincoln, California

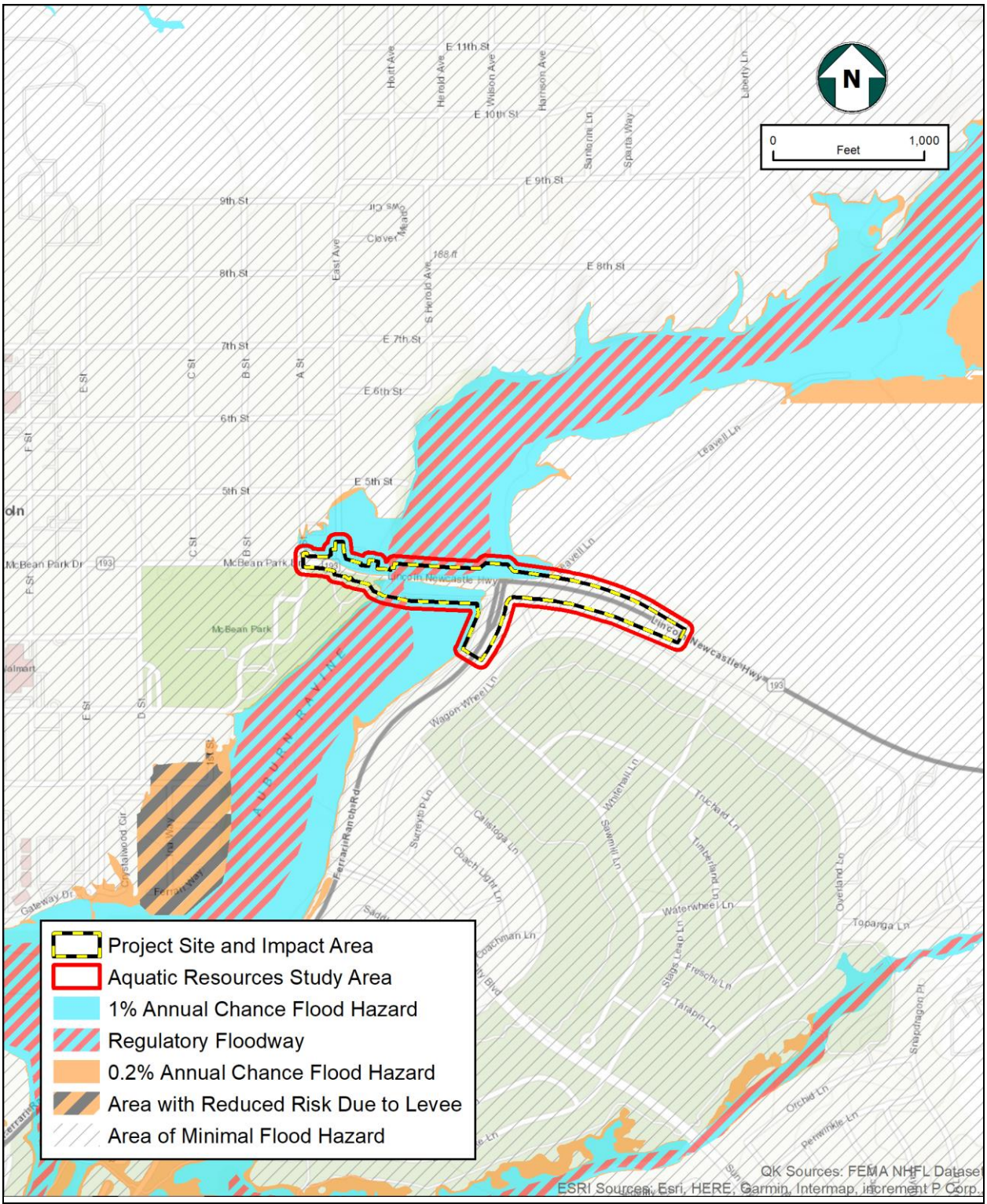


Figure A-4
FEMA Flood Zone Map,
McBean Park Drive Bridge Replacement Project, Lincoln, California

Appendix B – Representative Photographs

Photograph 1: View of the northside of the existing McBean Park Drive Bridge.
38.89046111 N°, -121.28284444 W° facing south, southwest.
Photograph taken by Julie Hausknecht on February 5, 2021.

Photograph 2: View of the southside of the existing McBean Park Drive Bridge.
38.889821 N°, -121.283272 W° facing north.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 3: View of the southern portion of Auburn Ravine from the McBean Park Drive Bridge. 38.89018888 N°, -121.28303611 W° facing south, southwest.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 4: View of the northern portion of Auburn Ravine from the McBean Park Drive Bridge. 38.89026388 N°, -121.28299444 W° facing north.
Photograph taken by Lisa Sandoval on February 5, 2021.

Photograph 5: View of the established wetland (Wetland 1) south of McBean Park Drive, east of Auburn Ravine. 38.88978 N°, -121.28124 W° facing southwest.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 6: View of the wetland restoration project (Wetland 2) north of McBean Park Drive, east of Auburn Ravine. 38.89051944 N°, -121.28282777 W° facing east.
Photograph taken by Julie Hausknecht on February 4, 2021.

Photograph 7: View of eastern drainage ditch (Ditch 2) with standing water south of McBean Park Drive. 38.88894444 N°, -121.27633333 W° facing east.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 8: View of eastern drainage ditch (Ditch 1) with erosion control measures north of McBean Park Drive. 38.88920833 N°, -121.27616388 W° facing east.
Photograph taken by Sarah Yates on February 4, 2021.

Photograph 9: View of drainage ditch (Ditch 3) that flows into Auburn Ravine southwest of bridge.
38.890152 N°, -121.283468 W° facing south east.
Photograph taken by Danielle Temple on February 5, 2021.

Photograph 10: View of the northern section of Auburn Ravine with the steep western bank.
38.89046111 N°, -121.28133333 W° facing northwest.
Photograph taken by Julie Hausknecht on February 5, 2021.

Appendix C – Plant List

Table C-1
Plant Species Observed within ARSA,
McBean Park Drive Bridge Replacement Project, Lincoln, California

Scientific Name	Common Name	Wetland Indicator Status*	Native or Introduced
Acer negundo	boxelder maple	FACW	Native
Alnus rhombifolia	white alder	FACW	Native
Ambrosia artemisiifolia	common ragweed	FACU	Introduced
Artemisia douglasiana	California mugwort	FAC	Native
Arum italicum	Italian lords and ladies	NI	Introduced
Asteraceae	unknown aster	NI	Unknown
Avena fatua	wild oat	NI	Introduced (Invasive)
Azolla filiculoides	mosquito fern	OBL	Native
Baccharis pilularis	coyote brush	NI	Native
Brassica spp.	mustard	NI	Unknown
Briza minor	little quaking grass	FAC	Introduced
Bromus diandrus	ripgut brome	NI	Introduced (Invasive)
Capsella bursa-pastoris	Shepherd's purse	FACU	Introduced
Carex barbarae	valley sedge	FAC	Native
Carex sp.	sedge	NI	Unknown
Catalpa speciosa	northern catalpa	FAC	Introduced
Ceanothus cuneatus	buck brush	NI	Native
Centaurea solstitialis	yellow starthistle	NI	Introduced (Invasive)
Claytonia perfoliata	miner's lettuce	FACU	Native
Conium maculatum	poison hemlock	FACW	Introduced (Invasive)
Coreopsis tinctoria	golden tickseed	FACU	Introduced
Cortaderia selloana	pampas grass	FACU	Introduced (Invasive)
Croton setigerus	turkey mullein	NI	Native
Cynodon dactylon	Bermuda grass	FACU	Introduced (Invasive)
Cyperus eragrostis	tall flatsedge	FACW	Native
Daucus carota	wild carrot	UPL	Introduced
Digitaria sanguinalis	hairy crabgrass	FACU	Introduced
Dittrichia graveolens	stinkwort	NI	Introduced (Invasive)
Elymus caput-medusae	medusahead	NI	Introduced (Invasive)
Elymus glaucus	blue wildrye	FACU	Native
Equisetum laevigatum	smooth horsetail	FACW	Native

Eriogonum baileyi	Bailey buckwheat	NI	Native
Erodium cicutarium	red stemmed filaree	NI	Introduced (Invasive)
Festuca perennis	Italian ryegrass	NI	Introduced (Invasive)
Foeniculum vulgare	sweet fennel	NI	Introduced (Invasive)
Frangula californica	California coffeeberry	NI	Native
Fraxinus latifolia	Oregon ash	FACW	Native
Geranium dissectum	cutleaf geranium	NI	Introduced (Invasive)
Hedera helix	English ivy	FACU	Introduced (Invasive)
Hirschfeldia incana	short podded mustard	NI	Introduced (Invasive)
Hordeum murinum ssp. *leporinum*	foxtail barley	NI	Introduced
Hordeum spp.	foxtail	NI	Unknown
Hydrocotyle sp.	pennywort	NI	Unknown
Iris sp.	iris	NI	Unknown
Juglans californica var. *hindsii*	northern California black walnut	FAC	Native
Juglans nigra	black walnut	UPL	Introduced
Juncus drummondii	Drummond's rush	FACW	Native
Juncus sp.	rush	FACW	Unknown
Lactuca serriola	prickly lettuce	FACU	Introduced
Ligustrum lucidum	glossy privet	NI	Introduced (Invasive)
Magnolia grandiflora	magnolia	NI	Introduced
Marrubium vulgare	white horehound	FACU	Introduced (Invasive)
Mentha spp.	mint	NI	Unknown
Morus alba	white mulberry	FACU	Introduced
Muhlenbergia rigens	deergrass	FAC	Native
Paspalum dilatatum	Dallisgrass	FAC	Introduced
Persicaria amphibia	water smartweed	OBL	Native
Phacelia imbricata	imbricate phacelia	NI	Native
Phalaris arundinacea	reed canarygrass	FACW	Native
Phyllostachys aurea	golden bamboo	NI	Introduced
Pinus ponderosa	ponderosa pine	FACU	Native
Plantago lanceolata	English plantain	FAC	Introduced (Invasive)
Polygonum amphibium	water smartweed	NI	Native
Polypogon monspeliensis	rabbitsfoot grass	FACW	Introduced (Invasive)
Populus fremontii	Fremont cottonwood	NI	Native

Populus sp.	cottonwood	NI	Unknown
Populus trichocarpa	black cottonwood	NI	Native
Pteridium aquilinum	western bracken fern	FACU	Native
Quercus douglasii	blue oak	NI	Native
Quercus kelloggii	black oak	NI	Native
Quercus lobata	valley oak	FACU	Native
Quercus wislizeni	interior live oak	NI	Native
Raphanus raphanistrum	wild radish	NI	Introduced
Rosa californica	California wild rose	FAC	Native
Rosa sp.	rose	NI	Unknown
Rosmarinus officinalis	rosemary	NI	Introduced
Rubus armeniacus	Himalayan blackberry	FAC	Introduced (Invasive)
Rumex crispus	curly dock	FAC	Introduced (Invasive)
Salix exigua	narrowleaf willow	FACW	Native
Salix laevigata	red willow	FACW	Native
Salix lasiolepis	arroyo willow	FACW	Native
Salix lucida ssp. *lasiandra*	Pacific willow	FACW	Native
Salix prolixa	Mackenzie's willow	OBL	Native
Salix sp.	willow	NI	Unknown
Senecio vulgaris	common groundsel	FACU	Introduced
Sequoia sempervirens	coast redwood	NI	Native
Silybum marianum	milk thistle	NI	Introduced (Invasive)
Solidago velutina	threenerve goldenrod	NI	Native
Trifolium hirtum	rose clover	NI	Introduced (Invasive)
Typha latifolia	common cattail	OBL	Native
Ulmus sp.	elm	NI	Introduced
Urtica dioica	stinging nettle	FAC	Native
Verbena hastata	swamp verbena	FAC	Native
Vicia villosa	winter vetch	NI	Introduced
Vinca major	periwinkle	NI	Introduced (Invasive)
Xanthium strumarium	rough cocklebur	FAC	Native

United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2016. The PLANTS Database (http://plants.usda.gov). National Plant Data Team, Greensboro, NC 27401-4901 USA.

*OBL Obligate species: almost always occur in wetlands; occur in wetlands 99% of the time
FACW Facultative wetland species: usually occur in wetlands, but may occur in non-wetlands; occur in wetlands 67 to 99% of the time
FAC Facultative species: occur in wetlands and non-wetlands; occur in wetlands 34 to 66% of the time
FACU Facultative upland species: usually occur in non-wetlands, but may occur in wetlands; occur in wetlands 1 to 33% of the time
UPL Upland species: almost never occur in wetlands; occur in wetlands 1% of the time
NI indicator status not known in this region

Appendix D – Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: McBean 140276 City/County: Placer, Lincoln Sampling Date: 2/5/21

Applicant/Owner: City of Lincoln State: CA Sampling Point: W1

Investigator(s): JH, CU, LS, SX, JT Section, Township, Range: S14, T12N, R10E

Landform (hillslope, terrace, etc.): mostly flat w/ slight slope Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): C- Mediterranean CA Lat: 38.889710 Long: -121.281320 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20x20)	Absolute % Cover	Dominant Species?	Indicator Status
1. Willow sp.	3	X	FACW
2. black oak	2		UPL
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20x20)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 20x20)			
1. Geranium, cutleaf	41		UPL
2. Bermuda grass	29		UPL
3. hairy vetch	4		UPL
4. flat sedge	4		FAC
5. curly dock	3		FAC
6. Cattails	45	X	OBL
7. clover sp.	5		UPL
8. rush sp.	3		FACW
	94	= Total Cover	
Woody Vine Stratum (Plot size: 20x20)			
1. Himalayan blackberry	1	X	FAC
2.			
	1	= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 45	x 1 =	45
FACW species 6	x 2 =	12
FAC species 8	x 3 =	24
FACU species 0	x 4 =	0
UPL species 41	x 5 =	205
Column Totals: 100 (A)		286 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X 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 X No _____

Remarks:

US Army Corps of Engineers Arid West – Version 2.0

SOIL

Sampling Point: W1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2.5	7.5yr 2.5/2	80					Sandy loam	
2.5-5.0	10yr 3/4	80					Sandy clay	
5.0-12	7.5yr 4/4	20					Sandy clay	

[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)
- X 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 X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X 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**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 3.5

Water Table Present? Yes X No _____ Depth (inches): 5.5

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 2.5

Wetland Hydrology Present? Yes X No _____

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

Remarks:

US Army Corps of Engineers — Arid West – Version 2.0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: McBean 140276 City/County: Placer, Lincoln Sampling Date: 2/5/21

Applicant/Owner: City of Lincoln State: CA Sampling Point: U1

Investigator(s): JH, SY, LS, DT, CU Section, Township, Range: S14, T12N, R6E

Landform (hillslope, terrace, etc.): mostly flat w/ gradual slope Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): C- Mediterranean CA Lat: 38.889760 Long: -121.28384 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20x20)	Absolute % Cover	Dominant Species?	Indicator Status
1. black oak	15	X	UPL
2. willow sp	10		FACW
3. live oak	5		FACU
4.			
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 20x20)			
1. black oak	2	X	UPL
2. live oak	1		FACU
3. unknown tree species	1.5		UPL
4.			
5.			
	4.5	= Total Cover	

Herb Stratum (Plot size: 20 x 20)			
1. English plantain	3		FAC
2. dotgrass	12		FAC
3. sweet fennel	3		UPL
4. unknown aster	12		UPL
5. geranium	2		UPL
6. unknown grass	15	X	UPL
7. unknown carrot species	13.5		UPL
8. Clover sp	5		UPL
	65.5	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1. Himalayan blackberry	30	X	FAC
2.			
	30	= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 10	x 2 = 20
FAC species 45	x 3 = 135
FACU species 6	x 4 = 24
UPL species 67.5	x 5 = 337.5
Column Totals: 128.5 (A)	516.5 (B)

Prevalence Index = B/A = 4.019

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 X

Remarks:

Abundant leaf litter

US Army Corps of Engineers Arid West – Version 2.0

SOIL

Sampling Point: U1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2.0	10yr 3/2	80					loam	
2.0-3.0	7.5yr 3/2	60					sandy loam	
3.0-9.3	5yr 3/2	60					loamy clay	

[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)
- X 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** X **No** _____

Remarks:

Redox depressions only in the bottom 3 inches of soil core

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 X Depth (inches): _____

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

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

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

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

Remarks:

US Army Corps of Engineers — Arid West – Version 2.0

Appendix E – Ordinary High Water Mark Data Sheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: McBean Drive
Project Number: 140276
Stream: Auburn Ravine
Investigator(s): Lisa S., Sarah Y., Julie H., Danielle J.

Date: 2/5/2021 **Time:** 0800
Town: Placer/Linda **State:** California
Photo begin file#: **Photo end file#:**

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
Upstream of McBean Park Drive Bridge

Projection: **Datum:**
Coordinates:

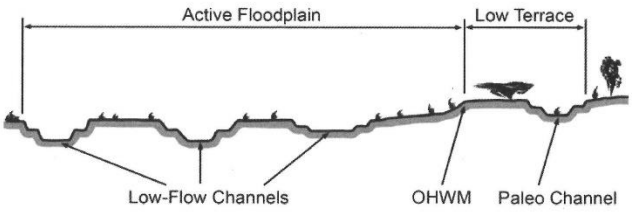
Potential anthropogenic influences on the channel system:
There is a road bridge overpass midway through the site. Man-made area with riprap flood area located northeast of the.

Brief site description:
The site is roungly 10-15 feet wide stream flowing south. There are some fallen trees within the stream which the flow creates deeper areas. There is beaver activity nearby. The site is located crossing the roadway. There is a paved trail and park bench on the southwest side of the bridge. Vegetation is growing on the banks. Portions of the banks are cut and have steep walls.

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ■ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ■ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

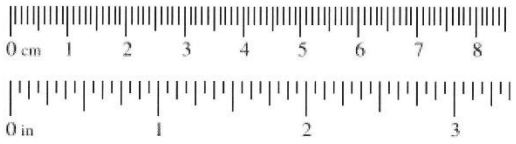


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ■ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ■ GPS
   - ☐ Other:

Wentworth Size Classes

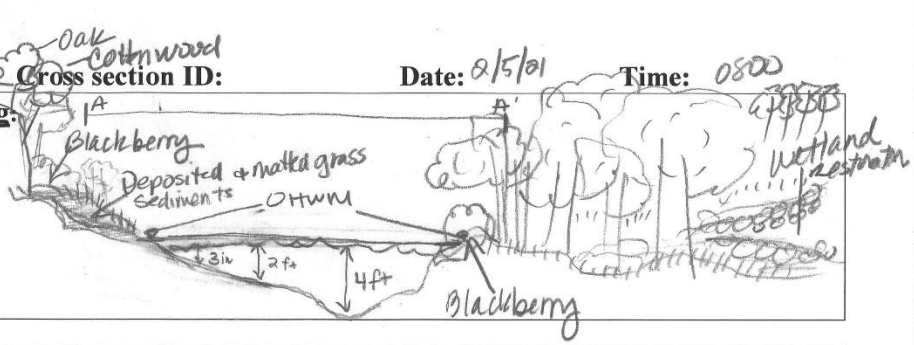
Millimeters (mm)		Inches (in)		Wentworth size class	
	10.08		256	Boulder	
	2.56		64	Cobble	Gravel
	0.157		4	Pebble	
	0.079		2.00	Granule	
	0.039		1.00	Very coarse sand	
	0.020		0.50	Coarse sand	
1/2	0.0098		0.25	Medium sand	Sand
1/4	0.005		0.125	Fine sand	
1/8	0.0025		0.0625	Very fine sand	
1/16	0.0012		0.031	Coarse silt	
1/32	0.00061		0.0156	Medium silt	
1/64	0.00031		0.0078	Fine silt	Silt
1/128	0.00015		0.0039	Very fine silt	
				Clay	Mud



Project ID: RV Storage **Cross section ID:** **Date:** 8/5/01 **Time:** 0800

Cross section drawing:

U-shapped channel
About 2-4ft depth
in parts.



OHWM

GPS point: 38.890333, -121.282995

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Change in vegetation, smoothing of particles, change in sediment sorting

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: 38.890344, -121.282945

Characteristics of the floodplain unit:

Average sediment texture: Sandy, small cobbles

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [x] Other: change in sparticle size
- [ ] Other: _____
- [ ] Other: _____

Comments:

- gravel size and type change, benching & variable depth due to benching, 2-4ft).
- There was a fire in the water that caused a deep pocket of water due to flow

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ■ Active Floodplain ☐ Low Terrace

GPS point: 38.890357, -121.283023

Characteristics of the floodplain unit:

Average sediment texture: sandy loam

Total veg cover: 95 % Tree: 5 % Shrub: 40 % Herb: 50 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ■ Drift and/or debris
- ■ Presence of bed and bank
- ■ Benches
- ☐ Soil development
- ☐ Surface relief
- ■ Other: leevees and narrow berms
- ■ Other: exposed root hairs
- ■ Other: valley falt

Comments:

Sediment deposit, matted vegetation from high-flow.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ■ Low Terrace

GPS point: 38.890325, -121.282868

Characteristics of the floodplain unit:

Average sediment texture: sandy loam

Total veg cover: 92 % Tree: 60 % Shrub: 22 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ■ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ■ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ■ Surface relief
- ■ Other: exposed root hairs
- ☐ Other:
- ☐ Other:

Comments:

Boulders brought in from wetland restoration project in the North east area.

McBean Park Drive Bridge Replacement Project

Evaluation of Fisheries Resources

District 3, City of Lincoln, Placer County, Caltrans Bridge No. 19C0254

BRLO-5089 (021)

February 2023

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this Project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

MCBEAN PARK DRIVE BRIDGE REPLACEMENT PROJECT

Evaluation of Fisheries Resources

District 3, City of Lincoln, Placer County, Caltrans Bridge No. 19C0254

BRLO-5089 (021)

Prepared for:

Quincy Engineering
11017 Cobblerock Drive, Suite 100,
Rancho Cordova, California 95670
Contact Person: Mike Sanchez, Senior Engineer
Phone: 916.461.9151
mikes@quincyeng.com

Consultant:

Quad Knopf, Inc. DBA QK
601 Pollasky Avenue, Suite 301
Clovis, CA 93612
Contact: Curtis Uptain, Principal Biologist
Phone: (559) 449-2400
Curtis.Uptain@QKinc.com

Submitted February 2023

140276

TABLE OF CONTENTS

List of Figures

List of Tables

Executive Summary

The Public Services Department of the City of Lincoln (City) is proposing to replace the existing McBean Park Drive Bridge (Bridge No. 19C0254) over Auburn Ravine near downtown Lincoln in western Placer County, California. The purpose of the Project is to replace the existing two-lane bridge (Bridge No. 19C0254) at McBean Park Drive and construct a new wider bridge at that location (see Figure 2). The bridge currently becomes overtopped during storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. Caltrans has deemed the bridge "functionally obsolete." Completion of the Project would provide a safe and reliable structure; support alternative modes of transportation including bikes, pedestrians, and neighborhood electrical vehicles; and be acceptable to the community with minimal impacts to traffic and the surrounding environment. As part of the Project, a temporary diversion of water in Auburn Ravine will be necessary to remove portions of the existing bridge and widen and construct the new bridge structure. Temporarily dewatering of the Project site and diverting ravine flows through two enclosed culvert pipes to convey water through the Project site will be necessary.

The McBean Park Drive Bridge crosses over Auburn Ravine, which could support the Central Valley steelhead (*Oncorhynchus mykiss*) and Sacramento River Spring and Winter Run Chinook salmon (*Oncorhynchus tshawytscha*). Central valley steelhead are listed as federally threatened under the federal Endangered Species Act (FESA) and the Sacramento River Spring Run Chinook salmon is listed as threatened and winter run Chinook salmon is listed as endangered under FESA (Appendix A). Auburn Ravine is designated as Critical Habitat by the United States Fish and Wildlife Service (USFWS) for the Central Valley steelhead and is within an Essential Fish Habitat area designated by the NOAA-Fisheries for the Chinook Salmon.

A fish habitat assessment was initially conducted for this project in 2014 by A.A. Rich and Associates. A verification and updated fish habitat assessment was conducted in 2021 by QK. Information on fishery resources were obtained from a search of the California Diversity Database (CNDDB), the Information, Planning, and Consultation System (IPAC System) supported by the USFWS, scientific literature, and an in-field fish habitat assessment. To assess fishery resource habitat conditions in Auburn Ravine within the proposed project area, habitat typing (*Sensu* Bisson et al. 1982 and modified by Rich 2000) to gather specific information on important stream characteristics was used. The habitat assessment included an area of approximately 600 feet downstream of the McBean Park Drive Bridge to approximately 400 feet upstream of the bridge. Information about conditions at each stream reach that was gathered included length of reach, maximum and average width, maximum and average depth, gradient, presence of spawning gravel, air and water temperature, relative abundance and type of cover, and type and relative dominance of substrate.

Along Auburn Ravine, the quality of migration habitat for salmonids has been substantially reduced by beaver dams, and by diversion dams and their associated water diversions. Some potential fish passage barriers exist along Auburn Ravine. Many of these are flashboard dams that operate seasonally and so have little effect on migrating fish. Water temperature records indicate that stream temperatures are satisfactory for salmonid rearing, but summer water

temperatures are reportedly too warm to support salmonid populations. Water temperatures likely limit salmonid presence, especially Chinook salmon, at the Project site during periods of low flow that occur from about July through December. Existing water quality in Auburn Ravine is affected by storm water runoff and urban land uses that contain many harmful contaminants which can potentially affect fish health and habitat quality. Because adult Winter Run Chinook salmon likely use Auburn Ravine primarily as a migration corridor on their way to upstream holding and spawning habitats, they likely are not substantially affected by water quality in the lower and mid-reaches of the ravine.

Fish habitat conditions in Auburn Ravine in the proposed Project area vary, depending upon the season and location. Habitat in Auburn Ravine consisted of low gradient riffles (LGRs), side channel and backwater pools, braided channels, and alternating lateral scour pools (associated with large woody debris, boulders, and cut banks) and LGRs. Depths ranged from 1 to 20 inches in the summer of 2014, and the width of the channel ranged from 8 to 65 feet. The width was generally unchanged in 2021 but the water depth was substantially higher at average depths of 6 to 30 inches, which is expected because sampling in 2021 was conducted in the winter when there is greater water runoff. Similarly, temperatures were substantially lower in the winter (average of approximately 50 degrees) than in the summer (average of approximately 70 degrees). There was some spawning substrate present in the ravine, although not much. Most substrate consisted of silt and sand, although there were some areas of gravel and cobble in the LGRs. Habitat contained adequate structure (providing escape and food items for rearing salmonids and other fishes), oxygen-producing riffles, and overhanging and in-stream vegetation for shade and cover.

Winter Run Chinook Salmon are thought to be absent from Auburn Ravine. run Chinook Salmon are thought to be absent from the section of Auburn Ravine where the Project is located due to barriers to movement. If these barriers were removed, Spring Run Chinook could become established in Auburn Ravine because of the timing of their migration, which is from April to June when water levels are highest in Auburn Ravine. Fall and Winter Run Chinook salmon have been captured within Auburn Ravine and could occur on the Project site. Steelhead trout have been caught in Auburn Ravine during all seasons of the year and could occur at the project site at any time.

Chapter 1 – Introduction

The Public Services Department of the City of Lincoln (City) is proposing to replace the existing McBean Park Drive Bridge (Bridge No. 19C0254) over Auburn Ravine near downtown Lincoln in western Placer County, California (Figures 1 and 2). The Project is along the eastern edge of the City of Lincoln boundary, approximately 1.5 miles east of downtown Lincoln, between residential and commercial buildings to the west and open-space and residential developments to the east (Figure 3).

1.1. Project Description and Background

The purpose of the Project is to replace the existing two-lane bridge (Bridge No. 19C0254) at McBean Park Drive and construct a new wider bridge at that location (see Figure 2). The bridge currently becomes overtopped during storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. Caltrans has deemed the bridge "functionally obsolete." The objectives are to replace the bridge with a bridge that provides reliable vehicle access during peak storm events, establish an enhanced river crossing, improve the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding, and to link pedestrians, bicycles, and neighborhood electrical vehicles on McBean Park Drive with the intersections of Ferrari Ranch Road to the east of the Project site and East Avenue to the west of the Project.

Completion of the Project would provide a safe and reliable structure; support alternative modes of transportation including bikes, pedestrians, and neighborhood electrical vehicles; and be acceptable to the community with minimal impacts to traffic and the surrounding environment.

This Project is within the boundaries of the Placer County Conservation Program (PCCP), which is implemented through a Habitat Conservation Plan (HCP), Natural Communities Conservation Program (NCCP), and County Aquatic Resources Program (CARP). The PCCP guides public agencies whose secondary approvals may also be required (e.g., permits, financing approval, or participation agreement). Secondary approvals that are needed will include approvals from the California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration-Fisheries Service (NOAA-Fisheries), Placer County, City of Lincoln, and the Central Valley Flood Protection Board (CVFPB). Under the PCCP, this Fisheries Report has been prepared and updated to meet the requirements for the protection of fisheries resources.

The McBean Park Drive Bridge crosses over Auburn Ravine, which could support the Central Valley steelhead (*Oncorhynchus mykiss*) and Sacramento River Spring and Winter Run Chinook salmon (*Oncorhynchus tshawytscha*). Central valley steelhead are listed as federally threatened under the federal Endangered Species Act (FESA) and the Sacramento River Spring Run Chinook salmon is listed as threatened and winter run Chinook salmon is listed as endangered under FESA (Appendix A). Auburn Ravine is designated as Critical Habitat by the USFWS for the Central Valley steelhead and is within an Essential Fish Habitat area designated by the NOAA-Fisheries for the Chinook Salmon.

As part of the Project, a temporary diversion of water in Auburn Ravine will be necessary to remove portions of the existing bridge and widen and construct the new bridge structure. Temporarily dewatering of the Project site and diverting ravine flows through two enclosed culvert pipes to convey water through the Project site will be necessary. A containment dam or bladder dam will be constructed within the channel banks of Auburn Ravine and will consist of pipes, sandbags filled with clean crushed rocks, and impermeable plastic sheeting. The installation of the containment dam and water diversion structure has a potential to effect conditions in Auburn Ravine and to effect steelhead and salmon.

A fish habitat assessment was initially conducted for this project in 2014 by A.A. Rich and Associates. A verification and updated fish habitat assessment was conducted in 2021 by QK. Information gathered during those field surveys are used as the basis for this report, which is intended as a supporting document for the Project's Natural Environmental Study Report (NES) and Biological Assessment (BA). Additional field surveys focused on terrestrial special-status species and wetlands and waters were conducted in 2015, 2019, and 2021 by QK to support the preparation of the NES, BA, and an Aquatic Resources Delineation Report.

Figure 1
Regional Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

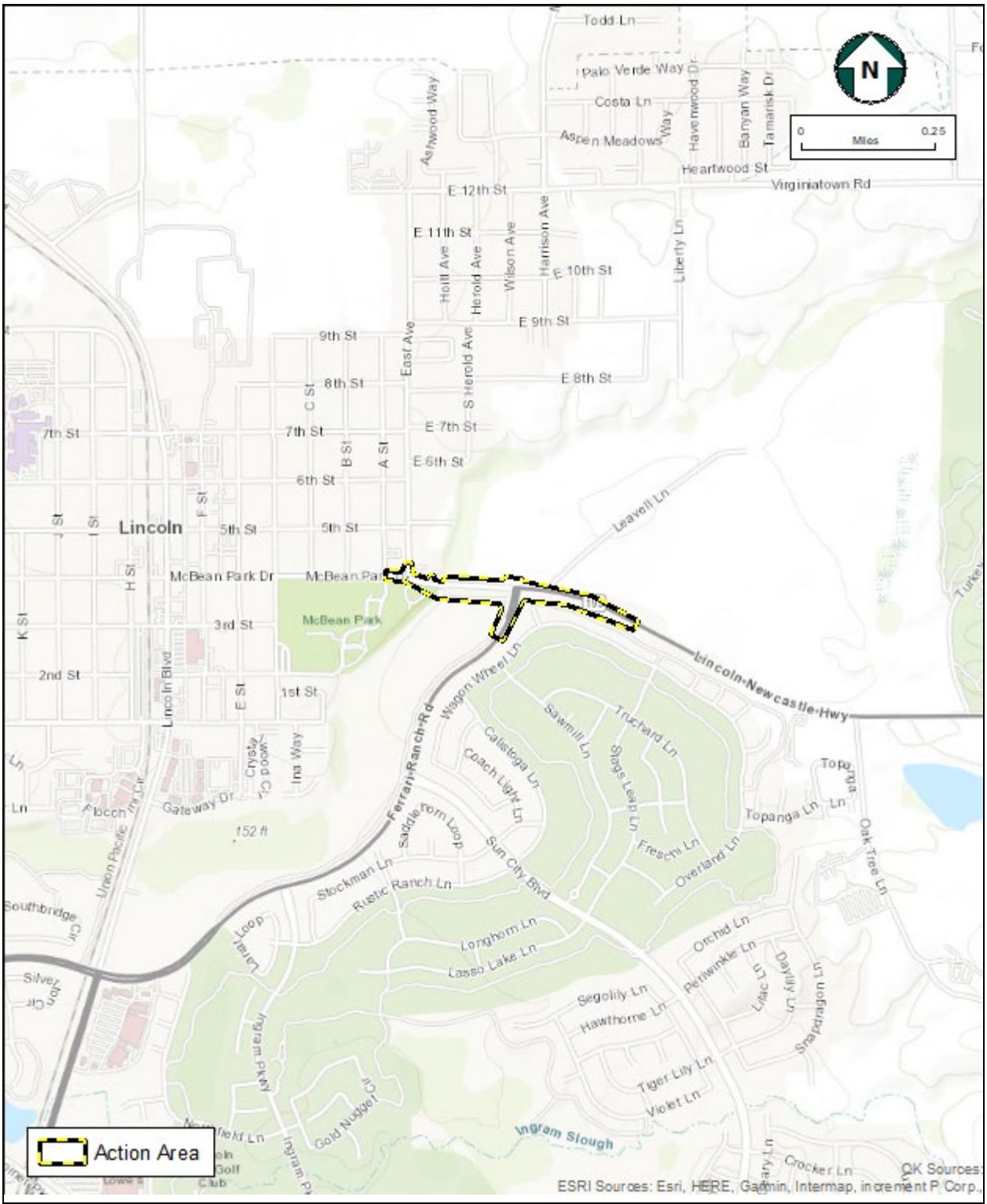


Figure 2
Vicinity Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Figure 3
Project Site Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Chapter 2 – Survey Area Conditions

Parcels within and adjacent to the Project include private, commercial, City, and County owned. The Project includes existing ROW, private land to the north, public land to the south and west, and additional ROW south on Ferrari Ranch Road. An easement consisting of an open space Preserve, the McBean Park Expansion Preserve, is south of the Project site. The McBean Park Expansion Preserve was created in 2004 for on-site mitigation of residential development, which impacted wetlands and waters of the U.S. (City of Lincoln 2004; Placer County 2020). The McBean Park Expansion Preserve is approximately 66 acres and includes created wetlands and wetland marshes and enhanced emergent vegetation and streams.

Auburn Ravine includes natural flows generated by fall/winter rains and snowmelt from the Sierra Nevada Mountain range to the east. At the Project site, Auburn Ravine is at an elevation of approximately 170 feet Above Mean Sea level (AMSL). The banks of Auburn Ravine are relatively steep to the north of McBean Park Drive Bridge. Outside of Auburn Ravine, most of the area is topographically flat with a gentle slope from north to south. The open space areas are slightly undulating, especially in those areas where wetlands have been created, restored, or enhanced.

Auburn Ravine includes natural flows generated by fall/winter rainfall events and augmented flows generated from irrigation water from other sources, such as the Middle Fork American River. The banks of Auburn Ravine are relatively steep north of the McBean Park Drive Bridge. Peaks winter flows of Auburn Ravine can range from a few hundred cubic feet per second (cfs) to an estimated 100-year flow event exceeding 17,000 cfs (Placer County 2002). During dry periods, parts of Auburn Ravine may have flows as low as 1 to 2 cfs with only a few inches of water in the stream and may even become dry in areas (Placer County 2002).

The National Hydrographic dataset (NHD) depicts Auburn Ravine as an intermittent stream (USGS 2021). The National Wetlands Inventory (NWI) identified Auburn Ravine as a riverine feature (USFWS 2021). Although the NHD and NWI refer to the ravine as intermittent or riverine, a few inches to zero flow can occur within parts of the stream during dry periods and the ravine at the location of the Project and it is, in reality, a semi-perennial or seasonal water feature. The McBean Park Drive Bridge and portions of the eastern approach roadway occur within a regulatory floodway (FEMA 2021, Figure 4). That regulatory floodway follows Auburn Ravine and extends to the east in areas both north and south of McBean Park Drive. Most of the open space along Auburn Ravine is within a 1% annual chance of flood hazard and a small portion of the BSA located northwest and northeast of the Action Area occurs within a 0.2% annual chance of flood hazard. The eastern portion of the BSA and Action Area are within an area of minimal flood hazard (Figure 4).

There were five vegetation communities occurring in the vicinity of the Project including Valley Foothill Riparian, Aquatic Marshland Complex, Riverine, Annual Grassland, and Urban (Figure 5).

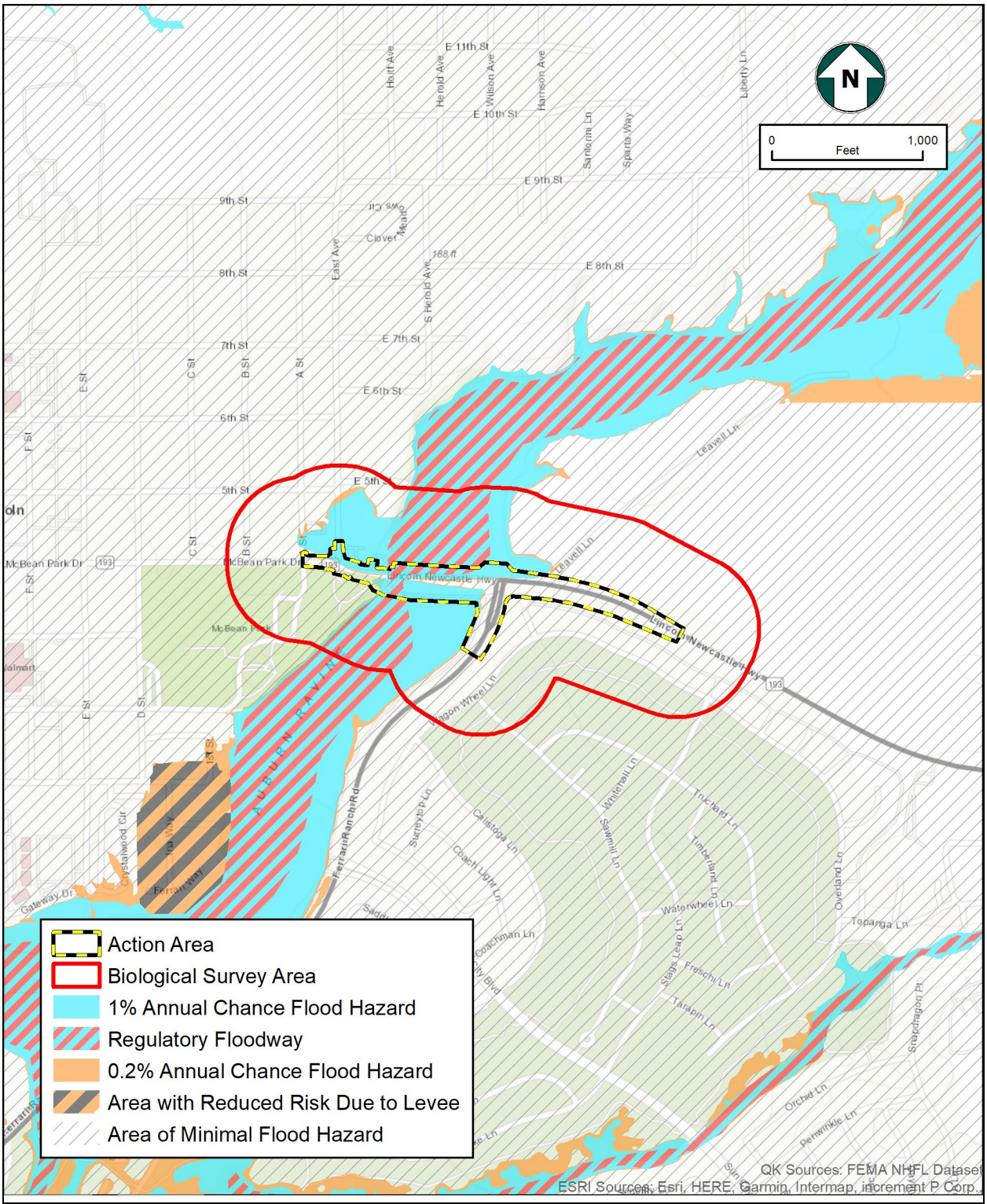


Figure 4
Floodplain Map,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

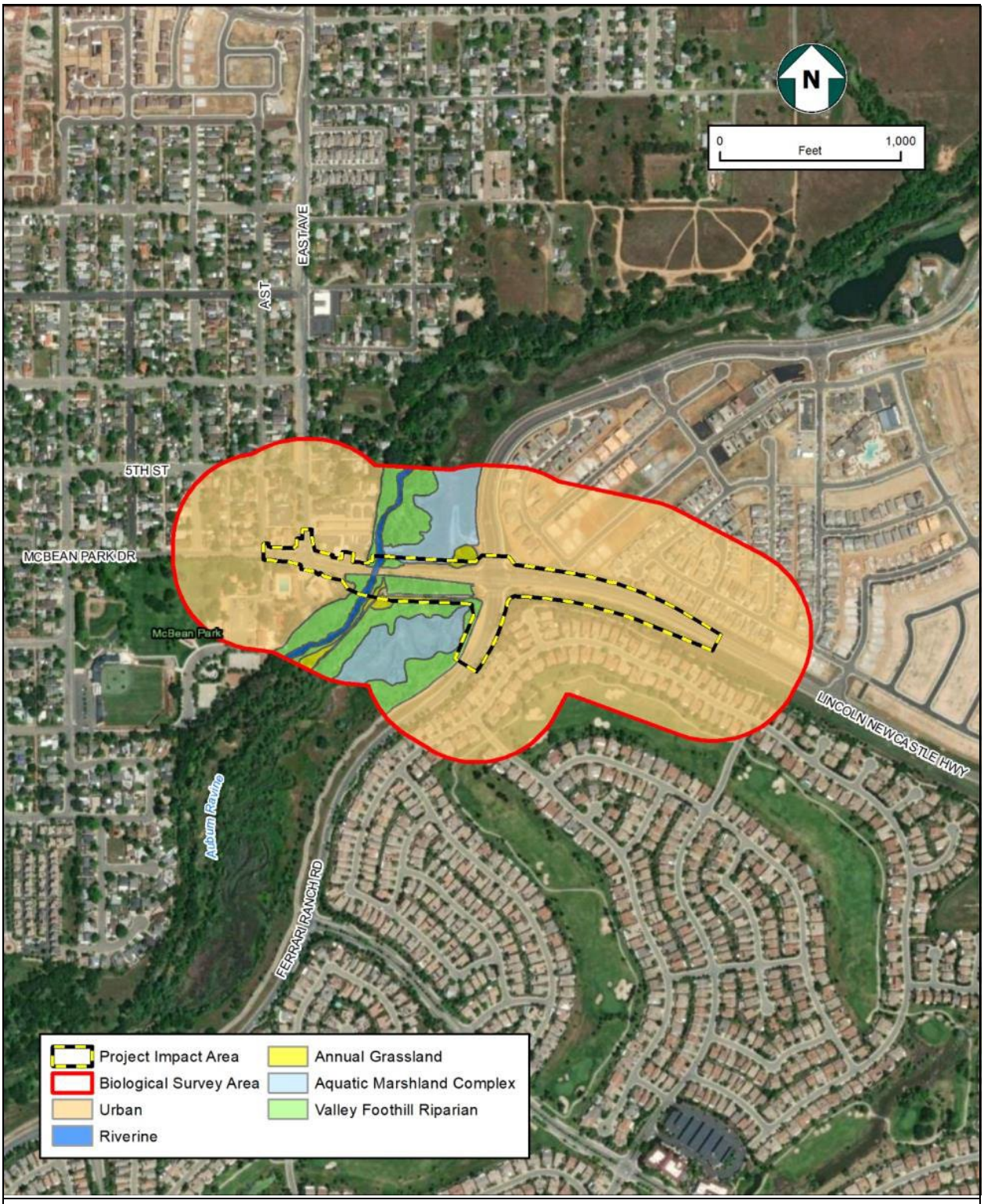


Figure 5
Vegetation Communities,
McBean Park Drive Bridge Replacement Project, City of Lincoln, California

Chapter 3 – Methods

Information on fishery resources were obtained from a search of the California Diversity Database (CNDDB), the Information, Planning, and Consultation System (IPAC System) supported by the USFWS, scientific literature, and an in-field fish habitat assessment. The CNDDB reports occurrence of special-status species using USGS 7.5 minute topographic map quadrangles. The area potentially affected by the proposed project is located on the Lincoln quadrangle. To determine what special-status fish species were present in the CNDDB database, the CNDDB query included the Lincoln and surrounding eight quadrangles. The IPAC System provides a list of species that could potentially be present in each quadrangle searched. The same nine quadrangles that were searched in the CNDDB were also included in the IPAC search. These databases were initially queried in 2014 and they were also queried in 2021 to obtain updated information.

To assess fishery resource habitat conditions in Auburn Ravine within the proposed project area, habitat typing (*Sensu* Bisson et al. 1982 and modified by Rich 2000) to gather specific information on important stream characteristics was used. The initial habitat assessment was conducted by A.A. Rich and Associates, Fisheries and Ecological Consultants, on August 15, 2014. The assessment was conducted during the summer when fish habitat assessments are typically conducted, when stream flows are lowest and water temperature highest. Summer is usually the limiting time of year in California for the young temperate water salmonids (steelhead and salmon). The habitat assessment included an area of approximately 600 feet downstream of the McBean Park Drive Bridge to approximately 400 feet upstream of the bridge. The area assessed was separated into six reaches. The six reaches included three reaches downstream of the bridge each of approximately 200 feet in length, one reach at the bridge site that was approximately 60 feet in length, and two reaches upstream of the bridge that were each approximately 200 feet in length.

Information about conditions at each stream reach that was gathered included length of reach, maximum and average width, maximum and average depth, gradient, presence of spawning gravel, air and water temperature, relative abundance and type of cover, and type and relative dominance of substrate.

A second assessment was conducted on February 5, 2021 to update to the original 2014 findings. The 2021 assessment was conducted using identical methods as the original assessment and was conducted by QK Principal Environmental Scientist Curtis Uptain. Representative photographs of each stream reach are provided in Appendix A.

On November 2, 2022, Curtis Uptain and QK Senior Associate Environmental Scientist Danielle Temple met with Neal McIntosh with National Marine Fisheries Service, Patrick Moeszinger California Department of Fish and Wildlife, and Theresa Johnson with the Placer County Authority to discuss the determination for Spring Run Chinook.

Chapter 4 – Fish Species Descriptions

According to NOAA Fisheries (Rea 2013), Sacramento River Winter Run Chinook salmon (*Oncorhynchus tshawytscha*) and California Central Valley steelhead (*Oncorhynchus mykiss*) are the two listed fish species that could occur in Auburn Ravine. Additionally, the fall/late-fall run of Chinook salmon could occur within the project area in Auburn Ravine. The National Oceanic and Atmospheric Administration (NOAA Fisheries) and CDFW list the Fall and Winter Run of Chinook salmon as a Species of Concern. Both Chinook salmon and steelhead are known to occur within Auburn Ravine, and genetic studies indicated that the Chinook salmon were of the fall/late-fall race.

The Project is within the region identified as Essential Fish Habitat (EFH) for Pacific salmon in Amendment 14 of the Pacific Salmon Fisheries Management Plan. EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, and growth to maturity. For the purposes of interpreting the definition of EFH, “waters” includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate. “Substrate” includes sediment, hard bottom, structures underlying the waters and associated biological communities. “Necessary” means habitat required to support a sustainable fishery and a healthy ecosystem. “Spawning, breeding, feeding, or growth to maturity” covers all habitat types used by a species throughout its life cycle. To protect EFH, federal agencies are required to consult with NOAA Fisheries on activities that may adversely affect EFH, and NOAA Fisheries must provide EFH conservation recommendations to those agencies (section 305(b)(4)(A)).

4.1. Sacramento River Winter Run Chinook Salmon and Central Valley Spring Run Chinook Salmon

The Sacramento River winter run Chinook salmon are listed as federally endangered and State endangered. Central Valley Spring Run Chinook Salmon are listed as federally threatened.

Chinook salmon have evolved in a manner that allows them to take advantage of diverse and variable environments. This species has been divided into two basic types of life history strategies, stream-type and ocean-type. Stream-type Chinook salmon adults swim up streams before they reach full maturity, in spring, or summer. Chinook salmon adults spawn soon after entering freshwater, in summer and fall, and juveniles spend a relatively short time (3 to 12 months) rearing in freshwater.

Rearing Chinook salmon require clean water, low water temperatures, abundant food, natural cover (shade), submerged and overhanging large woody material, log jams, aquatic vegetation, substrates consisting of large rocks and boulders, side channels, and undercut banks. Both spawning areas and migratory corridors provide rearing habitat for juvenile salmonids, which feed and grow before and during their emigration out to sea (parr-smolt transformation or smoltification). Specific environmental conditions required by various life stages of the Chinook salmon are provided in Table 1.

Table 1
Environmental Requirements of Chinook Salmon in the Sacramento–San Joaquin River System

Life Stage	Location	Water Temperature	Dissolved Oxygen (mg/l)	pH	Habitat	Diet
Adult Immigration	Pacific Ocean to Bay-Delta to upstream areas				Adequate flow of home stream water to locate spawning grounds and cover redds	Do not feed during these life stages.
Spawning	Upper reaches of major rivers and stream in Sacrament-San Joaquin System below dams	6.7-11,1°C 44.1-51.9 °F			Clean gravel substrate with good circulation through redd	
Incubation (egg-alevin)			≥ 7 at ≤ 59 °F ≥ 9 at > 59 °F	7-8	Adequate flows to oxygenate the eggs/alevins	
Rearing (fry and juveniles)	Rivers down through Bay- Delta	10-15.6°C 50.0-60 °F			Stable flows to prevent stranding; can tolerate greater flows and velocities as fish mature and move into deeper water	Aquatic and terrestrial insects, crustaceans, crustaceans
Smoltification/ Emigration	Rivers down through Bay- Delta into Pacific Ocean	10-12.7°C 50.0-54.9			Tolerates higher flows typical of snow melt or rainy season; helps move smolts downstream	

Effective migration corridors for salmonids require water quantity and quality that is sufficient to enhance their migratory movements and no impassible barriers to movements. These corridors should have much the same habitat and water quality conditions as those needed for rearing salmonid juveniles that spend a long time (usually more than one year) in freshwater.

The Chinook salmon has many distinct populations, usually recognized as runs, stocks, or races that show genetically based adaptations to local and regional environments (Moyle 2002). In the Central Valley, Chinook salmon have evolved into the Central Valley Fall Run, Central Valley late-fall run, Sacramento River Winter Run, and Central Valley Spring Run. Each of these runs is named for the timing of adult spawning of the run. NOAA Fisheries (Rae 2014) stated that the Winter Run Chinook salmon might inhabit Auburn Ravine at some time during the year. During the meeting on November 2, 2022, NOAA-Fisheries biologist Neal Mcintosh and CDFW biologist Patrick Moeszinger stated that Spring Run Chinook are absent from the section of Auburn Ravine where the Project is located (Personal Communication November 2022). The consensus between agencies (NOAA-Fisheries and CDFW) is based on a salmonoid trapping study that was conducted approximately 5.5 miles west of the Project site that was conducted in 2013 (CDFW 2013). During that study, salmon within the Spring Run chinook size class were trapped. DNA analysis conducted on mortalities indicated that all specimens were Winter and Fall run Chinook. Based on those results and the personal communications conducted, Fall and Winter Run Chinook salmon are known to be present within Auburn Ravine and are, perhaps, within the Project site. Life stage periodicities of various runs of Chinook salmon are provided in Figure 6.

Suitable water temperature is probably the most important factors in the survival of for fishes, particularly the thermally temperate salmonids. As poikilotherms (“cold blooded” animals), water temperature controls all aspects of a salmonids’ life, including its physiology and biology. Although lethal temperatures are often cited as the temperatures that kill fishes, sublethal water temperatures have a far greater effect on the overall survival of salmonid populations (Brett 1956). Less than optimal water temperatures become problematic when it impairs fish in some way, such as producing significant disturbance in the normal functions of the fish, decreasing the probability for the fish’s survival.

Indicators of thermal stress include reduced egg survival, disease outbreaks, reduced growth rate and size, and secretion of stress hormones such as adrenaline (Rich 1987a and b, Brett et al. 1982, Brett 1956, and Brett 1952). Hundreds of thermal studies have been conducted on salmonids for over 50 years and even with all those studies, the optimal water temperature ranges for Chinook salmon and steelhead are not well known (Rich 1987a and b). Optimal water temperatures are a site-specific phenomenon, controlled to a great extent on the amount of food available. Salmonids are intolerant of higher than optimal water temperatures and, for all life stages of all runs of Chinook salmon, there are gaps in the knowledge of water temperatures requirements (Rich 2000a, Rich 1987a and b).

The primary reason for the declines in the various races of Chinook salmon in California has been the construction of dams and diversions of all major river systems (Moyle 2002). Other factors that have contributed to the decline of Chinook salmon include:

- Loss of floodplain and estuarine rearing habitat by diking and draining,
- High water temperatures that result in stress on juveniles leading to reduced growth, increased predation, and death,
- Enhanced predation,
- Long periods of draught,
- Entrainment of juveniles in diversions,
- Competition from hatchery-reared juveniles for food and space in streams and from adults for spawning areas.
- Disease,
- Pollution,
- Siltation of spawning areas,
- Effects of introduced fish, invertebrates, and plants,
- Loss of riparian forests, and
- Other natural factors, such as extreme flooding, periods of low ocean productivity, and climate change.

4.2. Central Valley Steelhead

Central Valley steelhead are federally listed as threatened.

Steelhead are the anadromous counterpart to the resident rainbow trout. However, similar to other California steelhead, the Central Valley steelhead population has non-anadromous rainbow trout in their population (Moyle 2002). Only steelhead will be discussed. Adult steelhead have been observed and juvenile steelhead have been collected in Auburn Ravine. The extent to which those steelhead are of hatchery origin is not known. The life stage requirements and life stage periodicities of steelhead are provided in Table 2 and Figure 6.

The Winter Run steelhead was once distributed widely throughout the Sacramento-San Joaquin System. The primary remaining wild populations are in Deer and Mill creeks in Tehama County and a population of unknown size in the Yuba River (Moyle 2002). Wild steelhead are found elsewhere in the Sacramento River system, primarily in cold tailwaters of dams, but their identity is uncertain because of the presence of hatchery fish (of Eel River origin in the American and Mokelumne rivers) and by the presence of various strains of rainbow trout of hatchery origin.

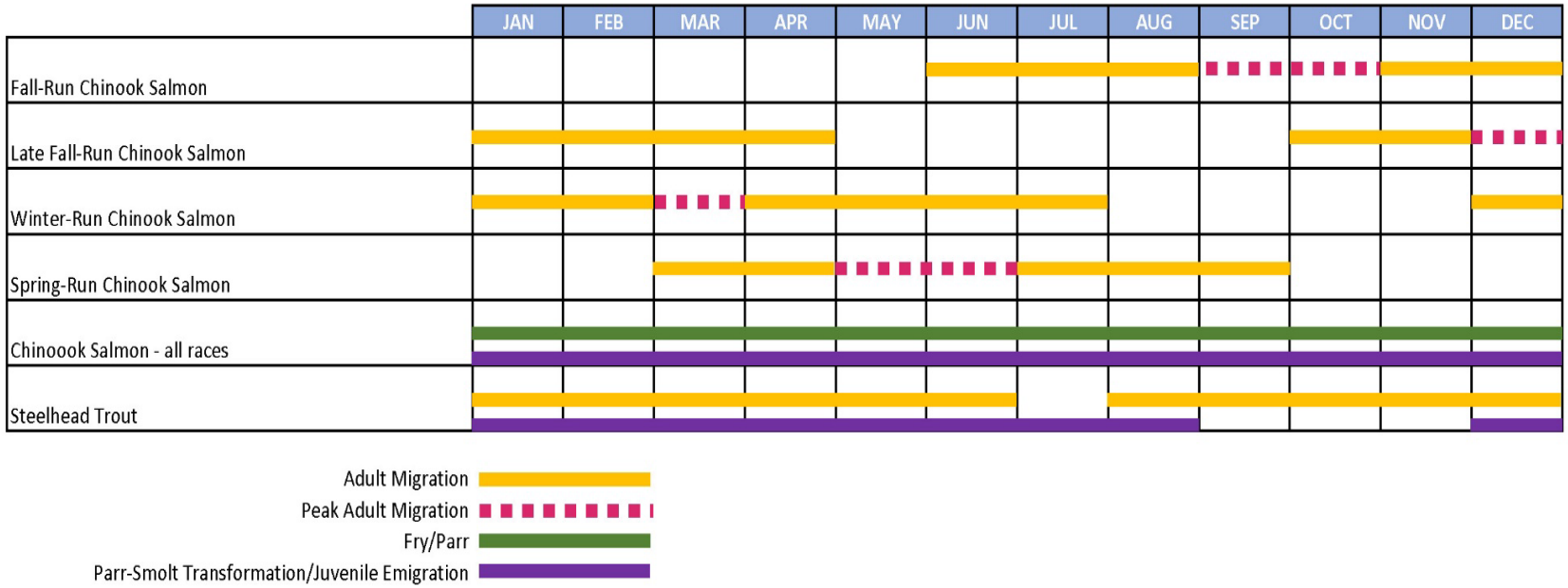


Figure 6
Life Stage Periodicities of Central Valley Chinook Salmon and Central Valley Steelhead in the Sacramento–San Joaquin River System

Table 2
Environmental Requirements of Central Valley Steelhead in the Sacramento–San Joaquin River System

Life Stage	Location	Water Temperature	Dissolved Oxygen (mg/l)	pH	Habitat				Diet
					Depth (ft)	Velocity (ft/s)	Substrate Size (inches)	General	
Immigration and Passage	Sacramento-San Joaquin River System and tributaries	6-7°11.1C 44-51.9 °F	≥ 7 at ≤ 59 °F ≥ 9 at > 59 °F	7-8	>0.6	< 2.4		Cool, clear, fast water	Do not feed during these life stages.
Spawning	Tributaries to the Sacramento-San Joaquin River System				>0.8	1.3-3.0	0.5-4.0		
Incubation (egg-alevin)					>0.1	< 6.0			
Fry Emergence	Tributaries to the Sacramento-San Joaquin River System	8.9-7°11.1°C 48-52 °F	≥ 7 at ≤ 59 °F ≥ 9 at > 59 °F	7-8	>0.1	<6.0	0.5-4.0		Benthic and drifting invertebrates
Rearing (fry and juveniles)	Tributaries to the Sacramento-San Joaquin River System and Sacramento and San Joaquin River	10-7°14.9 °C 50-58.9 °F			0.6-2.2	0.2-0.8	2.5-9.8		Benthic and drifting invertebrates, fish
Smoltification/ Emigration									

Chapter 5 – Fish Habitat Assessment

5.1. Current Conditions of Auburn Ravine

5.1.1. General Conditions

The headwaters of Auburn Ravine are located just north of the City of Auburn. Auburn Ravine upstream of Virginiatown is characterized by high gradient with steep-sided banks. Large boulders and cobbles dominate the substrate. Habitat complexity includes scour pools, waterfalls, and high-velocity chutes. Downstream of Virginiatown to the City of Lincoln, the stream's gradient decreases substantially, and the substrate is characterized by sand, gravel, and cobble. Pools and riffles are common, and trees and shrubs dominate the riparian zone associated with the ravine. The channel contains large woody debris and bank erosion increases, relative to the upper reach.

West of Auburn to the City of Lincoln, the gradient of Auburn Ravine decreases to less than 1%, on average. Within the city limits of Lincoln, the ravine changes to low gradient runs with mostly sandy bottoms. Riparian vegetation is characterized by a more open tree canopy with an understory dominated by blackberries and other shrubs. Channel banks consist of alluvial and clay soils and are typically vertical and about 4 to 5 feet high on average, measured from the channel bottom.

Downstream of Lincoln, Auburn Ravine is bordered primarily with rice farms and livestock ranches. The ravine is largely channelized in those downstream areas and the stream channel substrate is mostly clay and fine sediments with occasional pieces of large woody debris. Grazing and channel maintenance activities restrict the development of riparian vegetation. The lower 2.5 miles of Auburn Ravine was re-routed and leveed to flow into the East Side Canal. Some channelization and levee construction occurs along the lower 7.1 miles (Placer County 2002, Jones and Stokes 2005).

5.1.2. Migration Habitat Quality

Along Auburn Ravine, the quality of migration habitat for salmonids has been substantially reduced by beaver dams, and by diversion dams and their associated water diversions. However, migration habitat quality has improved in recent years by implementation of management actions. It is likely that the increased management of Auburn Ravine has improved conditions within the ravine to allow salmonids to migrate through the Project site, at least in some years.

Some potential fish passage barriers exist along Auburn Ravine. Many of these are flashboard dams that operate seasonally and so have little effect on migrating fish. The more permanent dam structures may affect upstream movements but have little effect on downstream migrations of juvenile fishes. Appendix D of the *Auburn Ravine/Coon Creek Ecosystem Restoration Plan* (Placer County 2002) identified 12 structures within the watershed that could potentially effect fish migrations. The characteristics of these structures and the assessment of their potential effects as barriers to fish movement are summarized below in Table 3.

Table 3
Name of Potential Barrier, Characteristics, and Assessment of Severity of Barriers to Fish Movement in Auburn Ravine Watershed, Placer County (Adopted from Appendix D of the Auburn Ravine/Coon Creek Restoration Plan)

Site	Characteristics	Assessment	Priority (Dam/Dvrsn)	RecommendedSolution
NID Gage	Concrete flume	Barrier	High	Replace w/ pool-and-chute fishway
Coppin Dam	Seasonal flashboard dam	Not a barrier; seasonal operation	Low	Do nothing
Davis Dam	Seasonal flashboard dam	Not a barrier; seasonal operation	Low	Do nothing
Tom Glenn Dam	Seasonal flashboard dam	Not a barrier; seasonal operation	Low	Do nothing
Aitken Ranch Dam	Seasonal flashboard dam	Not a barrier; seasonal operation	Low / Med	Dam: Do nothing Dvrsns: Analyze need; screen if needed
Moore Dam	Seasonal flashboard dam	Not a barrier; seasonal operation	Low / Med	Dam: Do nothing Dvrsns: Analyze need;screen if needed
Nelson Lane Dam	Seasonal flashboard dam	Minor impediment; sill/apron	Med / Med	Dam: Install timbers to concentrate flow Dvrsns: Analyze need; screen if needed
Lincoln Ranch Duck Club Dam	Seasonal flashboard dam; extended operation	Barrier during extended operation; unscreened diversion with extended operation	Med-High /Low-Med	Dam: Excavate sump; extend pump; vortex weirs. Dvrsns: Analyze need; screen if needed
HemphillDam	Seasonal flashboard dam; elevated sill, sloped apron. Unscrn'd dvrsn	Significant barrier / impediment. Diversion needs screen	High / Med-High	Dam: Replace apron w/ pool-and-chute fishway. Dvrsn: Screen w/ vert. or oblique screen on bank
Ophir Tunnel Cataract	Natural cataract	Significant impediment	Med	Backwater lower portion w/ concrete sill series
NID Auburn Ravine I Dam	Gravity arch dam w/ ditch, debris sluice	Barrier / significant impediment, depending on flow	High / High	Dam: Formal slotted fishway to upper end of canal Dvrsn: Oblique vert. screen; bypass to fishway
Doty Ravine @ GardenBar Road	Perched 12' culvert	Significant impediment	High	Replace w/ elliptical culvert or backwater w/ box weir series

Sources: Shapovolov and Taft, 1954; Phillips and Campbell, 1961; Orcutt et al., 1968; Doudoroff and Shumway, 1970; Dickson and Kramer, 1971; Zaugg et al., 1972; Smith, 1973; Zaugg and Wagner, 1973; Wagner, 1974; Adams et al., 1975; Rich, 1987b; Folmar and Dickhoff, 1980; Moyle, 2002

5.1.3. Spawning Habitat Quality

Reaches within Auburn Ravine that support spawning habitat primarily include the upper reaches of the watershed and include: (1) a reach upstream from Memorial Park that is 1.89 miles long; (2) a reach extending approximately 0.83 miles, upstream from Turkey Creek golf course; and (3) Fowler Road reach that is approximately 0.5 mile long. Auburn Ravine at the project site contains but a miniscule amount of spawning habitat and it is unlikely that salmonids spawn at the site.

5.1.4. Water Temperatures

Water temperatures have been recorded at several locations in Auburn Ravine, including Aitken Ranch, bitters Property, Davis Bridge, Fowler Road, and Nelson Lane. The data indicate that stream temperatures are satisfactory for salmonid rearing throughout the year at the Fowler Road and NID sites. This conclusion is also supported by reports from local fishermen who routinely catch salmonids in mid-summer within the City of Lincoln. However, downstream of the site just west of the Moore Road crossing, summer water temperatures are reportedly too warm to support salmonid populations (Placer County 2002). We suspect that water temperatures are limit salmonid presence, especially Chinook salmon, at the Project site during periods of low flow that occur from about July through December.

5.1.5. Water Quality

Existing water quality in Auburn Ravine is affected by storm water runoff and urban land uses that contain many harmful contaminants which can potentially affect fish health and habitat quality. Because adult Winter Run Chinook salmon likely use Auburn Ravine primarily as a migration corridor on their way to upstream holding and spawning habitats, they likely are not substantially affected by water quality in the lower and mid-reaches of the ravine. Furthermore, most Winter Run adults have migrated upstream to the middle and upper sections of the watershed before the worst water quality conditions set in during the summer months.

Imported water supplies for irrigation and power production, as well as treated wastewater discharges, all augment natural stream flows at critical times of the year (Placer County 2002). As a result of augmented flows, both the quality and quantity of water is higher than it would be under natural conditions. A comparison of the existing water quality monitoring data shows that water quality criteria are met most of the time, at most of the sampling points, for most of the constituents. There are, however, potential threats to water quality associated with nonpoint source runoff from urbanized areas and unimproved dirt roads, from wastewater treatment plant discharges, and, in the lower basin, from irrigation return flows. Water quality criteria for lead and copper are occasionally exceeded in Auburn Ravine, likely a result of urban runoff.

5.2. Results of On-site Fish Habitat Assessment

Fish habitat conditions in Auburn Ravine in the proposed Project area vary, depending upon the season. As the proposed project would occur during the low-flow or summer, conditions, habitat

conditions during the low flow season are the most relevant. The survey was conducted in August and the water temperatures (70 to 71° at the project site) at that time would have been too high (i.e., stressful) for salmonid rearing.

Beginning about 600 feet downstream of the existing bridge and proceeding upstream to about 200 feet upstream of the existing bridge, the habitat was characterized as follows:

(1) Stream Reach 1: Downstream of the bridge for about 600 feet,

(2) Stream Reach 2: Under bridge, and

(3) Stream Reach 3: Upstream of the bridge for about 200 feet.

The ravine channel throughout these reaches was shaded with riparian vegetation at the top of both banks and there was a dense understory of both native and non-native plants.

5.2.1. Stream Reach 1

Beginning from about 600 feet downstream of the bridge and proceeding upstream to the bridge, the habitat in Auburn Ravine consisted of a variety of habitat types, including low gradient riffles (LGRs), a side channel and backwater pool at the lower end, braided channel mid-way up towards the bridge, and alternating lateral scour pools (associated with large woody debris, boulders, and cut banks) and LGRs. Depths ranged from 1 to 20 inches in the summer of 2014, and the width of the channel ranged from 8 to 65 feet. The width of this reach was unchanged in 2021 but the water depth was substantially higher at average depths of 6 to 30 inches, which is expected because sampling in 2021 was conducted in the winter when there is greater water runoff. Similarly, the temperature in this reach was substantially lower in the winter (average of approximately 50 degrees) than in the summer (average of approximately 70 degrees). There was some spawning substrate in this reach, although not much. Most substrate consisted of silt and sand, although there was some gravel and cobble in the LGRs. Some of the rocks had algae growing on them. In summary, the habitat consisted of a lot of structure (providing escape and food items for rearing salmonids and other fishes), oxygen-producing riffles, and overhanging and in-stream vegetation for shade and cover.

5.2.2. Stream Reach 2

Under the existing bridge, Auburn Ravine was about 32 feet wide and ranged from only about 3 inches to over 18 inches in depth during the summer of 2014. During the winter of 2021 the depth was from about 12 to 24 inches. The habitat consisted of a glide and some LGR areas. Substrate consisted of gravel. The stream banks under the bridge consisted of concrete walls and there were large blocks of concrete at the upstream abutments. The rocks and turbulence from the riffles under the bridge would provide cover for fishes.

5.2.3. Stream Reach 3

Beginning at the upstream end of the bridge, there was a long lateral scour pool that extended about 200 feet upstream from the bridge. In 2014 there was a half-submerged log that would have provided cover and food for young and small fishes near the bridge end of the pool. This log was no present in 2021. In 2014 the pool ranged in width from 21 to 39 feet and the depth ranged from 3 inches to over 22 inches. The width remained unchanged in 2021, but the depth varied from about 8 inches to 30 inches. Substrate consisted of sand and silt primarily, although there were some small patches of gravel.

5.2.4. Summary of Habitat Conditions

The area within Auburn Ravine that is within the proposed project and that is directly downstream and directly upstream of the project was varied with, some good habitat areas (mostly downstream) and some poor habitat areas. The good habitat (that contained substantial structure, shade, pools, and riffles) could be used by rearing salmonids and as a migration corridor for emigrating juvenile salmonids and immigrating spawning adults. The poor habitat (that contained excessive sand and silt substrate) could be used as a migration corridor for juvenile emigrants and adult immigrants but would not be suitable as spawning grounds.

Stream flows are greater in the winter and spring than they are in the summer. The decrease in water flows would increase temperatures and reduce water quality because contaminants would be more concentrated than in the winter and spring. Because of the higher water flows in winter and spring, spawning habitat would be more suitable (although still in short supply) and rearing habitat within the project area would be more suitable. During the spring when smoltification would be occurring, the proposed project area would serve as a migration route and rearing area. During the spring and early summer, there would be more water in the ravine for rearing salmonids, although high water temperatures during late summer (July and August) would likely preclude salmonids from remaining at the site.

Chapter 6 – Summary and Conclusion

Winter Run Chinook Salmon are thought to be absent from Auburn Ravine. This salmon run currently occurs only in the Pit River watershed and perhaps near Red Bluff. Spring run Chinook Salmon would be likely to occur in Auburn Ravine because of the timing of their migration, which is from April to June when water levels are highest in Auburn Ravine, and when water quality and temperatures are most suitable. However, Spring Run Chinook are adapted to high elevations where waters are cold, usually at elevations nearing 5,000 feet. Based on agency consensus and the trapping study that was conducted in 2013, Spring Run chinook are absent from the portion of the Auburn Ravine where the Project is located (Personal Communication with Neal Mcintosh, NOAA-Fisheries, and Patrick Moeszinger, CDFW; CDFW 2013). Genetic analysis of individual fishes that were mortalities of that study confirmed the presence of fall and Winter Run Chinook salmon. Based on the results of that study and personal communications with agency personnel, fall and Winter Run Chinook salmon could be present on the Project site. The watershed supporting Auburn Ravine extends to an elevation of only about 1,000 feet. Steelhead trout, on the other hand, have been caught in Auburn Ravine during all seasons of the year and could occur at the project site at any time.

Chapter 7 – References

Adams, B. L., W. S. Zaugg, and L. R. McLain. 1975. Inhibition of salt water survival and Na+-K+-ATPase elevation in steelhead trout (*Salmo gairdneri*) by moderate water temperatures. Transactions American Fisheries Society 104(4): 766-769.

Bisson, P. A., J. L. Nielsen, R. A. Palmason, and L. E. Grove. 1982. A system of naming habitat types in small streams, with examples of habitat utilization by salmonids during low streamflow. Proceedings of a Symposium:. Acquisition and Utilization of Aquatic Habitat Inventory Information. Portland, Oregon, October 28-30, 1981, pp 62-73.

Brett, J. R. 1956. Some principles in the thermal requirements of fishes. Quarterly Review Biology 31: 75-87.

Brett, J. R. 1952. Temperature tolerance in young Pacific salmon, genus Oncorhynchus. Journal Fisheries Resource Canada 9(2): 2650323.

Brett, J. R., W. C. Clarke, and J. E. Shelbourn. 1982. Experiments on thermal requirements for growth and food conversion efficient of juvenile Chinook salmon, *Onchorhynchus tshawytscha*. Canadian Technical Report Fisheries Aquatic Science No. 1127: iv + 29 pages.

CDFW. 2014. Memorandum Completion of the 2013 Auburn Ravine Rotary Screw Trap Monitoring Report.

Dickson, I. W. and R. H. Kramer. 1971. Factors influencing scope for activity and active standard metabolism of rainbow trout (*Salmo gairdneri*). *Journal of Fisheries Research Board of Canada* 28(4): 587-596.

Doudoroff, P. and D. L. Shumway. 1970. Dissolved oxygen requirements of freshwater fishes. U. N. Food and Agriculture Organization, Technical Paper 86. 291 pp.

Folmar, L. and W. Dickhoff. 1980. The parr-smolt transformation (smoltification) and seawater adaptation in salmonids. Aquaculture 21: 1-31.

Moyle, P. A. 2002. Inland fishes of California. University of California Press, Berkeley. 502 pages.

National Marine Fisheries Service (NMFS). 2014. Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter Run Chinook Salmon and Central Valley Spring Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead.

Orcutt, D. R., B. R. Pulliam, and A. Arp. 1968. Characteristics of steelhead trout redds in Idaho streams. Transactions of the American Fisheries Society 97: 42-45.

Phillips, R. W. and H. J. Campbell. 1961. The embryonic survival of coho salmon and steelhead trout as influenced by some environmental conditions in gravel beds. Fourteenth Annual report. Pacific Marine Fisheries Commission, Portland, Oregon.

Placer County. 2002. Auburn Ravine/Coon Creek Ecosystem Restoration Plan.

Rich, A. A. 2000a. Oral Testimony of Alice A. Rich, Ph.D., Presented to the California State Water Resources Control Board in the Matter of the Delta Wetlands Project Regarding Water Right Applications 29062, 29066, 30268, and 30270 and Petitions to Change these Applications. September 15, 2000.

Rich, A. A. 2000b. Fishery Resources Conditions of the Corte Madera Creek Watershed, Marin County, California. Prepared for Friends of Corte Madera Creek Watershed, Larkspur, California. November 10, 2000. 120 pp. + Appendices.

Rich, A. A. 1987a. Report on studies conducted by Sacramento County to determine the temperatures which optimize growth and survival in juvenile chinook salmon (*Oncorhynchus tshawytscha*). Prepared for Sacramento County, Sacramento. April 1987. 51 pp.

Rich, A. A. 1987b. Water temperatures which optimize growth and survival of the anadromous fishery resources of the lower American River. Prepared for Sacramento County, Sacramento. April 1987. 24 pp.

Rich, A. A. 1991. Mortality and Stress on Salmonids as a Result of Fishery Resources Management Actions. Part 1: The Stressful Effects of Catch-and-Release Fishing on Salmonids. Prepared for Bangor Hydro-Electric Company, Bangor, Maine. May 31, 1991. 57 pp.

Shapovolov, L. and A. C. Taft. 1954. The life histories of steelhead rainbow trout (*Salmo gairdneri gairdneri*) and silver salmon (Oncorhynchus kisutch). California Fish and Game Fish Bulletin 98: 373 pp.

Smith, A. K. 1973. Development and application of spawning velocity and depth criteria for Oregon salmonids. Transactions of American Fisheries Society 102(2): 312-316.

Wagner, H. H. 1974. Photoperiod and temperature regulation of smolting in steelhead trout (Salmo gairdneri). Canadian Journal of Zoology 52: 219-234

Zaugg, W. S. and H. H. Wagner. 1973. ATPase activity related to parr-smolt transformation and migration in steelhead trout (*Salmo gairdneri*): influence of photoperiod and temperature. Comparative Biochemistry and Physiology 45B: 955-965.

Zaugg, W. S., B. L. Adams, and L. R. McLain. 1972. Steelhead migration: potential temperature effects as indicated by gill adenosine triphosphatase activities. Science 176: 415- 416

Chapter 8 – Preparers

Primary Authors

- Curtis Uptain, QK
- Dr, Alice Rich, A.A. Rich and Associates

Technical Review

- Martina Pernicano, QK

Graphics

- Sarah Yates, QK

Appendix A – Representative Photographs

Photograph 1: Low Gradient Riffle about 600 feet downstream of Proposed Project Area (Bridge). Photograph taken August 15, 2014 by A. Rich.

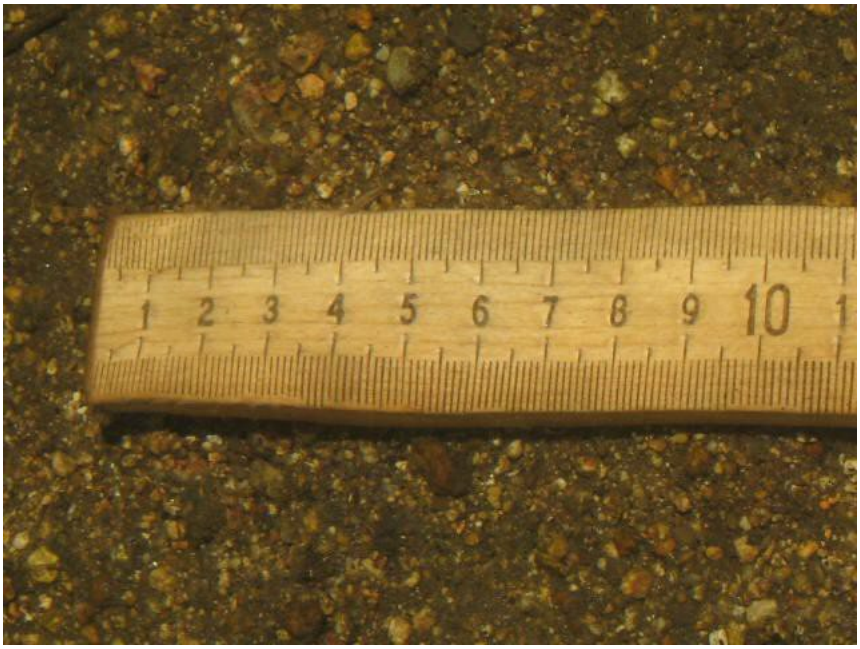
Photograph 2: Large Woody Debris about 600 feet downstream of Proposed Project Area (Bridge). Photograph taken August 15, 2014 by A. Rich.

Photograph 3: Habitat (facing upstream) approximately 600 feet downstream of Proposed Project Area (Bridge).
Photograph taken August 15, 2014 by A. Rich.

Photograph 4: Habitat (facing upstream) approximately 600 feet downstream of Proposed Project Area (Bridge).
Photograph taken August 15, 2014 by A. Rich.

Photograph 5: Habitat (Side of Proposed Project (Bridge). Photograph taken August 15, 2014 by A. Rich.

Photograph 6: Habitat (Side Channel) approximately 480 feet downstream of Proposed Project (Bridge). Photograph taken August 15, 2014 by A. Rich.



Photograph 7: Pea gravel habitat approximately 410 feet downstream of Proposed Project Area (Bridge).
Photograph taken August 15, 2014 by A. Rich.

Photograph 8: Habitat (lateral scour pool) approximately 100 feet downstream of Proposed Project Area (Bridge).
Photograph taken August 15, 2014 by A. Rich.

Photograph 9: Facing upstream of the McBean Park Drive Bridge. Photograph taken August 15, 2014 by A. Rich.

Photograph 10: Facing upstream of the McBean Park Drive Bridge. Photograph taken August 15, 2014 by A. Rich.

Photograph 11: Under McBean Park Drive Bridge.
Photograph taken August 15, 2014 by A. Rich.

Photograph 12: Under McBean Park Drive Bridge.
Photograph taken August 15, 2014 by A. Rich.

Photograph 13: Upstream of McBean Park Drive Bridge.
Photograph taken August 15, 2014 by A. Rich.

Photograph 14: Upstream of McBean Park Drive Bridge.
Photograph taken August 15, 2014 by A. Rich.

APPENDIX C

CULTURAL RESOURCES

ARCHAEOLOGICAL SURVEY REPORT FOR THE MCBEAN PARK DRIVE OVER AUBURN RAVINE BRIDGE REPLACEMENT PROJECT, CITY OF LINCOLN, PLACER COUNTY, CALIFORNIA

BRLS-5089(021)

Prepared for:

California Department of Transportation – District 3
703 B Street
Marysville, CA 95901

City of Lincoln
600 6th Street,
Lincoln, CA 95648

Prepared by: _____ 06/21/2022

Alison Bryson-Deveraux, M.A. Date
Principal Investigator – Prehistoric and Historic Archaeology
Cogstone Resource Management, Inc.
1518 West Taft Ave., Orange, CA 92865

Author: Holly Duke, B.A. and Alison Bryson-Deveraux, M.A.

Reviewed by: _____ _____

William Larson Date
PQS: PI Prehistoric Archaeology
Caltrans District 3

Approved by: _____ _____

Laura Loeffler Date
Branch Chief, Caltrans District 3
Division of Environmental Planning

USGS 7.5-Minute Quadrangle: Lincoln (1992)
11.6 Acres

June 21, 2022

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SUMMARY OF FINDINGS

The City of Lincoln (City), in cooperation with the California Department of Transportation (Caltrans) District 3, is proposing to replace the existing bridge (Bridge 19C0254) on McBean Park Drive formerly State Route (SR) 193 over the Auburn Ravine (Project) because the bridge is currently overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The bridge currently is overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The improvements would provide a safe reliable structure, support alternative modes of transportation involving bikes, pedestrians, and neighborhood electric vehicles (NEV), and be acceptable to the community with minimal impacts to traffic and the surrounding environment. The replacement of the bridge and roadway modification will be funded with Highway Bridge Program (HBP) and local matching funds.

The Project is programmed as a bridge replacement project that will provide a wider bridge for vehicular, pedestrian, and NEV uses as well as enhance the seismic integrity of the bridge. More importantly the new bridge will be longer, and the profile will be raised significantly for necessary hydraulic conveyance. The bridge replacement involves the following activities:

- Removal of some of the constricting earthen fill prism from the floodway.
- Removal of the hydraulically inadequate and functionally obsolete (as classified in 2012 when programmed in the HBP) bridge.
- Construct a longer bridge.
- Replace the bridge with a wider bridge to accommodate three travel lanes, two shoulders and two sidewalks.
- Raise the roadway and bridge profile.
- Relocate overhead power and telecommunications as well as underground electrical and telecommunication facilities. Gas may also require relocation in the westerly roadway approach.

The Project Area of Potential Effects (APE) measures 11.6 acres and was established as the area where the Project could directly or indirectly affect historic properties. The APE includes the Project limits which consist of the street right of way (ROW) on McBean Park Drive/SR 193 and Ferrari Ranch Road, staging area, drainage basin excavation, footing excavation, and ROW acquisition for bridge construction and widening the existing roadway. The APE includes adjacent parcels 008-320-009 and 008-320-014 which have buildings and structures that are historic in age that may be affected indirectly by Project related activities. The two parcels included in the APE may be affected by visual, audible, or atmospheric intrusions, shadow effects, vibrations from construction activities, or changes in access or use.

ROW acquisition will be required south of the existing ROW to construct the bridge in phases while maintaining traffic during construction. Additionally, temporary construction easements will be required to conform driveways to the raised roadway and to build portions of the new bridge and roadway approaches. The City will purchase the ROW where necessary. No other permanent ROW acquisitions are anticipated.

The vertical APE is the maximum depth of any Project related ground disturbing work. The maximum depth of ground disturbance is 50 feet for the bridge piles. Other excavations are anticipated to be between approximately five feet (1.5 meters) to ten feet (3.1 meters) for utility and drainage improvements.

Intensive pedestrian survey of the APE was performed to locate any visible archaeological resources. Ground surface visibility within the 6.08 acres surveyed was poor (20-30 percent) and consisted mainly of the areas along the pedestrian walkway parallel to Auburn Ravine and in areas under active construction along McBean Park Drive (SR 193). The APE is heavily developed with paved multiple-lane roads, sidewalks, berms, and pedestrian walkways. Visible native soil was minimal, with most areas containing imported gravels from previous road construction. The southern side of McBean Park Drive (SR 193) was recently graded and sloped to the south bordering a housing development and showed signs of heavy machinery alteration to the natural topography. The pedestrian walkway parallel to Auburn Ravine was the most undeveloped location within the APE, displaying some areas of native soils and topography. Vegetation was extremely dense, and visibility limited except in areas of boot scrapes and bioturbation. No prehistoric or historic archaeological resources were observed during survey.

It is Caltrans' policy to avoid cultural resources whenever possible. Further investigations may be needed if the project limits change. If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional survey will be required if the Project changes to include areas not previously surveyed.

INTRODUCTION

The City of Lincoln (City), in cooperation with the California Department of Transportation (Caltrans) District 3, is proposing to replace the existing bridge (Bridge 19C0254) on McBean Park Drive/State Route (SR) 193 over the Auburn Ravine (Project) because the bridge is currently overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe (Figures 1 and 2). Cogstone Resource Management, Inc. (Cogstone) archaeologist Alison Bryson-Deveraux performed the pedestrian survey of the Area of Potential Effects (APE) on April 17 and 18, 2021. The survey coverage map is Figure 6. Ms. Bryson-Deveraux holds a B.A. in Anthropology from the University of California, Santa Barbara, as well as an M.A. in Historic Preservation from Prescott College and has over 17 years of experience in California archaeology. Ms. Bryson-Deveraux's resume is in Appendix A.

PROJECT LOCATION AND DESCRIPTION

PROJECT LOCATION

The McBean Park Drive Over Auburn Ravine Bridge Replacement Project (Project) is located within the City of Lincoln in Placer County, California; and within Caltrans District 3 [BRLS-5089(021); Figure 1]. The Project site includes McBean Park Drive (SR 193) between the intersections of Ferrari Ranch Road and East Avenue. The Project is depicted on the Lincoln 7.5-minute United States Geological Survey (USGS) quadrangle in Sections 14 and 15 of Township 12 North, Range 6 East, Mount Diablo Baseline and Meridian (Figure 2).

EXISTING CONDITIONS

EXISTING ROADWAY

The existing roadway corridor within the City is constrained by buildings and businesses west of Auburn Ravine and passes through open land east of the Auburn Ravine, leading to SR 193 in Placer County. Auburn Ravine at this location is a Federal Emergency Management Agency (FEMA) designated floodway and is considered a jurisdictional water for the Central Valley Flood Protection Board (CVFPB). This roadway is a two-way, two-lane road with left and right turn pockets at the flanking intersections and incorporates reasonably wide shoulders. The lanes are 12-foot lanes, and the shoulders are generally uniform and eight feet in width. Parking is prohibited between East Avenue and the bridge. Three business driveways access McBean Park Drive from the north and west of the bridge. Two of these driveways are short and one provides direct access to a building with no setback.

EXISTING BRIDGE

The existing bridge was constructed in 1923 and widened in 1963 and includes five spans, for a total length of approximately 148 feet and width of 43 feet. The original bridge superstructure consists of two reinforced concrete girders with reinforced concrete floor beams and slab. The superstructure for the widened portion consists of three reinforced concrete "T"-Beams. The bridge piers consist of reinforced concrete walls founded on spread footings (original portion) and piles (widened portion). The abutments are closed end, bin type abutments.

The existing bridge is hydraulically inadequate with a history of frequent flooding events. Due to poor integrity of the deck and superstructure, the bridge has a sufficiency rating of 58.6. Caltrans Structures Maintenance and Investigations Division latest routine inspection report for this bridge, dated April 4, 2017, notes the following:

- There is a moderate size vertical crack with a few edge spalls in one of the original girders in span 4.
- There is scaling and rock pockets in the floor beams of the original portion.
- There is scaling along the left overhang and the outside of girder 1 in span 1.
- Approximately 2 feet of the nose of the footing at pier 3 and 4 is exposed.

The bridge has a history of scour issues, mostly at the upstream nose of piers 2 and 3. Large rocks were placed at the footings several times over the years. The channel has a history of both degradation and aggradation; however, in general, it has been aggrading over the recent years.

The existing bridge piers are located within the river channel. Removal of the structure supports in the river channel may result in environmental impacts that will require mitigation. Similarly, construction of the new bridge may also impact plants and wildlife within the riparian corridor.

PROPOSED PROJECT

The bridge currently is overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The improvements would provide a safe reliable structure, support alternative modes of transportation involving bikes, pedestrians, and neighborhood electric vehicles (NEV), and be acceptable to the community with minimal impacts to traffic and the surrounding environment. The replacement of the bridge and roadway modification will be funded with Highway Bridge Program (HBP) and local matching funds.

The Project is programmed as a bridge replacement project that will provide a wider bridge for vehicular, pedestrian, and NEV uses as well as enhance the seismic integrity of the bridge. More importantly the new bridge will be longer, and the profile will be raised significantly for necessary hydraulic conveyance. The bridge replacement involves the following activities:

- Removal of some of the constricting earthen fill prism from the floodway.

- Removal of the hydraulically inadequate and functionally obsolete (as classified in 2012 when programmed in the HBP) bridge.
- Construct a longer bridge.
- Replace the bridge with a wider bridge to accommodate three travel lanes, two shoulders and two sidewalks.
- Raise the roadway and bridge profile.
- Relocate overhead power and telecommunications as well as underground electrical and telecommunication facilities. Gas may also require relocation in the westerly roadway approach.

The Project will result in an adequate crossing of Auburn Ravine. Community members are in support of the Project, as it would ensure improved access during emergencies and would mitigate flooding events. As such, options to replace the bridge provide an excellent opportunity to celebrate the City's history by enhancing the bridge with appropriate aesthetic features that could be designed to establish a gateway to downtown Lincoln and the nearby historic districts.

The **five primary goals** for the Project are:

1. Replace the hydraulically inadequate bridge with a bridge that provides reliable general and emergency vehicle access during peak storm events.
2. Establish an enhanced river crossing.
3. Improve the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding.
4. Improve McBean Park Drive between the intersections of Ferrari Ranch Road and East Avenue to provide improved multi-modal connectivity for pedestrians, bicycles and, NEVs.
5. Maintain traffic on McBean Park Drive during construction.

AREA OF POTENTIAL EFFECTS (APE)

The Project APE measures 11.6 acres and was established as the area where the Project could directly or indirectly affect historic properties. The APE includes the Project limits which consist of the street right of way (ROW) on McBean Park Drive/SR 193 and Ferrari Ranch Road, staging area, drainage basin excavation, footing excavation, and ROW acquisition for bridge construction and widening the existing roadway. The APE includes adjacent parcels 008-320-009 and 008-320-014 which have buildings and structures that are historic in age that may be affected indirectly by Project related activities. The two parcels included in the APE may be affected by visual, audible, or atmospheric intrusions, shadow effects, vibrations from construction activities, or changes in access or use (Figure 3 in Attachment A of the HPSR). The Project APE was developed in coordination with William Larson, Caltrans PQA – PI: Prehistoric

Archaeology, and Vladimir Popko, Caltrans Engineer. The APE was approved on May 2 and May 3, 2022.

ROW acquisition will be required south of the existing ROW to construct the bridge in phases while maintaining traffic during construction. Additionally, temporary construction easements will be required to conform driveways to the raised roadway and to build portions of the new bridge and roadway approaches. No other permanent ROW acquisitions are anticipated.

The vertical APE is the maximum depth of any Project related ground disturbing work. The maximum depth of ground disturbance is 50 feet for the bridge piles. Other excavations are anticipated to be between approximately five feet (1.5 meters) to ten feet (3.1 meters) for utility and drainage improvements.

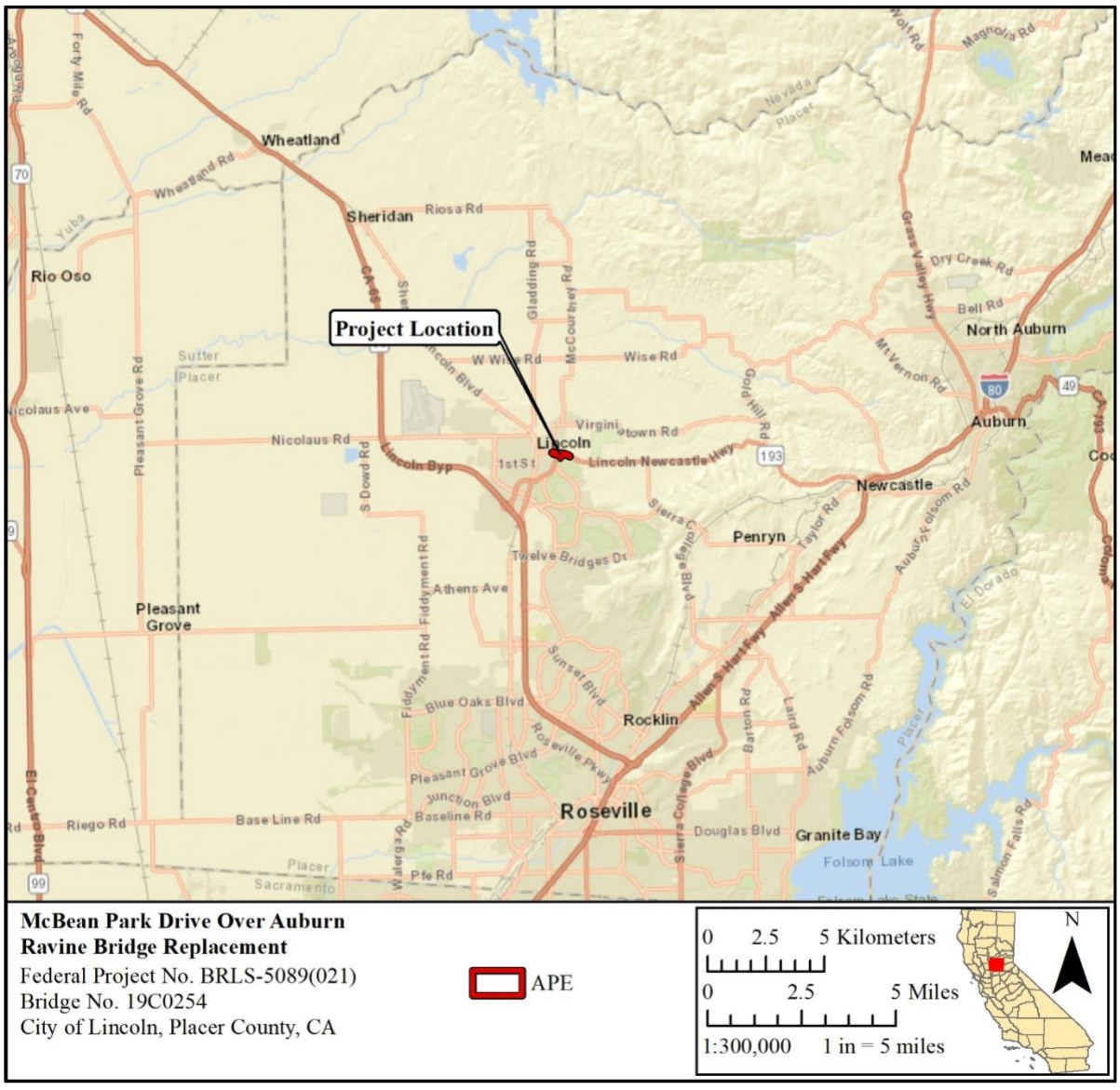


Figure 1. Project Vicinity Map

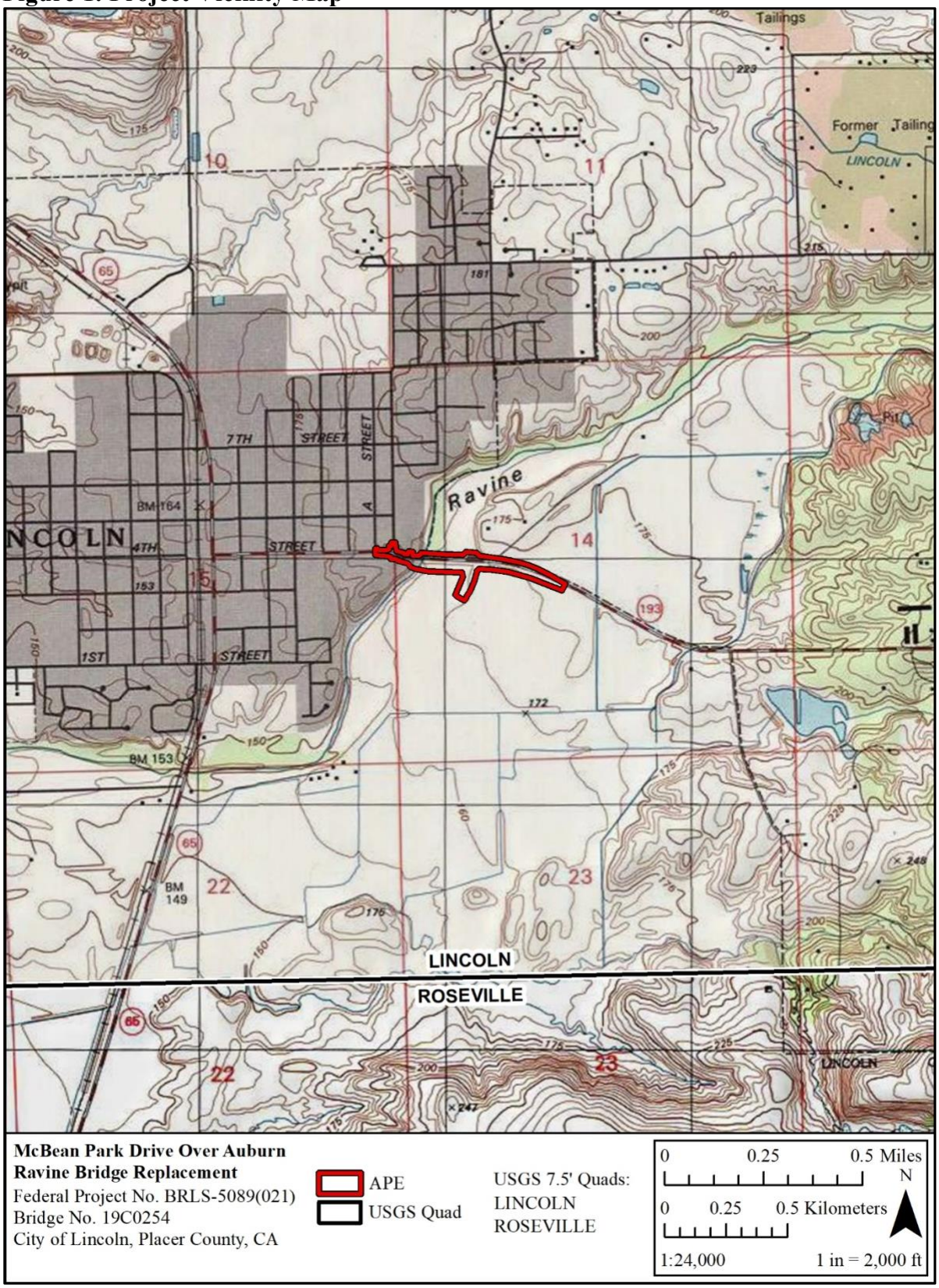


Figure 2. Project Location Map

SOURCES CONSULTED

CALIFORNIA HISTORIC RESOURCES INVENTORY SYSTEM

A search for archaeological and historical records was requested from the North Central Information Center (NCIC) of the California Historical Resources Inventory System (CHRIS) on March 17, 2021 and the NCIC responded with the results on March 23, 2021. The record search covered a one-mile radius around the APE boundaries and determined that ten previous cultural resources studies covering 95 percent of the APE have been completed within the APE and an additional 49 previous cultural resources studies have been completed outside of the APE but within the one-mile radius (Table 1).

Table 1. Previous Studies within a One-Mile Radius from the APE

Report No.	Authors	Title	Year	Distance (miles) from APE
000023	Peak & Associates, Inc.	Cultural Resource Survey for the Lincoln Bohemia Project, Placer County, California	1983	0.5 - 1
000207	Unknown	Cultural Resource Assessment of the Proposed Aiello Convalescent Hospital, Lincoln, Placer County, California	1985	0.5 - 1
001990	McGowan, Dana	Confidential Archaeological Survey Report for a Portion of Beale Air Force Base Titan 1-A, Placer County, California	1994	0.5 - 1
002604	Self, William	Inspection of Line 64, 48, and 20 in Yuba, Placer and Sacramento Counties, California	2001	0.5 - 1
003873	Foster, John W., Daniel G. Foster, and Richard C. Jenkins	An Archaeological Survey and Assessment of Cultural Resources on the Placer Ranch, Placer County, California	1986	0.5 - 1
003873	Speer, Michael V.	Historical Features on the Placer Ranch	1986	0.5 - 1
004037	Peak, Melinda, and Robert Gerry	Cultural Resource Assessment of the Lincoln Highlands Project, Placer County, California	2002	0.5 - 1
004038	Peak, Melinda	Cultural Resource Survey of Sprint PCS Site No. FS18XC020C “Downtown Lincoln”	2000	0.5 - 1
004040	Jensen, Peter M., and Sean M. Jensen	Archaeological Inventory Survey of the Proposed 18.14-Acre Lincoln Gateway Development Project	2001	0.25 - 0.5
004047	Windmiller, Ric	Cultural Resources Inventory of the Teal Brook Golf Course, Placer County, California	1996	0.5 - 1
004055	Pastron, Allen G.	Cultural Resources Assessment and Significance Evaluation of the Eastlake Project Area	1990	Within APE
004058	Dougherty, John W.	Historic Property Survey Report Route 65 Widening, Placer County, California	2001	0.5 - 1
004059	Windmiller, Ric	Supplemental Inventory and Evaluation of Cultural Resources, Ferrari Ranch, Placer County, California	1997	Within APE

Report No.	Authors	Title	Year	Distance (miles) from APE
004060	Lindstrom, Susan, and John Wells	A Cultural Resource Evaluation of the Sphere of the City of Lincoln, Placer County, To Include the Ferrari Ranch/Southeast Lincoln Project and Lincoln Crossing Project	1989	Within APE
004061	Noble, Daryl	Negative Archaeological Survey Report of the Proposed Left Turn Lane at Gadding Road	2002	0.5 - 1
004062	Baker, Jeanie	Historic Property Survey Report Pavement Rehabilitation	1991	0.25 - 0.5
004062	Unknown	Historic Resources Evaluation Report Granite Curbs in the City of Lincoln	1991	0.25 - 0.5
004065	California Department of Transportation	Historic Property Survey Report and Finding of No Effect for a Proposed Road Improvement Project on State Route 193 from Lincoln to Sierra College Boulevard in Western Placer County, California	1992	Within APE
004065	Mikesell, Stephen D.	Historic Architectural Survey Report-State Route 193, Post Miles 0.0/0/3, E.A. 03-352900	1991	0.25 - 0.5
004065	Offerman, Janis	An Inventory of Archaeological Resources for a Proposed Widening of State Route 193 in Western Placer County, California	1992	0.25 - 0.5
004065	Tordoff, Judy, and Frank Lortie	Historical Study Report for the PLA-193 Rehabilitation and Shoulder Widening Project	1992	0.25 - 0.5
004412	Peak, Melinda	Historic Resource Reconnaissance of a Proposed Surewest Tower in Sacramento Site # 203	2001	0.5 - 1
006379	Peak & Associates	Cultural Resource Assessment for the Proposed Gladding Parkway	2005	Within APE
006380	Peak & Associates	Cultural Resource Assessment of the City of Lincoln and Western Placer Unified School District Building	2005	0.25 - 0.5
006588	Unknown	Cultural Resource Assessment of the E Street Sewer and Storm Drain Project	2004	0.25 - 0.5
006591	Windmiller, Ric, and Perez, Alicia	Archaeological Resources Inventory Heritage Church Property	2003	0.25 - 0.5
006819	Dougherty, John	Cultural Resources Inventory for the Proposed Lincoln Meadows Development, Placer County, California	2006	0.5 - 1
006819	Baker, Cindy	National Register Evaluation of the Lincoln Canal Segment in the Lincoln Meadows Project Area, Placer County, California	2006	0.5 - 1
006839	Peak, Melinda A.	Determination of Eligibility and Effect for the Meadowlands Estates Project, City of Lincoln, Placer County, CA	2005	0.25 - 0.5
007024	Leach-Palm, Laura, and Sharon Waechter	Cultural Resources Survey of the 12.4-Mile Atlantic to Lincoln Reconductoring Project Corridor, Roseville and Lincoln, Placer County, CA	2006	0.5 - 1

Report No.	Authors	Title	Year	Distance (miles) from APE
008374	Fernandez, Trish	Auburn Ravine Pedestrian Overcrossing at SR 193 Project, Cultural Resources Inventory Report	2007	Within APE
008567	Peak, Melinda	Determination of Eligibility and Effect for the Church of Latter-Day Saints Lincoln Second Stake Project, City of Lincoln, California	2007	0.5 - 1
008619	Arrington, Cindy et al.	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	2006	0.25 - 0.5
009108	Robinson, Roger	An Archaeological Survey of Auburn Ravine	1967	Within APE
009229	Westwood, Lisa	Cultural Constraints Analysis for the Turkey Creek Project, near the City of Lincoln, Placer County (Project Number 2007-171)	2007	0.5 - 1
009326	Leach-Palm, Laura, Bryan Larson, Paul Brandy, Jay King, Lindsay Hartman, and Pat Mikkelsen	Cultural Resources Inventory of Caltrans District 3 Rural Conventional Highways in Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo, and Yuba Counties	2008	Within APE
010019	PAR	National Register of Historic Places Evaluation of PG&E's Lincoln and Rio Oso Substations, Placer and Sutter Counties	2008	0.5 - 1
010623	Pappas, Stephen, and Lisa Westwood	Cultural Resources Inventory Report Auburn Ravine Stream Gage, Site 4 Placer County, California Project No. 2008-037	2010	Within APE
010816	Kellawan, Rebecca	Cultural Resources Survey of the Lincoln-Rio Oso Highway 65 Routing Investigation, Placer County, California	2010	0.5 - 1
010845	Jensen, Sean	ARCHAEOLOGICAL INVENTORY SURVEY: Auburn Ravine Gauging Station Project, c. 1 Acre, Lincoln, Placer County, California	2010	0.5 - 1
010867	Woodward, Lisa, and Stephen Pappas	Supplemental Cultural Resources Assessment for the Lincoln Village 1, Phase 1 Environmental Impact Report, City of Lincoln, Placer County, California	2011	Within APE
011036	Pappas, Stephen, and Lisa Westwood	Confidential Test Program Results and Evaluation for CA-PLA-2427H (Walkup Ranch #2), Within Phase 1 of the Lincoln Village 1 Specific Plan Project, City of Lincoln, Placer County, California Project No. 211-098	2011	0 - 0.25
011223	Hibma, Michael	Findings of Effect for the City of Lincoln Downtown Pedestrian Streetscape Project; Historic Property Survey for the Lincoln Blvd Streetscape Project	2013	0.25 - 0.5
011223	Jordan, Nichole	Historic Survey Report for the Lincoln Blvd Streetscape Project	2012	0.25 - 0.5
011223	Jordan, Nichole	Archaeological Survey Report for the Lincoln Blvd Project	2012	0.25 - 0.5

Report No.	Authors	Title	Year	Distance (miles) from APE
011223	Hibma, Michael	Historical Resources Evaluation Report for the City of Lincoln Downtown Pedestrian Streetscape Project	2012	0.25 - 0.5
011566	Webb, Megan, and Stephen Pappas	Cultural Resources Inventory and Evaluation Report Meadowlands Estate, Placer County, California, ECORP Project No. 2014-162	2014	0.25 - 0.5
011745	Clark, Jennifer	Section 106 Review for Crown Castle	2015	0 - 0.25
011758	Waechter, Sharon A., Laura Leach-Palm, Eric Wohlgemuth, Jack Meyer, Meagan O'Deegan, and Steven J. Melvin	Midwestern Placer Regional Sewer Project Cultural Resources Survey and Evaluation Report	2013	0.5 - 1
011792	Webb, Megan	Cultural Resources Inventory and Evaluation Report, Lincoln Stake Center	2015	0.5 - 1
011808	Peak, Melinda A., Neal J. Neuenschwander, and Robert A. Gerry	Determination of Eligibility and Effect for the Meadowlands Estates Project, City of Lincoln, Placer County, California	2013	0.25 - 0.5
012101	Rom, Lance, and Jana Morehouse	PTC Wayside Poles Valley Subdivision-1 Non-Excluded New Build (MP 116.5) Placer County, New PTC Tower	2015	0.5 - 1
012101	Boos, Sydney, and Jana Morehouse	Archaeological & Historic Architecture Records Review for the Union Pacific Railroad Positive Train Control Valley Subdivision Mile Posts 106.70, 108.20, 109.92, 111.50, 114.60, 116.50, 118.50, 120.40, 124.80, 127.00 (TCNS #132934)	2015	0.5 - 1
012116	Peak, Melinda, and Robert Gerry	Determination of Eligibility and Effect for the Meadowlands Estates Project, City of Lincoln, Placer County, California	2012	0.25 - 0.5
012180	Falke, Mariko, and Katie Vallaire	Archaeological Survey Report: Lincoln Boulevard Improvements Project (Phase 1A and Phase II), in Lincoln, Placer County, California, Caltrans District 3	2016	0.25 - 0.5
012218	Karvonen, Shannon	Cultural Resources Inventory and Evaluation Report for the Oak Tree Lane/Highway 193 Road Widening Project, Placer, County, California	2015	0.25 - 0.5
012220	Karvonen, Shannon	Cultural Resources Inventory of 12.94 Acres and National Register of Historic Places Evaluation Report for the Oak Tree Lane Road Widening and Extension Project, Placer County, California	2015	0.5 - 1
012717	Loeffler, Laura	Historic Property Survey Report First Street, from H Street to R Street in Lincoln	2019	0.5 - 1
012717	Fernandez, Trish	Archaeological Survey Report First Street Resurfacing City of Lincoln, Placer County, California	2019	0.5 - 1

No cultural resources have been recorded within the APE (Table 2). Outside of the APE, a total of 63 cultural resources have been previously documented within the one-mile search radius from the APE (Table 2). These consist of one cultural resource within one-quarter mile of the APE, 20 cultural resources within one-quarter to one-half mile of the APE, and 42 cultural resources within one-half to one mile of the APE. Of the 63 cultural resources, two are historic districts, 32 are historic built environment resources, one is a modern built environment resource, 14 are historic archaeological sites, five are multi-component archaeological sites, three are prehistoric archaeological sites, two are historic isolated finds, and four are prehistoric isolated finds.

Table 2. Previously Recorded Cultural Resources within a One-Mile Radius from the APE

Primary Number	Trinomial	Resource Type	Resource Description	Year Recorded	Distance from APE (miles)	NRHP / CRHR
P-31-000816	CA-PLA-000690H	Historic Built Environment	Historic Union Pacific Railroad.	1990, 1999, 2000, 2008, 2012, 2019	0.25 - 0.5	
P-31-001682	CA-PLA-001323H	Historic Archaeological Site	Historic granite quarry with three pits.	1996	0.5 - 1	
P-31-001683	CA-PLA-001324H	Historic Archaeological Site	Historic granite quarry with one small pit.	1996	0.5 - 1	
P-31-001684	CA-PLA-001325H	Historic Archaeological Site	Historic fence remnant marked by eight quarried granite posts parallels that is in places incorporated into the existing east-west barbed wire fence line.	1996	0.5 - 1	
P-31-001685	CA-PLA-001326/H	Multi-Component Archaeological Site	Historic quarry with worked granite boulders including three granite outcroppings with mortar holes.	1996	0.5 - 1	
P-31-001686	CA-PLA-001327H	Historic Archaeological Site	Historic livestock corral and loading chute.	1996, 2007	0.5 - 1	
P-31-001687	CA-PLA-001328H	Historic Archaeological Site	Historic Lincoln Rock Quarry.	1996	0.5 - 1	
P-31-001688	CA-PLA-001329/H	Multi-Component Archaeological Site	Historic granite quarry prospect site including three bedrock mortar holes.	1996	0.5 - 1	

Primary Number	Trinomial	Resource Type	Resource Description	Year Recorded	Distance from APE (miles)	NRHP / CRHR
P-31-001689	CA-PLA-001330H	Historic Archaeological Site	Historic placer mining landscape with ponds, ditches, peaked tailings piles, and deep drainages.	1996	0.5 - 1	
P-31-001690	CA-PLA-001331	Prehistoric Archaeological Site	Prehistoric food processing site with two granite boulders that have numerous conical and shallow mortars.	1996	0.5 - 1	
P-31-001691		Historic Archaeological Site	Historic earthen ditch.	1996, 2012	0.5 - 1	
P-31-001692		Historic Archaeological Site	Historic Hemphill Ditch segment - an unlined irrigation ditch.	1996	0.25 - 0.5	
P-31-001698		Historic Isolate	Historic granite boulder split into pieces.	1996	0.5 - 1	
P-31-001699		Prehistoric Isolate	Prehistoric shallow basin metate fragment made of granite.	1996	0.5 - 1	
P-31-001700		Prehistoric Isolate	Prehistoric pestle fragment.	1996	0.5 - 1	
P-31-001707	CA-PLA-001340H	Historic Archaeological Site	Historic Walter Pantle's dry-land dredging operations on Ferrari Ranch.	1996	0.25 - 0.5	
P-31-001708	CA-PLA-001341H	Historic Built Environment	Historic road built during the wet season prior to 1950 to transport heavy equipment to New Baccarat Gravel and Drift Mine.	1997	0.5 - 1	
P-31-001710	CA-PLA-001342H	Multi-Component Archaeological Site	Historic New Baccarat Gravel and Drift Mine, associated mining features, and a prehistoric bedrock mortar station.	1989, 1990, 1996, 2015	0.5 - 1	
P-31-001711	CA-PLA-001343H	Historic Built Environment	Historic location of Beerman's Slaughter House that supplied his butcher shop in Lincoln.	1989, 1996	0.5 - 1	
P-31-001712	CA-PLA-001344H	Historic Built Environment	Historic Hughes Ranch stone building.	1989, 1997, 2015	0.25 - 0.5	

Primary Number	Trinomial	Resource Type	Resource Description	Year Recorded	Distance from APE (miles)	NRHP / CRHR
P-31-001713	CA-PLA-001345H	Historic Built Environment	Historic Ferrari Ranch building complex.	1989, 1997	0.25 - 0.5	
P-31-001714		Prehistoric Archaeological Site	Prehistoric salt marsh with one black chert spall.	1989, 1996, 1997	0.5 - 1	
P-31-001715		Historic Built Environment	Historic commercial building constructed ca. 1952 located at 271 Highway 65.	2000	0.5 - 1	
P-31-001732	CA-PLA-002611	Prehistoric Archaeological Site	Prehistoric food processing site with one granite outcrop.	1991, 2014	0.5 - 1	
P-31-001736	CA-PLA-001359H	Historic Archaeological Site	Historic placer mining landscape with granite quarrying and possible habitation.	1990, 1992	0.5 - 1	
P-31-002600	CA-PLA-001848H	Historic Built Environment	Historic single-family residence constructed sometime after 1953 located at 638 F Street.	2005	0.25 - 0.5	
P-31-002611	CA-PLA-001850H	Historic Built Environment	Historic structural remnants consisting of a circular cement foundation.	2003	0.5 - 1	
P-31-002612	CA-PLA-001851H	Historic Archaeological Site	Historic Hughes Earthen Dam.	2003, 2014	0.5 - 1	
P-31-002613	CA-PLA-001852/H	Multi-Component Archaeological Site	Historic granite quarry with prehistoric bedrock milling stations.	2003, 2014, 2014	0.5 - 1	
P-31-003040		Historic Built Environment	Historic single-family residence constructed in 1949 located at 708 Virginiatown Road. Building has been demolished per 2015 update.	2007, 2015	0.5 - 1	
P-31-003593	CA-PLA-002607H	Historic Built Environment	Historic Southern Pacific Railroad spur imprint.	2008, 2010	0.5 - 1	
P-31-003676		Historic Built Environment	Historic Lincoln Substation constructed by PG&E in 1925 to replace the original substation in Lincoln.	2008	0.5 - 1	

Primary Number	Trinomial	Resource Type	Resource Description	Year Recorded	Distance from APE (miles)	NRHP / CRHR
P-31-003709		Historic Built Environment	Historic Lincoln Public Library located at 690 5th Street.	1988, 1989	0.25 - 0.5	
P-31-003715		Historic Built Environment	Historic Woman's Club of Lincoln.	2000	0.25 - 0.5	1S
P-31-003866		Historic Built Environment	Historic single-family residence constructed around 1965 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003867		Historic Built Environment	Historic single-family residence constructed around 1965 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003868		Historic Built Environment	Historic single-family residence constructed around 1910 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003869		Historic Built Environment	Historic single-family residence constructed around 1955 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003870		Historic Built Environment	Historic Quonset hut constructed around 1947 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003871		Historic Built Environment	Historic single-story building constructed around 1955 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003872		Historic Built Environment	Historic single-story building constructed around 1925 located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003873		Historic Built Environment	Historic cylindrical silo extending into the barn to the east, but is a free-standing building constructed in 1955 and located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003874		Historic Built Environment	Historic barn constructed around 1925 and located at the end of Ferrari Ranch Road.	1997	0.5 - 1	
P-31-003875		Built Environment	Large metal-framed structure constructed around 1985 is located on the Ferrari Ranch and is a non-contributing element.	1997	0.5 - 1	
P-31-004237		Historic Built Environment	Historic Edward Hill House located at 654 H Street.	1982	0.5 - 1	2

Primary Number	Trinomial	Resource Type	Resource Description	Year Recorded	Distance from APE (miles)	NRHP / CRHR
P-31-005434	CA-PLA-002427H	Historic Built Environment	Historic ranching complex structures.	2010	0 - 0.25	
P-31-005469		Historic Archaeological Site	Historic Lincoln Canal excavated by PG&E around 1917 in an effort to expand their irrigation system and service in the Lincoln area.	2006, 2016	0.5 - 1	
P-31-005487		Prehistoric Isolate	Prehistoric quartzite bifacial cobble chopping tool.	2010	0.25 - 0.5	
P-31-005488	CA-PLA-002602H	Multi-Component Archaeological Site	Historic quarrying pit features and one prehistoric bedrock mortar feature.	2010	0.25 - 0.5	
P-31-005601		Historic District	Historic Jansen Block Historic District located in downtown Lincoln built 1880-1884.	2012	0.25 - 0.5	
P-31-005602		Historic District	Historic 5th and G Streets Historic District located in downtown Lincoln built 1864-1950.	2012	0.25 - 0.5	
P-31-005603		Historic Built Environment	Historic single-story commercial building constructed in 1920 and located at 401 G Street.	2012	0.25 - 0.5	
P-31-005604		Historic Built Environment	Historic single-story commercial building constructed in 1923 (northern portion and 1935 (southern portion) located at 451/453 G Street.	2012	0.25 - 0.5	
P-31-005605		Historic Built Environment	Historic single-story commercial building constructed in 1920 and located at 590 G Street.	2012	0.25 - 0.5	
P-31-005606		Historic Built Environment	Historic single-story commercial building constructed in 1955 and located at 584 G Street.	2012	0.25 - 0.5	
P-31-005607		Historic Built Environment	Historic single-story commercial building constructed in 1920 and located at 629 G Street.	2012	0.25 - 0.5	
P-31-005608		Historic Built Environment	Historic single-story commercial building constructed in 1914 and located at 631 G Street.	2012	0.25 - 0.5	

Primary Number	Trinomial	Resource Type	Resource Description	Year Recorded	Distance from APE (miles)	NRHP / CRHR
P-31-005736		Historic Archaeological Site	Historic barbed wire and wooden fence line located 100 feet north of 9th Street in Lincoln.	2014	0.25 - 0.5	
P-31-005737		Historic Isolate	Historic machine cut nail and nail fragment.	2014	0.5 - 1	
P-31-005834		Historic Archaeological Site	Historic granite quarry, orchard with associated ditch, and a stone and concrete well.	2015	0.5 - 1	
P-31-005836	CA-PLA-002532	Prehistoric Isolate	Prehistoric chert core.	2014	0.5 - 1	
P-31-006005		Historic Built Environment	Historic ranching complex consisting of a house and barn located at the end of Leavell Lane constructed in the late 19th century.	2011, 2015	0.25 - 0.5	
P-31-006065		Historic Built Environment	Historic Placer County Corporation Yard constructed around 1960 located at 401 Oak Tree Lane.	2015	0.5 - 1	

OTHER SOURCES

In addition to the NCIC records search, a variety of sources were consulted in May 2021 to obtain information regarding the cultural context of the Project vicinity (Table 3). Sources included the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), Built Environment Resource Directory (BERD), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Specific information about the APE, obtained from historic-era maps and aerial photographs, is presented in the APE History section.

Table 3. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP)	Negative.

Source	Results
Historic USGS Topographic Maps	Based on the earliest known USGS topographic map of the APE in 1891 (*Sacramento*; 1:125,000) the APE is largely undeveloped with only 4th Street (now McBean Park Drive) present. An unnamed road (possibly Leavell Lane) connects to the eastern terminus of 4th Street (McBean Park Drive) and travels northeast. The Auburn Ravine is depicted in its current configuration with a secondary stream. There are no observable changes within the APE until 1910 (*Lincoln*; 1:31680) with the construction of 1-2 structures adjacent to the north side of 4th Street. By 1942 (*Markham Ravine*; 1:62,5000), one building is present within what is now 110 McBean Park Drive. East Avenue and A Street are present in their current configurations. Lincoln Newcastle Highway is also present; however, it is not in its current configuration which occurs by 1953 (*Lincoln*; 1:24,000). Also by 1953, three buildings/structures are depicted within 110 McBean Park Drive. There are no observable changes depicted in available USGS Topographic maps within the APE from 1953 until present.
Historic US Department of Agriculture (USDA) Aerial Photographs	Based on the earliest known USDA historic aerial of the APE in 1952, the built environment within the boundaries of the APE included Lincoln Newcastle Highway, McBean Park Drive/4th Street, East Avenue, the turn off for Leavell Lane, and the bridge over Auburn Ravine (Frame Finder 1952). All appear in their current configuration. There appears to be a structure within the APE located within APN 008-320-014. The APE also overlaps into APN 008-320-009 where a single-family property and two commercial warehouses are located. There are no notable changes within the APE by 1961 (Frame Finder 1961) except for the removal of all built structures within APN 008-320-014; only two medium sized trees remain, which are located within the APE. There is no observable change within the APE until sometime between 1998 and 2005, with the construction of Ferrari Ranch Road. Also, in 2005, the portion of APN 008-320-014 that overlaps the APE boundary was paved with asphalt and used as a parking area.
Sanborn Fire Insurance Maps	In the earliest known Sanborn Fire Insurance Map (Sanborn 1899), a section of East Avenue within the APE, East 4th Street (now McBean Park Avenue) and the parcels at what is now 110 McBean Park Avenue (APNs 008-320-009 and -014) are visible. Approximately five buildings are present within APNs 008-320-009 and -014 including two dwellings, one stable, and two ancillary buildings. The area south of East 4th (McBean Park Avenue) and 110 McBean Park Avenue is labeled as "Vacant Beyond." In a 1910 Sanborn map (Sanborn 1910), a rectangular one-story cabin appears adjacent to East 4th Street. One small ancillary building is present at the north/center of APN 008-320-009 and another is located at the northeast corner of APN 008-320-014. A bridge is labeled at the location of the current Auburn Ravine Bridge. In 1928 (Sanborn 1928 - updated 1931), the stable has been removed and the dwelling at the southwest corner of APN 008-320-009 is labeled as "Damage by Fire." The bridge is now relabeled as "Conc. Bridge."
California Register of Historical Resources (CRHR)	Negative.
Built Environment Resource Directory (BERD)	Negative.

Source	Results
California Historical Landmarks (CHL)	Negative.
California Points of Historical Interest (CPHI)	Negative.
Caltrans Historic Bridge Inventory	Positive; Bridge #19C9254 – determined ineligible for listing in the NRHP.
Bureau of Land Management (BLM) General Land Office Records	Positive. See Table 4.

Table 4. Land Grant Patentees within the APE

Name(s)	Accession	Year	Authority	T; R; Section
State of California	CACAAA 011524	1890	Grant-Certain Land to State	T12N; R6E; Section 14
Chaves, Felis Salvador Preble, Charles Savage	CACAAA 043331 MW-0152-316	1865	Scrip or Nature of Scrip ScripWarrent Act of 1855	T12N; R6E; Section 14
Dodd, John Smith McBride, Robert	MW-0431-278 CACAAA 043298	1861	ScripWarrant Act of 1855	T12N; R6E; Sections 14 and 15

NATIVE AMERICAN CONSULTATION

Logan Freeberg, a Cogstone staff archaeologist, requested a Sacred Lands File search from the Native American Heritage Commission (NAHC) on April 21, 2021. The NAHC responded on May 17, 2021, that there are no known sacred lands within the APE. The NAHC recommended that seven representatives from four local Native American tribal organizations be contacted for further information regarding the general Project vicinity.

Letters were sent via certified mail to the seven contacts on May 20, 2021, requesting information related to cultural resources or heritage sites within the APE. An additional attempt at contact was made by email on May 28, 2021, and by phone call on June 1, 2021. To date, four responses have been received and their requests are outlined below. An in-field meeting was held on September 2, 2021 with the City and interested Native American tribes. The City has agreed to Native American monitoring by the United Auburn Indian Community (UAIC) and Wilton Rancheria. All consultation correspondence and a contact log are provided as Appendix B.

Colfax-Todds Valley Consolidated Tribe: On June 1, 2021, Ms. Pamela Cubbler responded on behalf of the Colfax-Todds Valley Consolidated Tribe that they would like to have monitoring conducted within areas of native sediments and/or undisturbed areas within the APE.

Tsi Akim Maidu Tribe: On June 1, 2021, Mr. Grayson Coney responded via phone call that he is no longer affiliated with the Tsi Akim Maidu Tribe and that the NAHC information is out of

date.

United Auburn Indian Community (UAIC): On May 28, 2021, Ms. Anna Starkey responded on behalf of the United Auburn Indian Community (UAIC) that the Project APE is culturally sensitive and has the potential for unidentified Tribal Cultural Resources (TCRs). The UAIC would like to consult under AB 52 and Section 106 (with Caltrans) to discuss topics listed in Public Resources Code Section 21080.3.2(a) including project alternatives and mitigation measures for any direct, indirect, or cumulative impacts the project may cause to TCRs. The UAIC has requested to review the cultural and biological report, APE photographs, as well as the bridge design and any alternatives. In addition, the UAIC has requested to visit the site, if needed, and to provide recommendations and mitigation measures once they have received additional information including:

- Description of project;
- Map/engineering drawings of APE;
- Archaeological/biological/TCR reports;
- Pedestrian survey results and photographs;
- Proposed off-site improvements;
- Infrastructure required for the project and off-site improvements including types, depths, and timing.

While in communication with the City of Lincoln in regard to the Project, representatives of the UAIC requested an in-field meeting with the City of Lincoln, Quincy Engineering and Cogstone to discuss impact to potentially sensitive cultural resources and get better insight into what ground disturbing activities would be take place during the project.

An in-field meeting was set for 11:00am on Thursday, September 2, 2021 at the McBean Park Drive bridge, located on the corner of Ferrari Ranch Road and McBean Park Drive in Lincoln, California. In attendance was Travis Young and Creed Stedman with UAIC, Mike Sanchez with Quincy Engineering, Edgar Garcia with the City of Lincoln, and Alison Bryson-Deveraux with Cogstone.

Mike Sanchez and Edgar Garcia led a tour which covered the proposed APE for the Project. They escorted the group to the bridge location where they discussed the estimated depth of foundations and bridge supports, as well as road widening, grading and overall construction footprints. The UAIC representatives discussed known areas of archaeological resources near the project location and pointed out areas they believed potential resources could be identified during construction.

As some areas of proposed construction would have significant ground disturbance, the UAIC representatives stated they would be formally requesting the City of Lincoln to have tribal monitors from the UAIC on site during all ground disturbing activities associated with the Project. The City has agreed to Native American monitoring by UAIC.

Wilton Rancheria: On June 9, 2021, Ms. Mariah Mayberry of the Wilton Rancheria, responded

via email that the Tribe has identified cultural resource near the project's footprint. The Tribe's preferred method of treatment for Cultural Resources is preservation in place. A tribal monitor, compensated at the Tribe's current rate, is requested to be present during any ground disturbance to treat any unearthed cultural materials, properly, with dignity and respect. On June 15, 2021, Ms. Mayberry requested via email that the Tribe would like to set up a consultation meeting for the project at the earliest convenience. The City has agreed to Native American monitoring by Wilton Rancheria.

BACKGROUND

GEOLOGICAL SETTING

The Project is located within the Great Valley Geomorphic Province of California. The Great Valley, also known as the central valley or San Joaquin-Sacramento Valley, is an alluvial plain extending from the Tehachapi Mountains on the south to the Klamath Mountains on the north, a distance of about 450 miles. Located between the Sierra Nevada to the east and the Coast Ranges to the west, the valley has an average width of about 50 miles. The valley floor can be divided into four geomorphic units, dissected uplands, low alluvial plains and fans, river flood plains and channels, and overflow lands and lake bottoms (Poland and Evenson 1966). Structurally, the valley is a northwest trending elongated asymmetrical trough that has been filled with a thick sequence of sediments ranging in age from Jurassic through to the Holocene (Hackel 1966).

The east side of the Great Valley is a nearly continuous series of coalescing alluvial fans, with their apices located where streams drain the west slope of the Sierra Nevada. These low relief alluvial fans form a continuous belt between the dissected uplands of the Sierra Nevada and the nearly flat surface of the Central Valley floor. These fans are composed of undeformed to only slightly deformed alluvial deposits laid down primarily during Plio-Pleistocene time by the streams that drain the adjacent uplands of the Sierra Nevada.

STRATIGRAPHY

The surface of the Project is mapped as middle to late Pleistocene Riverbank Formation emplaced between 450,000 to 100,000 years ago, along with Holocene alluvium deposited less than 11,700 years ago (Helley and Harwood 1985; Figure 3). Not mapped by Helley and Harwood (1985), the APE contains various amounts of modern artificial fill that was noted during the pedestrian survey and placed during previous development of McBean Park Drive. The Project crosses Auburn Ravine which periodically carries water.

RIVERBANK FORMATION, MIDDLE TO LATE PLEISTOCENE

In the Sacramento area, the Pleistocene Riverbank Formation is less than 450,000 years old and at least 100,000 years old (Helley and Harwood 1985). In the San Joaquin Valley, the Riverbank Formation is estimated to be between 450,000 and 120,000 years old (Marchand and Allwardt 1981, p. 41). The Riverbank Formation consists of reddish-brown silt to gravel in alluvial terraces and fans that has been divided into two informal members (Helley and Harwood 1985). Both the upper and lower members of the Riverbank Formation are present within the Project area (Helley 1979, Helley and Harwood 1985).

The upper member consists of compact but unconsolidated, dark brown to red, silt to gravels with minor clay and forms dissected alluvial fans as well as the lower of the two Riverbank Formation terraces. The upper and lower members are typically separated by ~3m of material (Helley and Harwood 1985, p. 11).

More dissected than the upper member of the Riverbank Formation, the lower member consists of red, semiconsolidated, silt to gravels. This unit forms the upper of the two Riverbank Formation terraces with strong soil profiles (Helley and Harwood 1985, p. 11).

ALLUVIUM, HOLOCENE

Holocene alluvium of the stream channels and in the APE consists of young, unweathered, unconsolidated sand, silt, and gravel (Helley and Harwood 1985).

ARTIFICIAL FILL, MODERN

These man-made deposits are usually less than 200 years old in California. Deposits are typically less than a few feet thick, however it can be substantially thicker in the areas of overpasses, freeways, and other large earthworks. Any fossils that may be encountered therein are not scientifically significant.

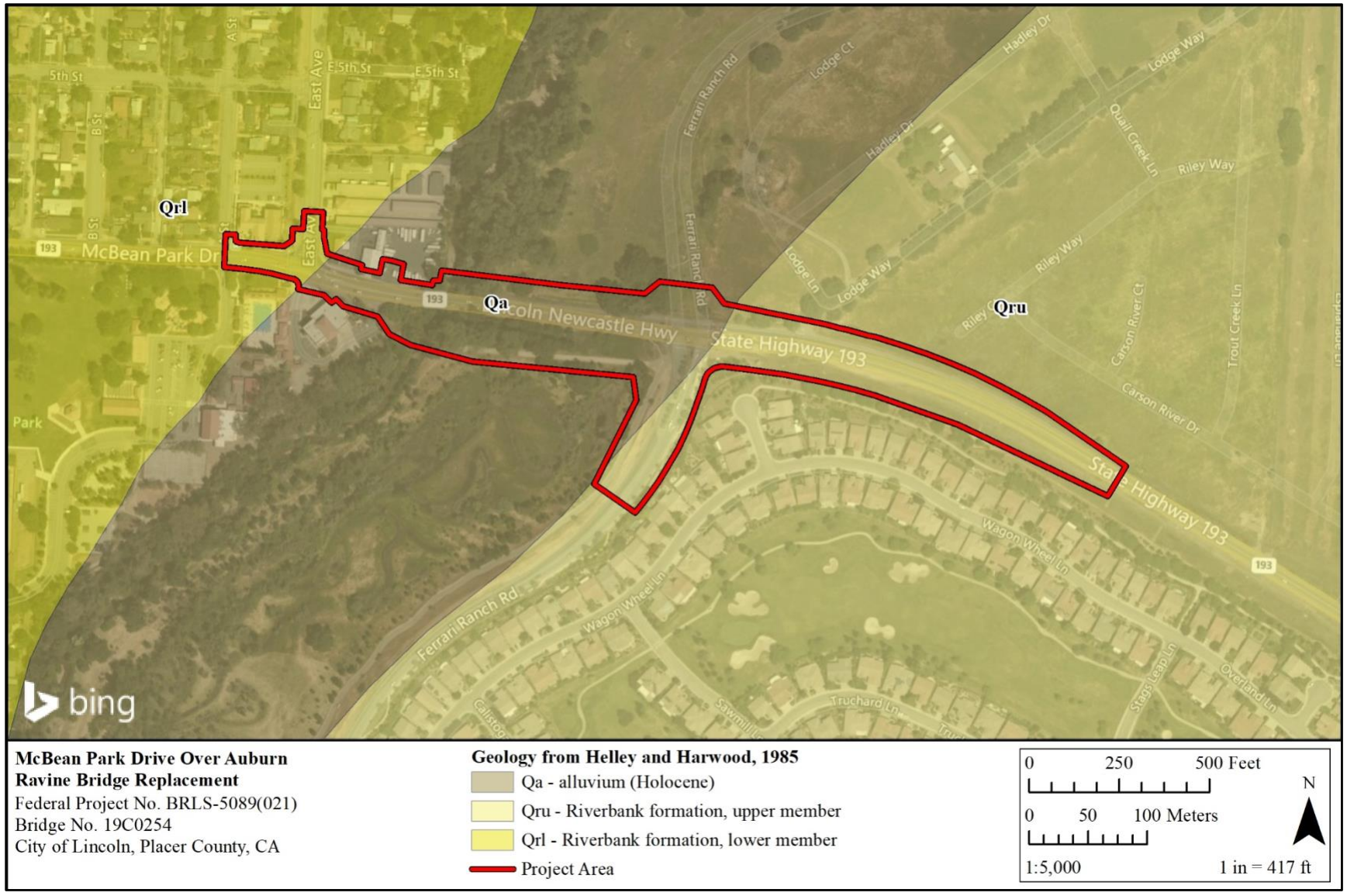


Figure 3. Project Geology Map

METHODS

University of California Davis National Resources Conservation Service California Soils Resource Lab (UCD SoilWeb, accessed May 2021) soils maps were consulted along with the United States Department of Agriculture National Resources Conservation Service (USDA-NRCS, accessed May 2021) soils descriptions, and geologic maps were utilized for this assessment. Soils of the APE were determined using the UCD maps.

Subsurface site preservation depends on many factors. Soils and locations were analyzed for grain sizes, slope, and environmental indicators that contribute to the preservation of sites. Primarily sites accumulate where people have the highest probability of living; on lower slope gradients near water sources but in areas that are unlikely to experience regular flooding. Additionally, lower slope gradients decreases erosion and increases deposition assisting in site burial. Both pebbly and coarser grain sizes as well as clay rich soils preserve artifacts poorly. The age of a soil also determines the likelihood of buried archaeological sites and must be assessed as the older soils are less likely to contain sites unless items were intentionally buried in them. Soils likely too old for site preservation have duripans (hardpans), and argillic (clay rich) horizons; while younger soils with a higher potential for preservation are indicated by the lack of a B horizon or the presence of a cambic horizon. Both Holocene alluvial and aeolian units have a higher potential for artifacts as the soils were co-deposited with the local cultural groups.

CLASSIFICATIONS FOR BURIED SITE POTENTIAL ARE AS FOLLOW

Very low: Soils are underlain by deposits that predate human occupation of the region. Soils that include B horizons, especially if they are argillic or silicic (duripan) horizons are also classified as very low. Additionally exposed bedrock, borrow pits, heavily eroded or gullied land, or water bodies have a very low potential. Areas of high erosion, water, borrow pits, rock outcrops, or sediments mapped as Pleistocene or older are classified as having a very low potential.

Low: Soils are underlain by deposits that predate human occupation of the region, high-energy deposits unlikely to contain cultural materials in a primary context, are residual soils (soils weathered in place above bedrock), or include B horizons. Low-potential areas include Inceptisols. These are formed in residual soils weathered directly from bedrock and, thus, have a low potential for buried sites. Areas where soils are weathered from bedrock, dissected alluvial fans, and locations where soils are forming on mountains are classified as having a low potential.

Medium: Soils are underlain by deposits that are most likely terminal Pleistocene or Holocene in age, possibly have intact buried surfaces, or have sediments that are likely to have been deposited in a low-energy environment. Alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans, floodplains, and drainages are classified as having a medium potential.

High: Soils are underlain by deposits that are most likely terminal Pleistocene or Holocene in age, or sediments represent low-energy deposits, or have a high potential to contain buried intact geomorphic surfaces that could have been used by humans in the past. Alluvial stream terraces and floodplains, terrace escarpments, alluvial fans (fan skirts, fan aprons, and inset fans), and areas with aeolian deposits are classified as having a high potential.

RESULTS

The APE is mapped as middle to late Pleistocene Riverbank Formation and Holocene alluvium. The artificial fill has no impact on the underlying soils. The Project crosses Auburn Ravine which periodically carries water, making local flooding events possible.

The San Joaquin sandy loam (unit 181) overlies the middle Pleistocene, lower Riverbank Formation at the northwestern end of the study area. Due to the presence of duripan and the age of the lower Riverbank Formation, these deposits are assigned a very low potential for buried sites.

The Competa-Ramona sandy loam (unit 142) overlies Holocene alluvium. While the age of the underlying sediments are favorable to having buried sites, the presence of B horizons and the location adjacent to the Auburn Ravine decreases that potential. These soils are assigned a low to medium potential for buried sites.

Xerofluvents (unit 194) is mapped in the river bottom and overlies Holocene alluvium. Due to the presence in the river bottom these soils are assigned a very low potential for buried sites.

The Ramona sandy loam (unit 174) overlies the middle to late Pleistocene, upper Riverbank Formation at the southeastern end of the study area. Due to the presence of B horizons and the age of the upper Riverbank Formation, these deposits are assigned a low potential for buried sites.

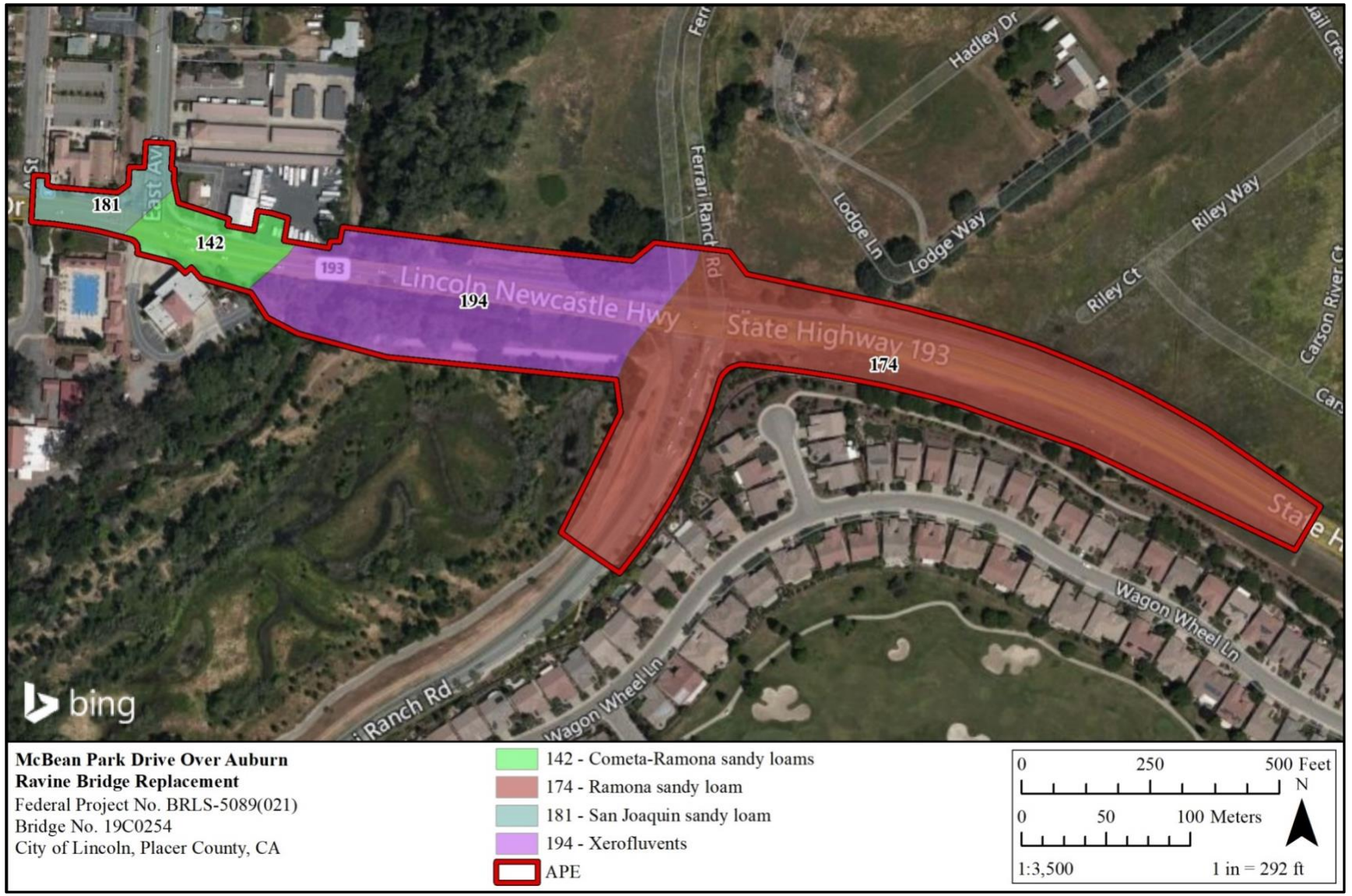


Figure 4. Soils within the APE

Table 5. Soils of the APE

Map Symbol	Primary soil name and slopes; Other soils; General geomorphology and elevations	Soil Taxonomy/ Basic Description	Diagnostic features	Geology	Potential for buried sites
181	San Joaquin sandy loam, slope 1% to 5%. San Joaquin is 80% of total volume; Cometa 10%, Fiddyment 5%, unnamed 3%, and Alamo 2% soils are also present.	San Joaquin Soil Series: Order- Alfisols; Suborder- Xeralfs; Fine, mixed, thermic Abruptic Durixeralfs. / San Joaquin soils can have Ap, Bt1, Bt2, 2Bt3, 2Bt4, 2Bqm1, 2Bqm2, and 2Bq horizons.	In general: Consists of moderately deep to a duripan. Depth to the duripan ranges from 20 to 40 inches. A horizons (0 to 6 in): brown, to dark brown sandy loam, silt loam, fine sandy loam or loam. Acidity: medium to neutral Bt horizons (6 to 16 in): brown to reddish brown sandy clay loam, loam or silt loam. Acidity: medium to neutral 2Bt horizons (16 to 29 in): brown to dark brown clay loam or clay. Clay 35% to 50%. Acidity: slightly acid to slightly alkaline Duripan: 2Bq horizons (29 to 60 in): usually variegated brown clay loam or clay duripan. At top cemented in more than 90% of the matrix with iron and silica; induration drops with depth.	middle Pleistocene, lower Riverbank Formation	low
142	Cometa-Romana sandy loam, slope 1% to 5%. Cometa is 50% of total volume; Romana 30%, Fiddyment 5%, Alamo 5%, Xerofluvent 5%, and San Joaquin 5% soils are also present.	Competa Soil Series: Order- Alfisols; Suborder- Xeralfs; Fine, mixed, thermic Typic Palexeralfs. / Competa soils can have A, AB, Bt, and C horizons.	In general: gently sloping, slightly dissected older stream terraces A horizons (0 to 17 in): dark brown, sandy loam and fine sandy loam; massive; hard, friable; slightly acid Bt horizon (17 to 27 in): reddish to dark reddish, sandy clay, slightly acid C horizon (27 to 60 in): light to dark yellowish brown, sandy loam, neutral acidity	Holocene alluvium	low to medium
		Romana Soil Series: Order- Alfisols; Suborder- Xeralfs; Fine-loamy, mixed, thermic Typic Haploxeralfs. / Romana soils can have Ap, A12, B1, B21t, B22t, B23t, B3, and C1 horizons.	In general: A horizons (0 to 23 in): brown, sandy loam and fine sandy loam, slightly and medium acid A and B horizons: 15% coarse and very coarse sand, 5% to 35% fine rock fragments, <5% rocks >5mm B horizons (23 to 68 in) Bt horizon: reddish brown and yellowish red, sandy clay loam, slightly acid C horizon (68 to 74 in): strong brown, neutral, fine sandy loam, coarser than A and B horizons	Holocene alluvium	low to medium
194	Xerofluvents, frequently flooded.	Xerofluvents Soil Series: Order- Entisols; Suborder- Fluvents; Xerofluvents. / Xerofluvents	River deposits	Holocene alluvium	very low

Map Symbol	Primary soil name and slopes; Other soils; General geomorphology and elevations	Soil Taxonomy/ Basic Description	Diagnostic features	Geology	Potential for buried sites
181	San Joaquin sandy loam, slope 1% to 5%. San Joaquin is 80% of total volume; Cometa 10%, Fiddyment 5%, unnamed 3%, and Alamo 2% soils are also present.	San Joaquin Soil Series: Order- Alfisols; Suborder- Xeralfs; Fine, mixed, thermic Abruptic Durixeralfs. / San Joaquin soils can have Ap, Bt1, Bt2, 2Bt3, 2Bt4, 2Bqm1, 2Bqm2, and 2Bq horizons.	In general: Consists of moderately deep to a duripan. Depth to the duripan ranges from 20 to 40 inches. A horizons (0 to 6 in): brown, to dark brown sandy loam, silt loam, fine sandy loam or loam. Acidity: medium to neutral Bt horizons (6 to 16 in): brown to reddish brown sandy clay loam, loam or silt loam. Acidity: medium to neutral 2Bt horizons (16 to 29 in): brown to dark brown clay loam or clay. Clay 35% to 50%. Acidity: slightly acid to slightly alkaline Duripan: 2Bq horizons (29 to 60 in): usually variegated brown clay loam or clay duripan. At top cemented in more than 90% of the matrix with iron and silica; induration drops with depth.	middle Pleistocene, lower Riverbank Formation	low
	Xerofluvents is 90% of total volume and unnamed 10%	soils can have A, C1, and 2C2 horizons.			
174	Romana sandy loam, slope 1% to 5%. Romana is 80% of total volume; Kilaga 10%, Cometa 5%, Xerofluvents 3%, and unnamed 2% soils are also present.	Romana Soil Series- see above	Romana Soil Series- see above	middle to late Pleistocene, upper Riverbank Formation	low

ETHNOGRAPHY

The Nisenan occupied the APE at the time of European American contact and spoke a Maiduan language (Wilson and Towne 1978:387). The Maiduan family of languages is part of the Penutian stock (Shipley 1978:82–83). Penutian speakers occupied the Central Valley, Central Sierra Nevada, and the San Francisco Bay area at the time of Euro-American contact. The Nisenan occupied the lower Feather River drainage and the drainages of the Yuba, Bear, and American Rivers. The boundary with the Miwok to the south was near the Cosumnes River. The western boundary was the Sacramento River, and the eastern boundary was the crest of the Sierra Nevada (Wilson and Towne 1978:387; Kroeber 1925 [1976]: Plate 37; Figure 5).

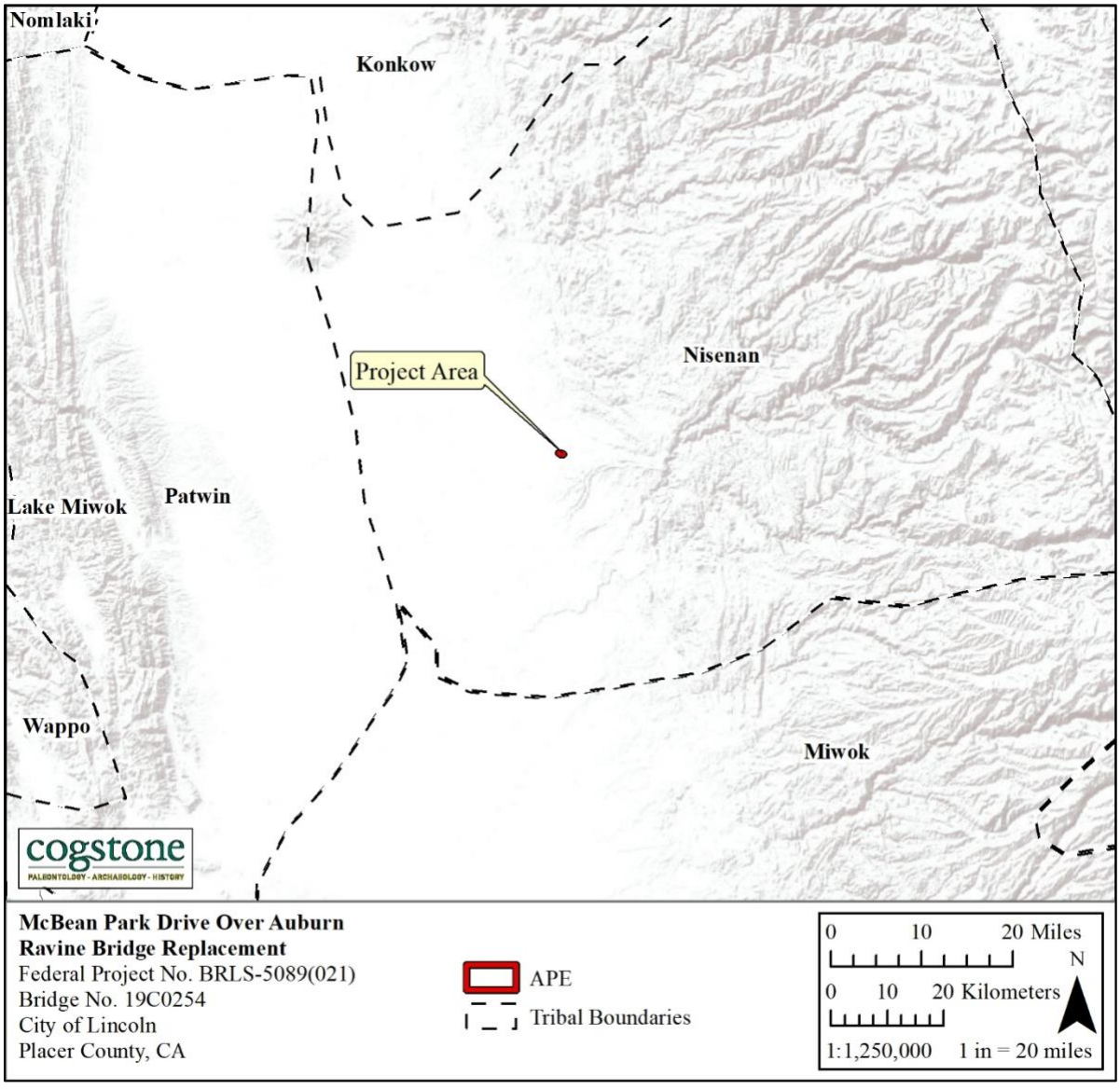


Figure 5. Tribal Boundary Map

In the Valley, principal villages were located on low natural rises along rivers and streams. In the Project vicinity, villages were located along the American River. Most Valley Nisenan villages had bedrock mortars, dance houses, sweathouses, and acorn granaries; many had cemeteries. Deceased Nisenan were cremated and the remains buried in the village cemetery (Wilson and Towne 1978:392). Typical Nisenan communities included a central village with several outlying smaller villages.

Villages in the foothills were located on ridges and on flats along streams. Houses were conical and covered with brush bark and skins. Most villages had bedrock milling stations. Other site types included seasonal camps, quarries, ceremonial grounds, fishing stations, trading sites, and cemeteries (Wilson and Towne 1978:389). Some people lived away from the main village. The dead were cremated along with their property, their houses moved or destroyed, and the cremated bones and ashes buried in the cemetery of their birth village (Wilson and Towne 1978:392).

Subsistence fishing and hunting and collecting plant foods in an area where abundant natural resources varied seasonally, comprised the fundamental economy of the Nisenan (Wilson and Towne 1978:389-390). Like most native Californian groups, the Nisenan relied on the acorn as a staple food, and used a wide variety of tools, implements and enclosures to collect and process food resources. These included bows and arrows, traps, harpoons, hooks, nets, portable stone mortars, bedrock mortars and pestles, various woven tools, and canoes made of tule balsa or logs. The Nisenan also traded with neighboring groups for shell ornaments, money beads, steatite, and obsidian.

Spanish explorers entered Nisenan territory as early as 1808, but there is no record of the forced movement of Nisenan to the missions (Wilson and Towne 1978:396). In the late 1820s, during the Mexican Period, trappers camping in Nisenan territory introduced foreign diseases. The epidemic that swept the Sacramento Valley in 1833 resulted in the demise of approximately 75% of the Valley Nisenan population, wiped out entire villages, and forced the survivors to retreat into the hills (Cook 1955:322).

Coloma, located approximately 20 miles east of the current Project Area, was in the heart of Nisenan territory. Although European American settlers and trappers had also crossed through their territory, Hill Nisenan were not affected until after the start of the Gold Rush. The discovery of gold in 1848 near Coloma at Sutter's Mill had a devastating impact on their lives. With the tens of thousands of gold seekers came the mass introduction and concentration of diseases, the loss of land and territory (including traditional hunting and gathering locales), violence, malnutrition, and starvation (Gunsky 1989). Traditional lands of the Hill Nisenan were overrun by the early 1850s, and Nisenan survivors were then forced to live at the margins of

foothill towns and to work for agricultural, logging, and ranching industries (Wilson and Towne 1978:396).

PREHISTORY

The archaeology of California's Central Valley is divided into five temporal periods (Fredrickson 1973, 1974, 1994; Rosenthal et al. 2007; Table 6). Variation in climate and environment generally coincide with these broad chronological divisions. The transition from the Paleoindian to Lower Archaic periods, for example, corresponds to the drying of Pleistocene pluvial lakes. Within the greater Project region, the cultural framework is also divided into three regionally based "patterns" that mark changes in distinct artifact types, subsistence orientation, and settlement patterns.

The Windmiller, Berkeley, and Augustine patterns generally conform to the Middle Archaic, Upper Archaic, and Emergent temporal divisions, and were defined four decades ago by Fredrickson (1973, 1974). Fredrickson initially identified each pattern at specific archaeological sites in the region; namely, the Windmiller site (CA-SAC-107) near the Cosumnes River in Sacramento County, the West Berkeley site (CA-ALA-307) in Alameda County on the east side of the Bay, and the Augustine site (CA-SAC-127) in the Sacramento–San Joaquin Delta. Each pattern or cultural tradition represents a general expression of resource exploitation that began circa 5,550 cal B.C. during the Middle Archaic Period and lasted until historic contact in the early 1800s.

Table 6. Cultural periods for the Central Valley

Period	Regional Pattern	Dates *
Paleoindian	Not defined	11,500–8,550 cal B.C.
Lower Archaic	Not defined	8,550–5,550 cal B.C.
Middle Archaic	Windmiller	5,550–550 cal B.C.
Upper Archaic	Berkeley	550 cal B.C.–cal A.D. 1100
Emergent Period	Augustine	cal A.D. 1100–Historic Contact

** Timeframes are adjusted for modern calibration curves for radiocarbon dates (cal=calibrated).*

PALEOINDIAN AND LOWER ARCHAIC PERIODS (11,500–5,550 CAL B.C.)

Few archaeological sites that predate 5,000 years ago have been discovered within the region. During the earliest Holocene (approximately 9,050 cal B.C.) through the early middle Holocene (approximately 5,550 cal B.C.), a warming climate melted the glaciers of the Sierra Nevada. This increased the rate of alluvial deposition throughout the central California lowlands (Rosenthal et al. 2007:151). The change in climate and rising sea levels at the start of the middle Holocene also led to the development of the extensive marshland known as the Sacramento–San Joaquin Delta

(Atwater and Belknap 1980). Geoarchaeological studies (e.g., Meyer and Rosenthal 2008; Rosenthal and Meyer 2004a, 2004b; White 2003) have verified that large segments of the late Pleistocene landscape were removed or buried by periodic episodes of deposition or erosion during the middle Holocene. These studies confirm estimates advanced by Moratto (1984:214) that Paleoindian and Lower Archaic sites were buried during the last 5,000 to 6,000 years by deposits of Holocene alluvium, up to ten meters thick, along the lower stretches of the Sacramento River and San Joaquin River drainage systems.

MIDDLE ARCHAIC PERIOD/WINDMILLER PATTERN (5550–550 CAL B.C.)

Middle Archaic Period archaeological sites are more common in the foothills, particularly in buried contexts between circa 4,050 and 2,050 cal B.C. and are relatively scarce on the valley floor (Rosenthal et al. 2007:153). The archaeological record indicates Windmiller Pattern populations followed a seasonal foraging strategy and exploited a wide range of natural resources, including a variety of large and small mammals, fish, waterfowl, and plant resources (Fredrickson 1973; Heizer 1949; Ragir 1972; Moratto 1984). It is also likely that populations occupied higher elevations in the summer and shifted to lower elevations during the winters (Moratto 1984:206), and that residential stability along river corridors within the Central Valley increased during this period (Rosenthal et al. 2007:153).

Faunal remains recovered from Windmiller Pattern sites include tule elk, deer, pronghorn, rabbits, salmon, sturgeon, and smaller fishes. Seeds or acorns apparently formed an important part of the diet during this period (Moratto 1984:201; Rosenthal et al. 2007:153, 155). The remains of acorns and pine nuts have been recovered from foothill sites in Calaveras (CA-CAL-629/630 and CA-CAL-789) and Fresno (CAL-FRE-61) counties, and milling implements found at Windmiller Pattern sites include grinding slabs (metates) and handstones (manos), as well as mortar fragments.

Projectile points, common at Windmiller Pattern sites, are classified within the Sierra Contracting Stem and Houx Contracting Stem series (Justice 2002:266, 276). Spears, angling hooks, composite bone hooks, and baked clay artifacts, that may have been used as net or line sinkers, represent the variety of fishing implements found at sites dating to this period. Other baked clay items include pipes and discoids, as well as cooking "stones." Impressions of twined basketry, bone tools, shell beads, and ground and polished charmstones have also been recovered. A variety of grave goods accompanied burials in cemetery areas, which were separate from habitation areas.

The presence of an established trade network during the Middle Archaic is indicated by a variety of exotic cultural materials, including obsidian tools, quartz crystals, and marine olive snail (*Olivella*) shell beads. Obsidian sources during this period included quarries in the eastern Sierra, Cascades, and North Coast Ranges (Rosenthal et al. 2007:153, 155).

UPPER ARCHAIC PERIOD/BERKELEY PATTERN (550 CAL B.C.–CAL A.D. 1100)

The Windmiller Pattern shifted to a more specialized, adaptive pattern over a 1,000-year period during the Upper Archaic. An increase in mortars and pestles, accompanied by a decrease in slab milling stones and handstones, indicates a shift to a greater reliance on acorns as a dietary staple during the Berkeley Pattern (Fredrickson 1974:125; Moratto 1984:209; Wohlgemuth 2004; Rosenthal et al. 2007:156). Archaeologists generally agree that milling slabs and handstones may have been used primarily for grinding wild grass grains and seeds, while mortars and pestles are better suited to crushing and grinding acorns (Moratto 1984:209–210).

Berkeley Pattern populations continued to exploit a variety of natural resources. Subsistence strategies varied regionally, focusing on seasonally available resources suited for harvesting in bulk, such as salmon, shellfish, deer, rabbits, and acorns (Rosenthal et al. 2007:156). Numerous large shell mounds dating to this period are located near fresh or salt water and indicate exploitation of a variety of aquatic resources was relatively intensive. The artifact assemblage also demonstrates hunting persisted as an important aspect of food procurement (Fredrickson 1973:125-126). Specialized technologies proliferated, producing numerous types of bone tools, *Olivella* shell beads, abalone (*Haliotis*) ornaments, and ceremonial blades, among other cultural items.

The accumulations of cultural debris and habitation features, such as rock-lined ovens, house floors, burials, hearths, and fire-cracked rock, reflect long-term residential occupation (Bouey 1995:348-349). Mortuary practices continued to be dominated by interment, although a few cremations have been discovered from Berkeley Pattern sites. The stratigraphic record at CA-SAC-107 in the eastern delta shows replacement of the Windmiller Pattern by the Berkeley tradition.

The subsistence pattern characteristic of the Berkeley tradition may have developed initially in the San Francisco Bay region, and then spread to the surrounding coastal areas and central California. As suggested by Moratto (1984:207-211), the Berkeley Pattern is likely related to Eastern Miwok population expansion, spreading from the San Francisco Bay area to the Sacramento Valley and Sierra foothills.

EMERGENT PERIOD/AUGUSTINE PATTERN (CAL A.D. 1100–HISTORIC CONTACT)

A growth in population accompanies a substantial increase in the intensity of subsistence exploitation associated with the Augustine Pattern during the Emergent Period (Moratto 1984:211-214; Rosenthal et al. 2007:157-159). Fishing, hunting, and gathering plant foods continue as the foci of subsistence practices, including intensive harvesting of acorns. The Emergent Period is marked by the introduction of the bow and arrow. Small Gunther barbed series projectile points are present early in the period, with Desert-side notched points occurring later in the period (Rosenthal et al. 2007:158). A unique arrow point style (Stockton serrated) also developed during this period.

The Augustine Pattern toolkit also included bone fish hooks, harpoons, and gorge hooks for fishing. Hopper mortars and shaped mortars and pestles, as well as bone awls used for producing coiled baskets, are also common components of the artifact assemblages. Cosumnes Brownware has been recovered from sites in some parts of the lower Sacramento Valley. The appearance of ceramics is likely an outgrowth and direct improvement on the prior baked clay industry, although baked clay balls, which were probably used for cooking in the absence of stone, remain common.

Accompanying the increase in sedentism and population growth during this period is the development of social stratification, including an elaborate ceremonial and social organization. Cultural items associated with ceremonials and rituals include flanged tubular pipes and baked clay effigies representing humans and animals, among others. Clamshell disk beads were used as a form of currency and accompanied the development of extensive exchange networks. Mortuary practices included flexed burials, the cremation of high-status individuals, and pre-interment burning of offerings in grave pits (Fredrickson 1973:127-129; Moratto 1984:211). House floors and other structural remains have been discovered at Augustine Pattern sites in the valley and foothills, including ones in Calaveras and Sacramento counties (CA-CAL-1180/H, CA-SAC-29, CA-SAC-267; Rosenthal et al. 2007:158).

The cultural patterns known from historic period Native American groups in the region are reflected in the subsistence and land use patterns practiced during the Emergent Period, as well as in the increase in sedentism and the development of social stratification typical of the Augustine Pattern (Rosenthal et al. 2007:157-158). According to Moratto (1984:211-214), the Augustine Pattern may represent the southward expansion of Wintu populations. In addition, many of the large villages with house pits that developed along the rivers, major tributaries, and the Delta have been attributed to known ethnographic settlements.

HISTORY

SPANISH PERIOD (1769-1822)

Exploration between 1529 and 1769 of Alta (upper) California by Spanish expeditions was limited. The spring of 1769 marks the true beginning of Spanish settlement with the establishment by the Spanish and Franciscan Order under Gaspar de Portolá of a mission at San Diego, the first of 21 missions to be built along the California coast between 1769 and 1823. In the fall of 1769, Portolá reached San Francisco Bay. Later expeditions by Pedro Fages, in 1772, and Juan Bautista De Anza, in 1776, explored the land east of San Francisco Bay (Gunsky 1989:2-3).

The first expedition into the Sacramento Valley was led by Spanish Lieutenant Gabriel Moraga, in 1808. Scouting for new mission locations and also searching for runaway Native American neophytes from the coastal missions, they traveled south as far as the Merced River and explored

parts of the American, Calaveras, Cosumnes, Feather, Mokelumne, Sacramento, and Stanislaus Rivers to the north. Luis Arguello led the final Spanish expedition into the interior of Alta California in 1817. They traveled up the Sacramento River, past today's City of Sacramento, to the mouth of the Feather River, before returning to the coast (Beck and Haase 1974:18, 20; Gunsky 1989:3-4).

MEXICAN PERIOD (1822-1848)

After Mexico gained independence from Spain in 1822, the Mission lands were secularized under the Secularization Act of 1833. Much of these lands were transferred to political appointees. A series of large land grants, or *ranchos*, which transferred Mission properties to private ownership were awarded by the various governors of California. Land grants were also awarded in the interior, to increase the population of inland areas, which were far more sparsely inhabited during the Spanish Period than settlements along the coast. Captain John Sutter received the two largest land grants in the Sacramento Valley. In 1839, Sutter founded a trading and agricultural empire called *New Helvetia*, which was headquartered at Sutter's Fort, in Nisenan territory, near the divergence of the Sacramento and American Rivers.

The Mexican Period also marks the exploration by American fur trappers west of the Sierra Nevada Mountains. Jedediah Smith was the first trapper to enter California; his small party trapped and explored along the Sierra Nevadas in 1826 and then entered the Sacramento Valley in 1827. They traveled along the American and Cosumnes rivers and camped near the Rosemont section of modern-day Sacramento and Wilton. The explorations by Smith and other trappers resulted in the creation and then circulation of maps of the Sacramento Valley in the 1830s (Gunsky 1989:9-11).

AMERICAN PERIOD (1848-PRESENT)

The Mexican-American War followed on the heels of the Bear Flag Revolt of June 1846 (Ohles 1997). General Andrés Pico and John C. Frémont signed the Articles of Capitulation in December 1847, and with the signing of Treaty of Guadalupe Hidalgo in February 1848, hostilities ended and Mexico relinquished California to the United States. Under the treaty, Mexico ceded the lands of present-day California, New Mexico and Texas to the U.S. for $15 million (Fogelson 1993:10). Within two years following the treaty, California applied for admission as a state.

Gold was discovered in 1848 on the American River, at Sutter's Mill, near Coloma. One year later, nearly 90,000 people had journeyed to the gold fields of California. California became the 31st state in 1850, and three years later the population of the state exceeded 300,000. In 1854, Sacramento became the state capital. Thousands of new settlers and immigrants poured into California, after the transcontinental railroad was completed, in 1869, spurring incredible economic growth. The fertile soils in the vast Central Valley combined with the rise in the number of irrigation canals promoted the state to a national leader in agricultural production.

Nuts, produce including fruits and vegetables, field crops such as barley, cotton, hay, and rice, as well as livestock (cattle and sheep) made up significant segments of local economy.

Placer County was independently incorporated in 1851 from sections of two of California's original counties, Sutter and Yuba. With Sacramento County to the south, Lake Tahoe to the east, and Bear River to the north, most of Placer's earliest settler communities formed during the Gold Rush. Discovery of gold at Coloma in 1848 by James Marshall brought a flood of settlers into the area. The migration of large numbers of mining prospectors transformed the County, making it one of the fastest growing areas in the region (City of Rocklin 2015). The name "Placer" derives from the Spanish word for alluvial or glacial deposits containing gold and refers also to the *placer* mining method in which miners washed away sediments to uncover the heavier gold deposits beneath (Bright 1998).

Hearing about the gold that Marshall discovered, Frenchman Claude Chana set out for Coloma with a party of Native Americans and a few fellow European Americans. On their journey, the party found gold in the Auburn Ravine in May of 1848. Nearly a year later, the area developed into a well-established mining camp called North Fork Dry Diggings. Although the camp had several informal designations, it was officially named Auburn in the late summer of 1849 (Bancroft 1886). Because of Auburn's prime location in the foothills, with easy access to California's ultimate capital of Sacramento, it became a hub for miners to gear up before venturing into the gold country, which would come to be known as the Mother Lode. The roads to Coloma, Placerville, Colfax, Nevada City, Newcastle, and Sacramento, now known as Highway 49, Interstate 80, and Auburn-Folsom Road, all met in Auburn. Auburn became the county seat when Placer County formed, but it was not incorporated as a city until 1888. The same year it became an official stop of the Central Pacific Railroad, and it has since become California Historical Landmark No. 404 (Sommers et. al. 2015:8).

CITY OF LINCOLN HISTORY

The town site of Lincoln was first surveyed by the young railroad engineer Theodore D. Judah, on behalf of the Sacramento Valley Railroad. It was then sold to the railroad president, Charles Lincoln Wilson, who ordered the mapping of the town site. The first 46 lots were sold on November 23, 1859. On October 31, 1861, the arrival of the railroad had a major impact on the upcoming city with immediate boosts to the local population and economy (City of Lincoln 2021).

Following the end of the Civil War, a second economic boost was provided by veterans that moved west seeking farming opportunities. Several fruit packing plants opened in Lincoln in the late 1800s which provided steady employment to the town for over fifty years. Following the discovery of multiple coal mines in 1873, Lincoln's mining industry began providing coal to towns throughout the valley (City of Lincoln 2021).

In 1875, the coal mining activities revealed a large deposit of high-quality clay. This enticed Chicago resident Charles Gladding and his business partners Peter McBean and George Chambers to invest $12,000 into "Gladding, McBean & Co." Since its founding 140 years ago, Gladding, McBean & Co. is now one of the oldest companies in California and remains an active producer of terra cotta, clay pipes, pottery, floor tiles, and roof tiles. The company remains one of Lincoln's leading industries (Downtown Lincoln Association 2020).

The town of Lincoln was incorporated in 1890 and remained relatively quiet until the mid-1990s when it began to experience rapid population growth with the expansion of suburbs from Sacramento (Downtown Lincoln Association 2020).

APE HISTORY

Based on the earliest known USGS topographic map of the APE in 1891 (*Sacramento*; 1:125,000), the APE is largely undeveloped with only 4th Street (now McBean Park Drive) present. An unnamed road (possibly Leavell Lane) connects to the eastern terminus of 4th Street (McBean Park Drive) and travels northeast. The Auburn Ravine is depicted in its current configuration with a secondary stream. There were no observable changes within the APE until 1910 (*Lincoln*; 1:31680), with the construction of 1-2 structures adjacent to the north side of 4th Street. By 1942 (*Markham Ravine*; 1:62,5000), one building is present within what is now 110 McBean Park Drive. East Avenue and A Street are present in their current configurations. Lincoln Newcastle Highway is also present; however, it is not in its current configuration which occurs by 1953 (*Lincoln*; 1:24,000). Also by 1953, three buildings/structures are depicted within 110 McBean Park Drive. There are no observable changes depicted in available USGS Topographic maps within the APE from 1953 until present.

Based on the earliest known USDA historic aerial of the APE in 1952, the linear built environment within the boundaries of the APE included Lincoln Newcastle Highway, McBean Park Drive/4th Street, East Avenue, the turn off for Leavell Lane, and bridge over Auburn Ravine (Frame Finder 1952). All appear in their current configuration. There appears to be a structure within the APE located within APN 008-320-014. The APE also overlaps into APN 008-320-009 where a single-family property and two commercial warehouses are located. There are no notable changes within the APE by 1961 (Frame Finder 1961) except for the removal of all built structures within APN 008-320-014; only two medium sized trees remain, which are located within the APE. There is no observable change within the APE until sometime between 1998 and 2005, with the construction of Ferrari Ranch Road. Also, in 2005, the portion of APN 008-320-014 that overlaps the APE boundary was paved with asphalt and used as a parking area.

In the earliest known Sanborn Fire Insurance Map (Sanborn 1899), a section of East Avenue within the APE, East 4th Street (now McBean Park Avenue) and the parcels at what is now 110 McBean Park Avenue (APNs 008-320-009 and -014) are visible. Approximately five buildings are present within APNs 008-320-009 and -014 including two dwellings, one stable, and two

ancillary buildings. The area south of East 4th (McBean Park Avenue) and 110 McBean Park Avenue is labeled as "Vacant Beyond." In a 1910 Sanborn map (Sanborn 1910), a rectangular one-story cabin appears adjacent to East 4th Street. One small ancillary building is present at the north/center of APN 008-320-009 and another is located at the northeast corner of APN 008-320-014. A bridge is labeled at the location of the current Auburn Ravine Bridge. In 1928 (Sanborn 1928 - updated 1931), the stable has been removed and the dwelling at the southwest corner of APN 008-320-009 is labeled as "Damage by Fire." The bridge is now relabeled as "Conc. Bridge."

The area west of Auburn Ravine has potential for subsurface historic archaeological deposits relating to the demolished buildings and structures depicted on the Sanborn Fire Insurance Maps. However, these areas within the APE have been previously disturbed by modern development including the current road configuration, building construction, and excavation for utilities.

FIELD METHODS

The cultural resources survey stage is important in a Project's environmental assessment phase to identify if resources are present and if so, verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to other areas of cultural resources sensitivity. Alison Bryson-Deveraux, Cogstone Archaeologist, completed an intensive-level pedestrian survey of the 11.6-acre APE on April 17 and 18, 2021. The survey consisted of walking parallel transects, spaced at no greater than 15-meter intervals, where accessible, within the APE while closely inspecting the ground surface (Figure 6). Existing disturbances (e.g., rodent burrows, ditches) were examined for artifacts or buried cultural deposits.

Most of the APE including McBean Park Drive (SR 193), East Avenue, and Ferrari Ranch Road is completely hardscaped; thus, visibility within the paved roadways was negligible (see Figures 6 and 7). Hardscaped areas that were not intensively surveyed make up a total of 5.52 acres. The remaining 6.08 acres were intensively surveyed.

Ground surface visibility within the 6.08 acres surveyed was poor (20-30 percent) and consisted mainly of the areas along the pedestrian walkway parallel to Auburn Ravine and in areas under active construction along McBean Park Drive (SR 193). The APE is heavily developed with paved multiple-lane roads, sidewalks, berms, and pedestrian walkways (Figure 7). Visible native soil was minimal, with most areas containing imported gravels from previous road construction (Figure 8). The southern side of McBean Park Drive (SR 193) was recently graded and sloped to the south bordering a housing development and showed signs of heavy machinery alteration to the natural topography (Figure 9). Due to the proximity to a major thoroughfare, modern trash

debris was noted throughout the survey. The pedestrian walkway parallel to Auburn Ravine was the most undeveloped location within the APE, displaying some areas of native soils and topography. Vegetation was extremely dense, and visibility limited except in areas of boot scrapes and bioturbation (Figure 10).

No prehistoric or historic archaeological resources were observed during survey.

Figure 6. Survey Coverage Map

Figure 7. Overview of McBean Park Drive from the corner of 'A" Street, view southeast

Figure 8. McBean Park Drive at Ferrari Ranch Road, view southwest

Figure 9. McBean Park Drive east of Ferrari Ranch Road, view southeast

Figure 10. Pedestrian walkway parallel to Auburn Ravine, view southwest

STUDY FINDINGS AND CONCLUSIONS

Identification efforts for the McBean Park Over Auburn Ravine Bridge Project included a review of existing literature and historic maps, review of a record search conducted at the NCIC, and an intensive pedestrian survey. Cogstone supported the City of Lincoln and Caltrans District 3 in conducting the Native American consultations for Section 106 and AB 52. No prehistoric or historic archaeological resources have been previously recorded or were observed within the APE during the pedestrian survey.

Bridge 19C0254 is located within the APE. It has been evaluated by Caltrans and determined not eligible for listing in the NRHP.

UNIDENTIFIED CULTURAL MATERIALS

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if Project limits are extended beyond the present survey limits.

REFERENCES CITED

Atwater, B. F., and D. F. Belknap
1980 Tidal–Wetland Deposits of the Sacramento–San Joaquin Delta, California. In *Quaternary Depositional Environments of the Pacific Coast*. Pacific Coast Paleogeography Symposium 4, edited by M. E. Field, R. G. Douglas, A. H. Bouma, J. C. Ingle, and I. P. Colburn, pp. 89-103. The Pacific Section of the Society of Economic Paleontologists and Mineralogists, Los Angeles.

Bancroft, H. H.
1886 *History of California, Volume V (1846-1848)*. The Works of Hubert Howe Bancroft, XXII. San Francisco: The History Company, Publishers.

Beck, W. A., and Ynez D. Haase
1974 Historical Atlas of California. In *University of Oklahoma Press*.

Bouey, P. D.
1995 *Final Report on the Archaeological Analysis of CA-SAC-43, Cultural Resources Mitigation for the Sacramento Urban Area Levee Reconstruction Project, Sacramento County, California*. Prepared by Far Western Anthropological Research Group, Davis, California. On file, North Central Information Center.

Bright, W.
1998 1500 California Place Names: Their Origin and Meaning, A Revised Version of 1000 California Place Names by Erwin G. Gudde, Third Edition. University of California Press, Berkeley.

City of Lincoln, California
2021 "About Lincoln: History." http://www.lincolnca.gov/about-lincoln/history, accessed April 6, 2021.

City of Rocklin
2015 History of Rocklin. https://www.rocklin.ca.us/about/history/, accessed February 2018.

Cook, S.A.
1955 The Epidemic of 1830–1833 in California and Oregon. *University of California Publications in American Archaeology and Ethnology* 43(3):303–326. Berkeley.

Downtown Lincoln Association
2020 "Discover The Charm": A Brief History of Lincoln California. https://www.downtownlincolnca.com/whistoric-downtown, accessed April 6, 2021.

Fogelson, R. M.
1993 The Fragmented Metropolis: Los Angeles, 185930. University of California Press, Berkeley.

Fredrickson, D. A.
1973 Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.
1974 Cultural Diversity in Early California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41–53.
1994 Archaeological Taxonomy in Central California Reconsidered. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson*, edited by R. E. Hughes, pp.93–103. Contributions of the University of California Archaeological Research Facility, No. 52, Berkeley.

Gunsky, F. R.
1989 *Pathfinders of the Sacramento Region: They Were There Before Sutter*. Sacramento County Historical Society.

Hackel, O.
1966 Summary of the geology of the Great Valley, in Bailey, E. H., ed., Geology of northern California, California Division of Mines and Geology Bulletin 190: 217-238.

Heizer, R. F.
1949 The Archaeology of Central California, I: The Early Horizon. *University of California Anthropological Records* 12(1):1–83. Berkeley.

Helly, E. J.
1979 Preliminary geologic map of Cenozoic deposits of the Lincoln Quadrangle, California. United States Geological Survey Open File Report 79-583.

Helly, E. J. and D. S. Harwood
1985 Geologic map of the late Cenozoic deposits of the Sacramento Valley and northern Sierran Foothills, California. United States Geological Survey Miscellaneous Field Investigations map MF-1790.

Justice, N. D.
2002 *Stone Age Spear and Arrow Points of California and the Great Basin*. Indiana University Press, Bloomington.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bulletin 78, Bureau of American Ethnology, Smithsonian Institution. Government Printing Office, Washington, D.C. Reprinted 1976 by Dover Publications, Inc., New York.

Marchand, D. E. and A. Allwardt
1981 Late Cenozoic stratigraphic units, northeastern San Joaquin Valley, California. United States Geological Survey Bulletin 1470, 70 p.

Meyer, Jack, and Jeffrey S. Rosenthal
2008 *A Geoarchaeological Overview and Assessment of Caltrans District 3: Cultural Resources Inventory of Caltrans District 3 Rural Conventional Highways*. Report prepared by Far Western Anthropological Research Group, Davis, California, for California Department of Transportation, District 3, Marysville, CA.

Moratto, M. J.
1984 *California Archaeology*. Academic Press, San Diego.

Ohles, W. V.
1997 *Mission San Miguel Property and Padres*. Word Dancer Press, Sanger, California.

Poland, J. F. and Evenson, R. E.
1966 Hydrogeology and land subsidence, Great Central Valley, California, in Bailey, E. H., ed., Geology of northern California, *California Division of Mines and Geology Bulletin* 190: 239-247.

Ragir, S.
1972 *The Early Horizon in Central California Prehistory.* Contributions of the University of California Archaeological Research Facility No. 15. University of California, Berkeley.

Rosenthal, J. S., and J. Meyer
2004a *Landscape Evolution and the Archaeological Record: A Geoarchaeological Study of the Southern Santa Clara Valley and Surrounding Region*. Center for Archaeological Research at Davis Publication No. 14. University of California, Davis.
2004b Cultural Resources Inventory of Caltrans District 10, Rural Conventional Highways. In *Geoarchaeological Study, Vol. 3., Landscape Evolution and the Archaeological Record of Central California*. Report prepared by Far Western Anthropological Research Group, Davis, California. On file, North Central Information Center.

Rosenthal, J. S., G. G. White, and M. Q. Sutton
2007 The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 147–163. AltaMira Press, Lanham, Maryland.

Shipley, William F.
1978 Native languages of California. In *Handbook of North American Indians Volume 8: California*, edited by R. F. Heizer, pp. 80–90. Smithsonian Institution Press, Washington, D.C.

Sommers, A., J. Knox, and A. McDonnald-Loomis
2015 *Early Auburn (Images of America)*. Arcadia Publishing, Charleston, North Carolina.

United States Department of Agriculture National Resources Conservation Service (USDA-NRCS) Official Soil Series Descriptions. Accessed May 2021 https://soilseries.sc.egov.usda.gov/osdname.aspx

University of California Davis National Resources Conservation Service California Soils Resource Lab (UCD SoilWeb). Accessed May 2021 http://casoilresource.lawr.ucdavis.edu/soilweb-apps/

White, G. G.
2003 *Testing and Mitigation at Four Sites on Level (3) Long Haul Fibre Optic Alignment, Colusa County, California*. Report prepared for Kiewit Pacific, Concord. Archaeological Research Program, California State University, Chico.

Wilson, N. L. and A. H. Towne
1978 Nisenan. In *Handbook of North American Indians Volume 8: California*, edited by Robert F. Heizer, pp. 387–397. Smithsonian Institution Press, Washington, D.C.

Wohlgemuth, Eric
2004 *The Course of Plant Food Intensification in Native Central California*. Ph.D. dissertation, Department of Anthropology, University of California, Davis.

APPENDIX A. QUALIFICATIONS

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MOLLY VALASIK
Principal Archaeologist

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio
2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

SUMMARY OF QUALIFICATIONS

Ms. Valasik is a Registered Professional Archaeologist (RPA) with 12 years of experience. She is a skilled professional who is well-versed in the compliance procedures of CEQA and Section 106 of the NHPA and regularly prepares cultural resources assessment reports for a variety of federal, state, and local agencies throughout California. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. She is accepted as a principal investigator for prehistoric archaeology by the State Office of Historic Preservation. Ms. Valasik is a member of the Society for California Archaeology.

SELECTED EXPERIENCE

State Route 108/Highway 49 and Mackey Ranch Road Intersection Improvements Project, Caltrans District 10, Tuolumne County, CA. The Chicken Ranch Rancheria of Me-Wuk Indians of California, in partnership with Caltrans, proposed to replace an intersection and convert to a roundabout designed to accommodate forecasted future traffic volumes and provide an alternative access route to the Chicken Ranch Rancheria. Cogstone completed an intensive-level pedestrian survey, CHRIS records search, sacred lands file search from the NAHC, Native American consultation, consulted with local history societies and preservation groups, and produced a Historical Resources Compliance Report (HRCR) and Archaeological Survey Report (ASR). Sub to Foothill Associates. Principal Investigator for Archaeology. 2019-2020

Faith Home/Garner Road Connection Project, Caltrans District 10, Stanislaus County, CA. Cogstone identified and evaluated cultural, paleontological, and historic resources present in or adjacent to the construction of a four-lane one-mile expressway. Cogstone produced an ASR, Historic Properties Survey Report (HPSR), Historic Resources Evaluation Report (HRER), and Paleontological Identification and Evaluation Report (PIR-PER). Services included intensive level pedestrian surveys, mapping, records searches, DPR forms, and Native American consultation. Sub to Environmental Intelligence. Principal Investigator for Archaeology. 2017-2020

Old Town Streetscape, Phase 2, Caltrans District 3, Elk Grove, Sacramento County, CA. For this local assistance project on behalf of the City of Elk Grove, the project involved producing ASR/HRER/HPSR technical reports for Section 106 of the NHPA compliance. The City proposed construction of bump-outs, sidewalk widening, bus lanes, etc. within a National Register-listed historic district. Managed record search, Sacred Lands File search, Native American consultations, intensive-level pedestrian archaeological and architectural surveys, as well as coordination and approval by District 3 of an APE map. The HRER included DPR series 523 forms for the update of the National Register of Historic Places (NRHP) listed Old Town Elk Grove Historic District. Sub to Michael Baker/PMC. Principal Investigator for Archaeology. 2017

Enterprise Canal/State Route 168 Pedestrian Bridge Project, Caltrans District 6, Clovis, Fresno County, CA. For this local assistance project on behalf of the City of Clovis, the project involved producing ASR/HPSR technical reports for Section 106 of the NHPA compliance. The City proposed construction of a pedestrian bridge over State Route 168 to provide direct access to the Clovis Community Hospital Complex. Managed record search, Sacred Lands File search, Native American consultations, intensive-level pedestrian archaeological survey, as well as coordination and approval by District 6 of an APE map. Principal Investigator for Archaeology. 2017

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

ALISON BRYSON-DEVERAUX
Principal Investigator for Archaeology

EDUCATION

2017 M.A., Historic Preservation, Prescott College
2007 B.A., Anthropology, University of California, Santa Barbara

TRAINING AND CERTIFICATIONS

2020 40-Hour HAZWOPPER Certification
2004 Overhead Powerline Safety (OPL) Certification

SUMMARY OF QUALIFICATIONS

Ms. Bryson-Deveraux is an archaeologist with over 17 years of experience throughout the state of California. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and her field expertise includes pedestrian surveys, excavation, site compilation, and mitigation monitoring. Bryson-Deveraux has lead a variety of projects at Cogstone in the water, development, and public works sectors. Prior to her role as Principal Investigator at Cogstone, Bryson-Deveraus served as Lead Archaeologist for seven years on local oil field remediation projects which included repatriation. Bryson-Deveraux specializes in the prehistory and history of the Central Coast of California. She is a member of both the Society for California Archaeology and the Society for American Archaeology.

SELECTED EXPERIENCE

Morro Bay Water Facility, City of Morro Bay, San Luis Obispo County, CA. The City of Morro Bay has proposed to construct a new water reclamation facility. Federal funding for the project required compliance with Section 106 of the National Historic Preservation Act (NHPA), along with the California Environmental Quality Act (CEQA). The US Environmental Protection Agency (EPA) acted as federal lead and the City acted as state lead agency, with permitting by the California Coastal Commission (CCC), California Department of Transportation (Caltrans), and the State Water Resources Control Board. For Phase I of the Project, Cogstone conducted Worker Environmental Awareness Program (WEAP) trainings for all construction personnel, cultural and paleontological resources monitoring, and completed a Cultural Resources Monitoring Compliance Report upon completion of construction. Cogstone is currently providing additional monitoring for Phase II of the Project. In addition, Cogstone is coordinating Native American monitoring with five Tribes. Sub to Filanc Black & Veatch Joint Venture. Lead Archaeologist; Principal Investigator for Archaeology. 2020-2021 (Phase I); 2021-*ongoing* (Phase II)

Bridge 40C0028 on Oak Grove Road Project, Caltrans District 10, Mariposa County, CA. Cogstone identified and evaluated the potential impact to cultural resources for the proposed replacement of an existing timber bridge with a standard wider bridge. Cogstone produced an Archaeological Survey Report (ASR). Services included intensive pedestrian survey, records search, background research, Sacred Lands File search request from the Native American Heritage Commission (NAHC), and reporting. Sub to QK, Inc. Archaeologist & DPR Author. 2020-2021

Jack Ranch San Luis Obispo Agricultural Cluster Project, City of San Luis Obispo, San Luis Obispo County, CA. Cogstone prepared a cultural and paleontological assessment to propose effective mitigation of potential adverse impacts to paleontological resources resulting from a proposed subdivision of a 299-acre property into13 residential lots as well as a Conditional Use Permit to allow for a Major Agricultural Cluster project. Cogstone provided archaeological and paleontological monitoring and submitted a Cultural and Paleontological Resources Monitoring Compliance Report upon completion. Sub to Jack Ranch SLO, LLC. Supervisor. 2020

Chevron Guadalupe Remediation Project, San Luis Obispo County, CA. The project intended to remediate impacts of past oil field operations and restoring habitat within the Guadalupe-Nipomo Dunes Complex, a National Natural Landmark. Gibson and Associates (2008-2012) and Applied Earthworks (2019) conducted archaeological monitoring during large-scale construction activities, as well as all associated surveys, excavation, curation, repatriation, site recordation, and report compilation. Lead Archaeologist. 2008-2012; 2019

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

KIM SCOTT
Geoarchaeologist

EDUCATION

2013 M.S., Biology with paleontology emphasis, California State University San Bernardino
2000 B.S., Geology with paleontology emphasis, University of California, Los Angeles

TRAINING AND CERTIFICATIONS

2015 Trained and certified in geomorphology techniques, National Park Service, National Center for Preservation Technology and Training
2015 Certified 40-hour OSHA HAZWOPER

SUMMARY OF QUALIFICATIONS

Scott has more than 20 years of experience in California paleontology and sedimentary geology. She has extensive paleontology experience in the field and lab in surveying, monitoring, fossil salvage, taphonomy, locality mapping, fossil preparation, and report writing. She is experienced in preparing stratigraphic sections, determining paleoenvironment, and analyzing soils and geological maps for buried site potential. Scott has managed multiple projects and prepared technical reports with Caltrans/FHWA/FTA/FRA as the lead agency and is knowledgeable of the processes and procedures required to obtain NEPA and CEQA environmental approvals. Scott serves as company safety officer and is the author of the company safety and paleontology manuals.

SELECTED EXPERIENCE

Faith Home/Garner Road Connection Project, Caltrans District 10, Stanislaus County, CA. Cogstone identified and evaluated cultural, paleontological, and historic resources present in or adjacent to the construction of a four-lane one-mile expressway. Cogstone produced an Archaeological Survey Report (ASR), Historic Properties Survey Report (HPSR), Historic Resources Evaluation Report (HRER), and Paleontological Identification and Evaluation Report (PIR-PER). Services included intensive level pedestrian surveys, mapping, records searches, DPR forms, and Native American consultation. Sub to Environmental Intelligence. Principal Investigator for Paleontology and Geoarchaeologist. 2017-2020

State Route 57, Orangewood to Katella, Caltrans District 12, Cities of Orange and Anaheim, Orange County, CA. California Department of Transportation District 12, with assistance from cities of Anaheim and Orange, proposed to widen and restripe portions of the northbound side of the freeway from the Orangewood Avenue to Katella Avenue. Cogstone performed the survey, prepared a combined Paleontological Identification Report and Paleontological Evaluation Report, an Archaeological Survey Report with geoarchaeological section, and a Historical Property Survey Report. Sub to Michael Baker International. Principal Investigator for Paleontology and Geoarchaeologist. 2018

Interstate 605 and Katella, Caltrans District 12, City of Los Alamitos, Orange County, CA. The Orange County Transportation Authority with the California Department of Transportation District 12 and the City of Los Alamitos, proposed to update the I-605 and Katella Avenue interchange. Cogstone performed the survey, prepared a combined Paleontological Identification Report and Paleontological Evaluation Report, an Archaeological Survey Report with a geoarchaeological section on the potential for buried sites, a Historical Property Survey Report, and a Historical Resources Evaluation Report. Sub to WSP USA, Inc. Principal Investigator for Paleontology and Geoarchaeologist. 2018

State Route 138 and Avenue G interchange, Caltrans District 7, unincorporated Los Angeles County, CA. The City of Lancaster, in conjunction with the California Department of Transportation District 7, proposed to improve the existing interchange of State Route 138 and Avenue G interchange in addition to widening of Avenue G to the east and west of the existing interchange. Cogstone performed the survey, prepared a combined Paleontological Identification Report and Paleontological Evaluation Report, an Archaeological Survey Report with geoarchaeological section, and a Historical Resources Compliance Report. Sub to Michael Baker International. Principal Investigator for Paleontology and Geoarchaeologist. 2017

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

HOLLY DUKE
Author

EDUCATION

2009 B.A., Archaeology/History, Simon Fraser University, Canada

SUMMARY OF QUALIFICATIONS

Ms. Duke is a qualified archaeologist and cross-trained paleontologist with over eight years of experience in pedestrian survey, monitoring, excavation and burial recovery, as well as the identification of human and faunal skeletal remains. She is proficient in the preparation of cultural resources assessment reports for a variety of federal, state, and local agencies throughout California and the eastern United States. Ms. Duke is responsible for the organization of field data, supervision, as well as identifying and cataloging prehistoric and historic artifacts. She also has experience with preparing artifact collections for curation at a variety of different repositories throughout California and the eastern United States.

SELECTED EXPERIENCE

Morro Bay Water Facility, City of Morro Bay, San Luis Obispo County, CA. The City of Morro Bay has proposed to construct a new water reclamation facility. Federal funding for the project required compliance with Section 106 of the National Historic Preservation Act (NHPA), along with the California Environmental Quality Act (CEQA). The US Environmental Protection Agency (EPA) acted as federal lead and the City acted as state lead agency, with permitting by the California Coastal Commission (CCC), California Department of Transportation (Caltrans), and the State Water Resources Control Board. Cogstone conducted Worker Environmental Awareness Program (WEAP) trainings for all construction personnel, cultural and paleontological resources monitoring, and completed a Cultural Resources Monitoring Compliance Report upon completion of construction. Sub to Filanc Black & Veatch Joint Venture. Supervisor. 2020-2021

State Route 108/Highway 49 and Mackey Ranch Road Intersection Improvements Project, Caltrans District 10, Tuolumne County, CA. The Chicken Ranch Rancheria of Me-Wuk Indians of California (Tribe), in partnership with the California Department of Transportation (Caltrans), proposed to replace an intersection and convert to a roundabout designed to accommodate forecasted future traffic volumes and provide an alternative access route to the Chicken Ranch Rancheria. Cogstone completed an intensive-level pedestrian survey, CHRIS records search, sacred lands file search from the NAHC, Native American consultation, consulted with local history societies and preservation groups, and produced a Historical Resources Compliance Report (HRCR) and Archaeological Survey Report (ASR). Sub to Foothill Associates. Archaeologist. 2019-2020

Interstate 605/Katella Avenue Interchange Improvements Project, Caltrans District 12, Orange County, CA. Cogstone prepared a Historic Property Survey Report (HPSR), Historical Resources Evaluation Report (HRER), Archaeological Survey Report (ASR), and Extended Phase I (XPI) for Section 106 of the NHPA compliance. The project involved modifications to the interchange ramps and Katella Avenue. Managed record search, Sacred Lands File search, Native American consultations, intensive-level pedestrian archaeological and architectural surveys, subsurface testing, as well as coordination and approval by District 12 of an APE map. Sub to Michael Baker. Archaeologist. 2018

State Route 57 Northbound Improvement Project, Caltrans District 12, Orange County, CA. For this project on behalf of OCTA and Caltrans an Archaeological Survey Report (ASR) and Historic Property Survey Report (HPSR) technical reports were prepared for Section 106 of the NHPA compliance. Managed record search, Sacred Lands File search, extended Native American consultations, pedestrian archaeological survey, as well as coordination and approval by District 12 of an Area of Potential Effects (APE) map. Sub to WSP. Archaeologist. 2018

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

LOGAN FREEBERG
GIS Supervisor

EDUCATION

2018 Geographic Information Systems (GIS) Certificate, California State University, Fullerton
2003 B.A., Anthropology, University of California, Santa Barbara

SUMMARY OF QUALIFICATIONS

Mr. Freeberg has over 18 years of experience in cultural resource management and has extensive experience in field surveying, data recovery, monitoring, and excavation of archaeological and paleontological resources associated with land development projects in the private and public sectors. He has conducted all phases of archaeological work, including fieldwork, laboratory analysis, research, and reporting. Mr. Freeberg also has a strong grounding in conventional field and laboratory methods and is skilled in the use of ArcGIS.

SELECTED EXPERIENCE

New Cuyama Dump Sites 1, 2, and 3, BLM Bakersfield Office, Santa Barbara County, CA. The Project involved identifying archaeological and historical resources present within three illegal dump sites on BLM land. This study included an assessment of the historic potential of dump refuse and NRHP eligibility recommendations for debris demonstrating affirmative evidence for an age of greater than 45 years. A Class III Cultural Resources survey was conducted and included an intensive-level pedestrian survey of the APE and a total of three historic trash scatters were identified during the survey and a total of four historic isolates were identified. These resources were recorded on Department of Parks and Recreation 523 (DPR 523) forms. No archaeological sites or isolates were identified. No artifacts were collected. The deliverables were accepted by the BLM without revisions. Archaeologist & GIS Supervisor. 2020-2021

Bridge 40C0028 on Oak Grove Road Project, Caltrans District 10, Mariposa County, CA. Cogstone identified and evaluated the potential impact to cultural resources for the proposed replacement of an existing timber bridge with a standard wider bridge. Cogstone produced an Archaeological Survey Report (ASR). Services included intensive pedestrian survey, records search, background research, Sacred Lands File search request from the Native American Heritage Commission (NAHC), and reporting. Sub to QK, Inc. GIS Supervisor 2020-2021

State Route 108/Highway 49 and Mackey Ranch Road Intersection Improvements Project, Caltrans District 10, Tuolumne County, CA. The Chicken Ranch Rancheria of Me-Wuk Indians of California (Tribe), in partnership with the California Department of Transportation (Caltrans), proposed to replace an intersection and convert to a roundabout designed to accommodate forecasted future traffic volumes and provide an alternative access route to the Chicken Ranch Rancheria. Cogstone completed an intensive-level pedestrian survey, CHRIS records search, sacred lands file search from the NAHC, Native American consultation, consulted with local history societies and preservation groups, and produced a Historical Resources Compliance Report (HRCR) and Archaeological Survey Report (ASR). Sub to Foothill Associates. GIS Supervisor. 2019-2020

Laguna Creek Trail and Bruceville Road Project, Caltrans District 3, City of Elk Grove, Sacramento County, CA. The City of Elk Grove, in cooperation with Caltrans, proposed multiple trail extensions and gap closures in effort to provide connecting links that would ultimately provide trail users with access to a vast system of trails, with connections to parks, schools, community centers, commercial retail and office areas, and transit facilities. Cogstone conducted pedestrian surveys, records search, and prepared an Archaeological Survey Report (ASR) and a Historic Property Survey Report (HPSR). Sub to Helix Environmental. GIS Supervisor. 2019-2020

Faith Home/Garner Road Connection Project, Caltrans District 10, Stanislaus County, CA. Cogstone identified and evaluated cultural, paleontological, and historic resources present in or adjacent to the construction of a four-lane one-mile expressway. Cogstone produced an Archaeological Survey Report (ASR), Historic Properties Survey Report (HPSR), Historic Resources Evaluation Report (HRER), and Paleontological Identification and Evaluation Report (PIR-PER). Services included intensive level pedestrian surveys, mapping, records searches, DPR forms, and Native American consultation. Sub to Environmental Intelligence. GIS Supervisor. 2019-2020

APPENDIX B. NATIVE AMERICAN CONSULTATIONS

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: McBean Park Drive Over Auburn Ravine Bridge Replacement

County: Placer County

USGS Quadrangle Name: Lincoln 7.5'

Township: 12N **Range:** 6E **Section(s):** 14 and 15

Company/Firm/Agency: Cogstone Resource Management

Street Address: 1518 W. Taft Ave.

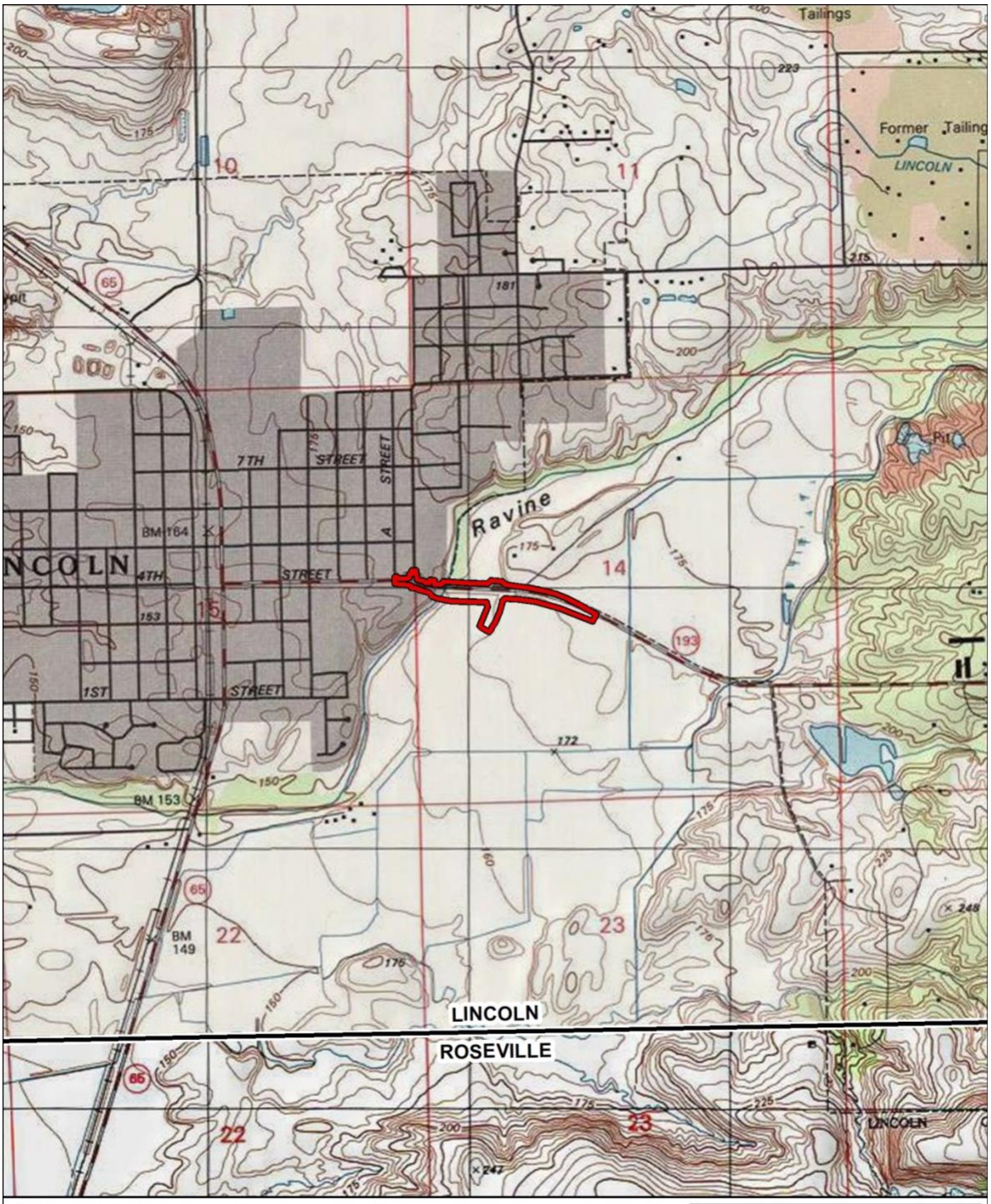
City: Orange **Zip:** 92865

Phone: 714-974-8300

Fax: 714-974-8303

Email: cogstoneconsult@cogstone.com

Project Description:
The City of Lincoln will replace the bridge on McBean Parkway (formerly State Route 193) over the Auburn Ravine.



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE
USGS Quad

USGS 7.5' Quads:
LINCOLN
ROSEVILLE

0 0.25 0.5 Miles
N
0 0.25 0.5 Kilometers
1:24,000 1 in = 2,000 ft

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

May 15, 2021

Logan Freeberg

Cogstone Resource Management

Via Email to: cogstoneconsult@cogstone.com

Re: McBean Park Drive Over Auburn Ravine Bridge Replacement, Placer County

Dear Mr. Freeberg:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Placer County
5/15/2021

Tsi Akim Maidu
Grayson Coney, Cultural Director
P.O. Box 510 Maidu
Browns Valley, CA, 95918
Phone: (530) 383 - 7234
tsi-akim-maidu@att.net

United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
10720 Indian Hill Road Maidu
Auburn, CA, 95603 Miwok
Phone: (530) 883 - 2390
Fax: (530) 883-2380
bguth@auburnrancheria.com

Wilton Rancheria
Steven Hutchason, THPO
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 863-6015
shutchason@wiltonrancheria-nsn.gov

Wilton Rancheria
Dahlton Brown, Director of Administration
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
dbrown@wiltonrancheria-nsn.gov

Wilton Rancheria
Jesus Tarango, Chairperson
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 683-6015
jtarango@wiltonrancheria-nsn.gov

Colfax-Todds Valley Consolidated Tribe
Clyde Prout, Chairperson
P.O. Box 4884 none Maidu
Auburn, CA, 95604 Miwok
Phone: (530) 577 - 3558
miwokmaidu@yahoo.com

Colfax-Todds Valley Consolidated Tribe
Pamela Cubbler, Treasurer
P.O. Box 4884 Maidu
Auburn, CA, 95604 Miwok
Phone: (530) 320 - 3943
pcubbler@colfaxrancheria.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed McBean Park Drive Over Auburn Ravine Bridge Replacement, Placer County.

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Dahlton Brown
Wilton Rancheria
Director of Administration
9728 Kent Street
Elk Grove, CA, 95624

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Director Brown,

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

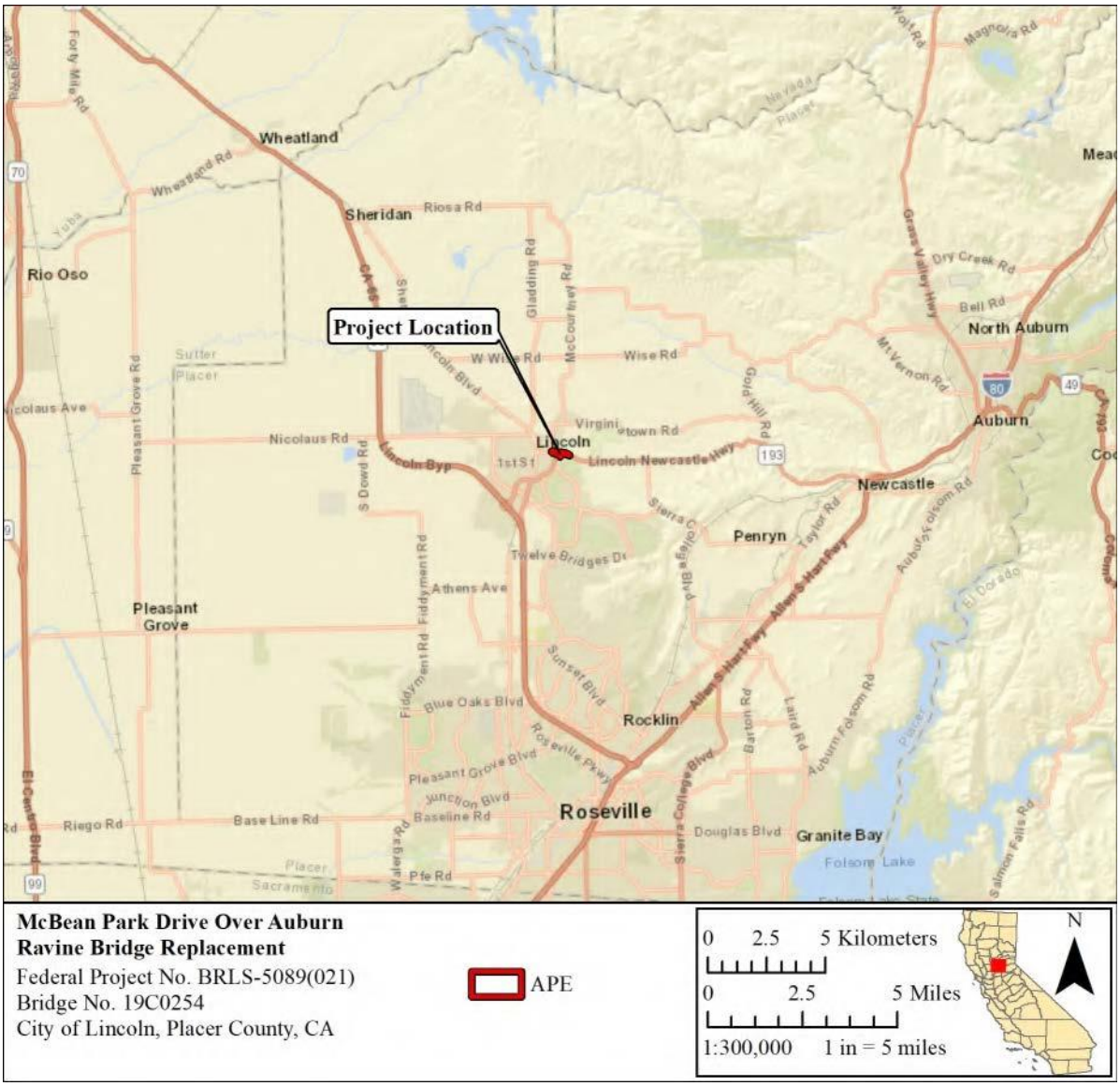
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 2.5 5 Kilometers
0 2.5 5 Miles
1:300,000 1 in = 5 miles
N

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Grayson Coney
Tsi Akim Maidu
Cultural Director
P.O. Box 510
Browns Valley, CA, 95918

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Director Coney

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

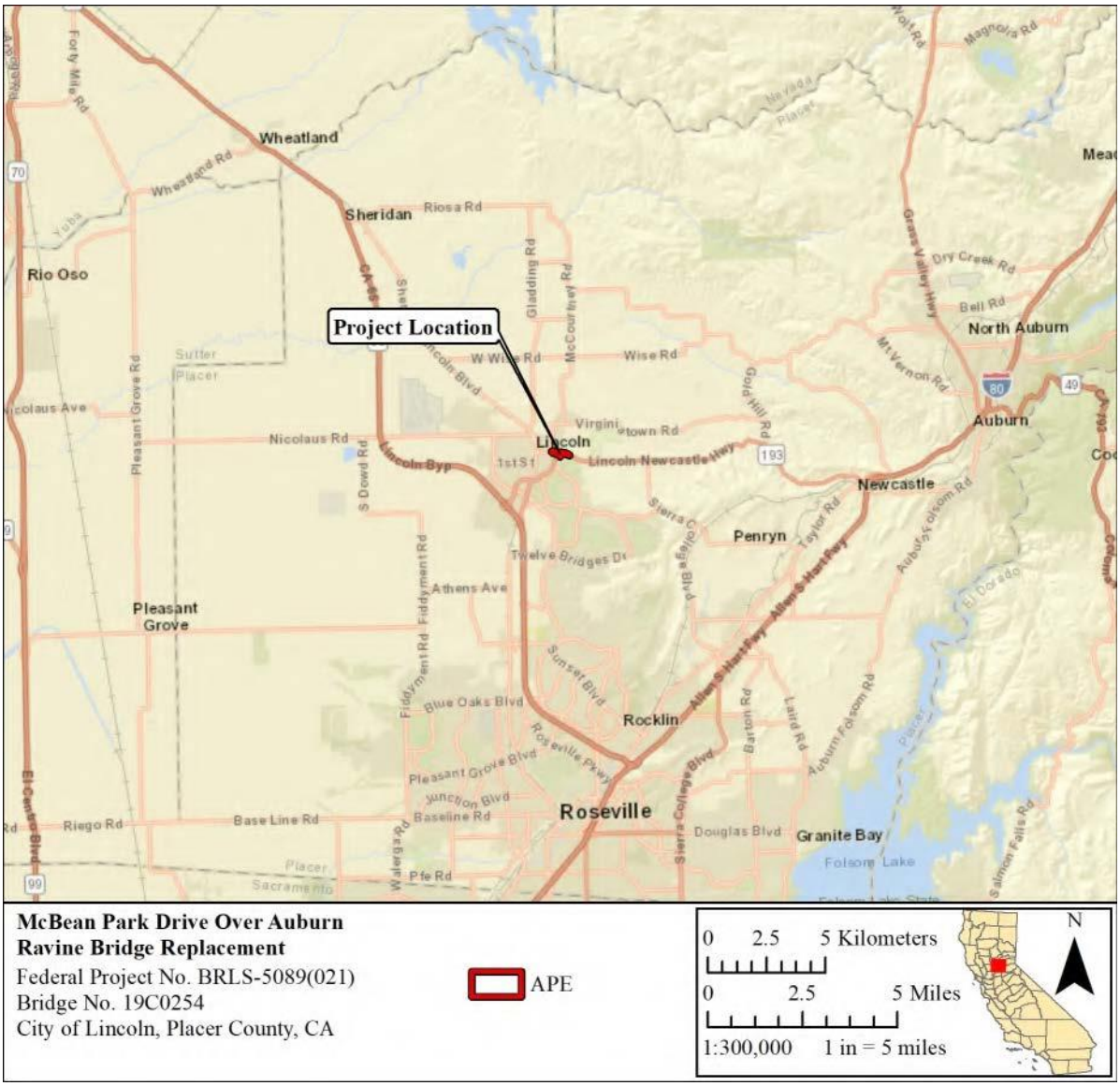
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 2.5 5 Kilometers
0 2.5 5 Miles
1:300,000 1 in = 5 miles
N

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Pamela Cubbler
Colfax-Todds Valley Consolidated Tribe
Treasurer
P.O. Box 4884
Auburn, CA, 95604

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Treasurer Cubbler

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

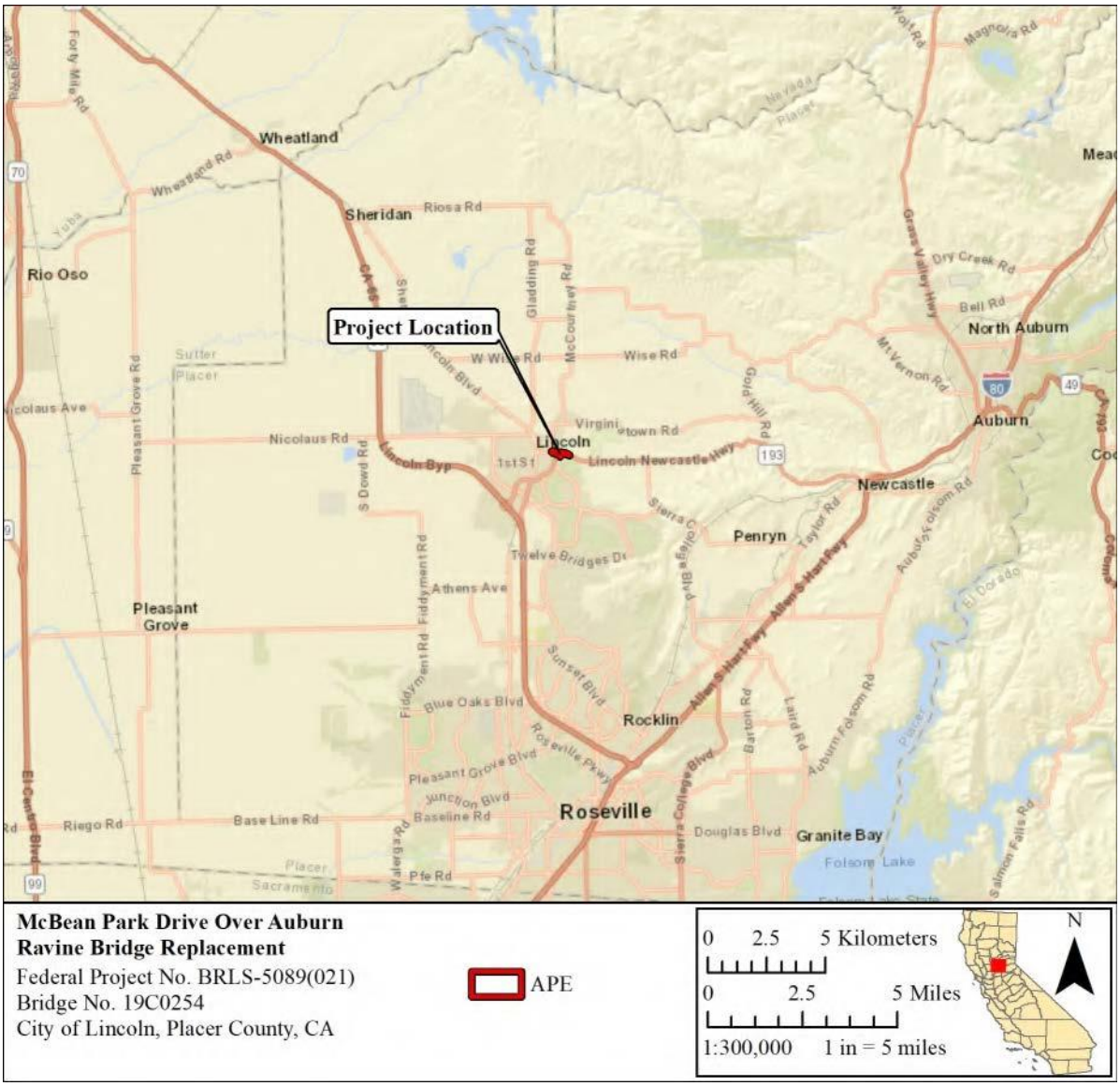
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services


Project Location
Wheatland
Sheridan
Riosa Rd
Rio Oso
Wheatland Rd
Forty Mile Rd
Pleasant Grove Rd
Sutter
Placer
Nicolaus Ave
Nicolaus Rd
Lincoln Byp
S Dowd Rd
Gladding Rd
McCourtney Rd
W Wise Rd
Wise Rd
Lincoln Blvd
Lincoln
1st St
Lincoln Newcastle Hwy
Virginiatown Rd
Gold Hill Rd
193
Newcastle
Penryn
Taylor Rd
Auburn Folsom Rd
Sierra College Blvd
Twelve Bridges Dr
Athens Ave
Fiddyment Rd
Pleasant Grove
Blue Oaks Blvd
Sunset Blvd
Rocklin
Athens-Hart Fwy
Barton Rd
Laird Rd
Roseville Pkwy
Pleasant Grove Blvd
Junction Blvd
Baseline Rd
Roseville
Douglas Blvd
Granite Bay
Folsom Lake
Placer
Sacramento
Riego Rd
Base Line Rd
Pfe Rd
Elverta Rd
Dry Creek Rd
Grass Valley Hwy
Bell Rd
North Auburn
Mt Vernon Rd
Auburn
80
49
99
70
Magnolia Rd
Nevada
Placer
El Dorado
Salmon Falls Rd
McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA
APE
0 2.5 5 Kilometers
0 2.5 5 Miles
1:300,000 1 in = 5 miles
N

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Steven Hutchason
Wilton Rancheria
Tribal Historic Preservation Officer
9728 Kent Street
Elk Grove, CA, 95624

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Officer Hutchason,

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

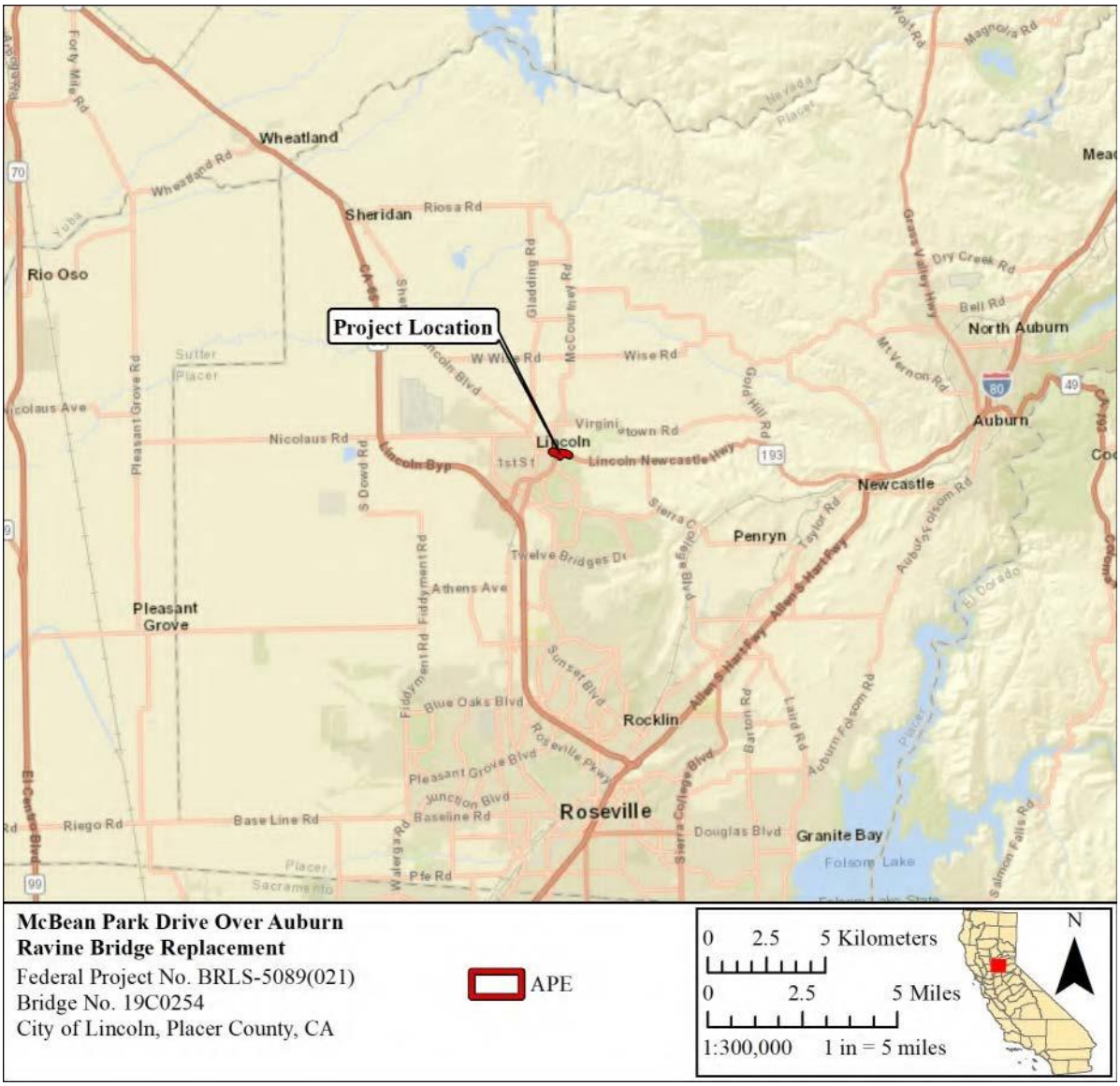
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 2.5 5 Kilometers
0 2.5 5 Miles
1:300,000 1 in = 5 miles
N

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Clyde Prout
Colfax-Todds Valley Consolidated Tribe
Chairperson
P.O. Box 4884
Auburn, CA, 95604

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Chairperson Prout,

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

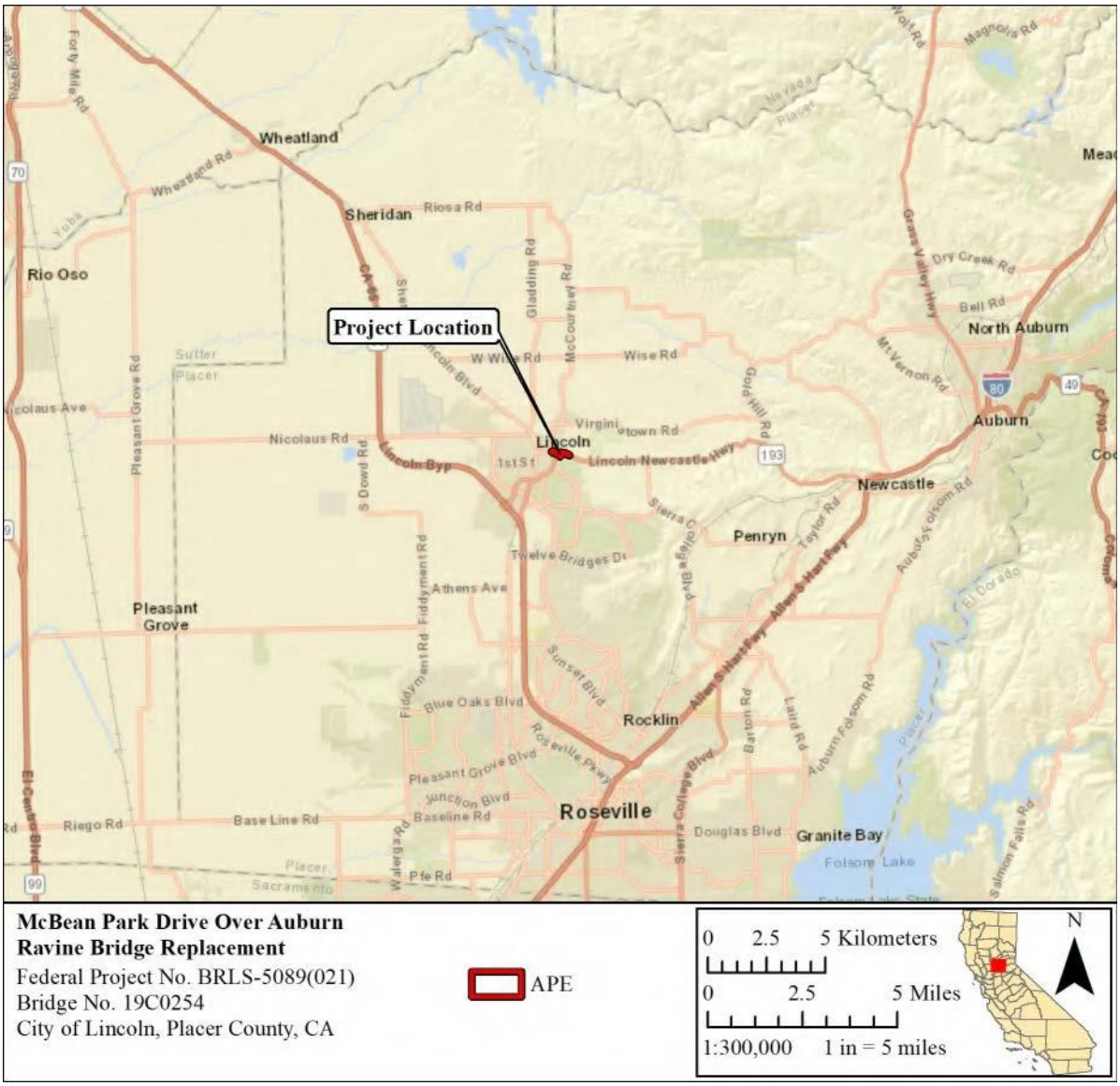
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Jesus Tarango
Wilton Rancheria
Chairperson
9728 Kent Street
Elk Grove, CA, 95624

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Chairperson Tarango,

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

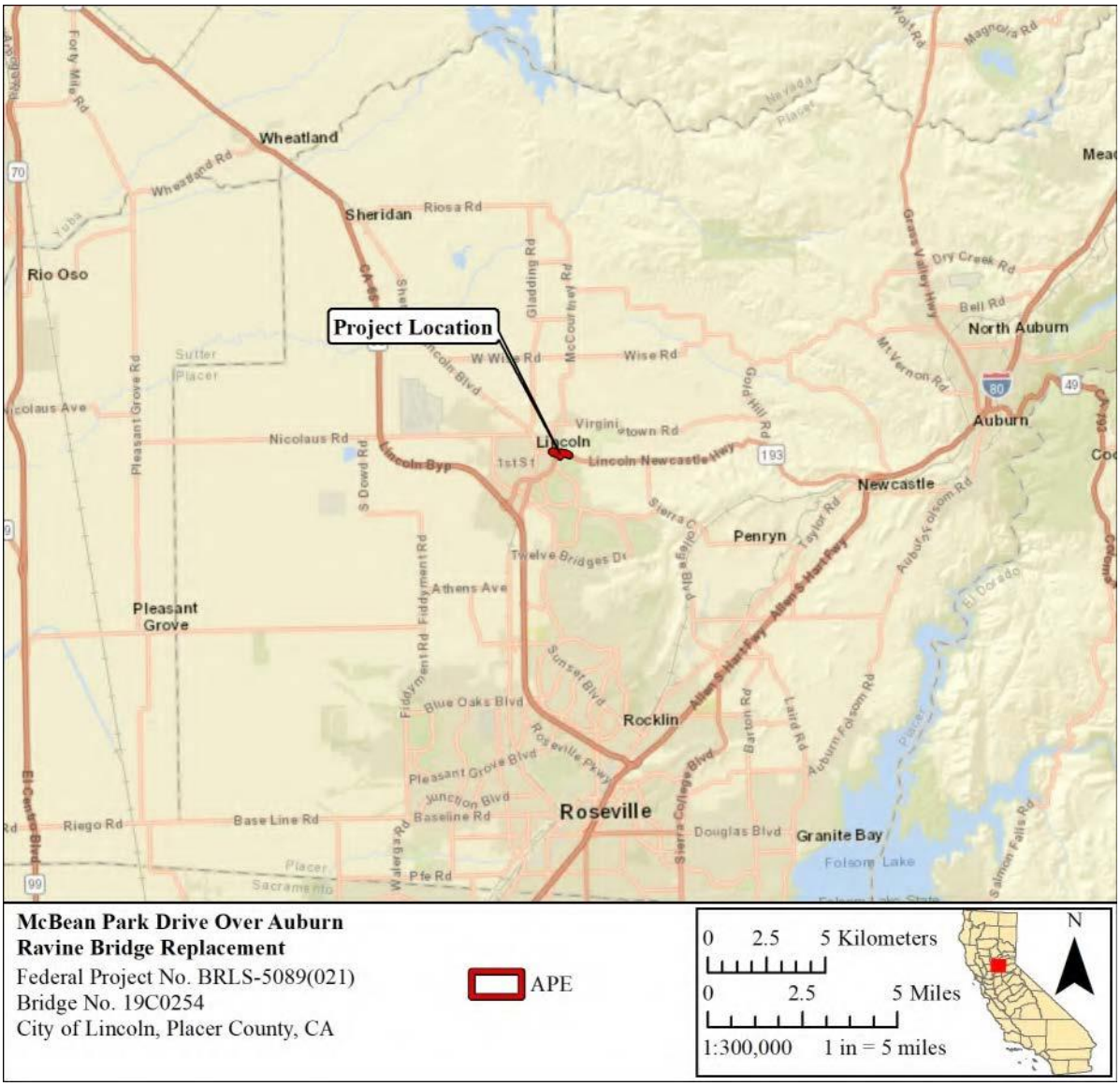
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 2.5 5 Kilometers
0 2.5 5 Miles
1:300,000 1 in = 5 miles
N

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

City of Lincoln
Live. Life. Lincoln

May 17, 2021

Gene Whitehouse
United Auburn Indian Community of the Auburn Rancheria
Chairperson
10720 Indian Hill Road
Auburn, CA, 95603

RE: McBean Park Drive Over Auburn Ravine Bridge Replacement Project, Placer County, California

Dear Chairperson Whitehouse,

The City of Lincoln proposes to complete replacement activities on the McBean Park Drive over Auburn Ravine Bridge (No. 19C0254) as part of the Highway Bridge Program for Rehabilitation Project in Placer County, California (Project). Bridge No. 19C0254 is located within Sections 14 and 15 of Township 12 North, Range 6 East of the Mount Diablo Base Line and Meridian as depicted on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Lincoln, California (Attachment: Figure 1 and 2).

The City of Lincoln is the lead agency responsible for California Environmental Quality Act (CEQA) compliance. Please consider this letter with attached figures as formal notification of the proposed Project required under CEQA, specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statues of 2014 (i.e. Assembly Bill 52). Per Executive Order N-54-20, effective April 22, 2020, please respond within 60 days, if you would like to consult on the Project and provide a designated lead contact person if you have not provided that information to us already.

The Native American Heritage Commission (NAHC) was contacted on April 21, 2021 to perform a search of the Sacred Lands File. The NAHC responded on May 15, 2021 and reported negative results for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Area of Potential Effect (APE).

Cogstone requested a record search of the APE and a 1-Mile buffer from the North Central Information Center located on the campus of California State University, Sacramento on March 17, 2021. Results of the record search received on March 23, 2021, state that there are no previously recorded resources within the APE and 63 resources within the 1-Mile radius of the APE.

An intensive pedestrian survey was conducted on April 17 and 18, 2021 and no archaeological resources, prehistoric or historic, resources were noted during the survey.

Cogstone is preparing the Cultural Resources Study to determine if cultural resources are present within the Area of Potential Effects (APE) for the bridge. Additionally, Caltrans District 3 is the lead agency under Section 106 of the National Historic Preservation (NHPA) for the Project. If you have questions or require additional information, please contact Alison Bryson-Deveraux with Cogstone at (805) 975-5619 or email adeveraux@cogstone.com. Contact Vladimir Popko with Caltrans District 3 at (530)-821-8421 or email Vladimir.Popko@dot.ca.gov. You may also contact myself, Araceli Cazarez with the City of Lincoln, at (916) 434-2486 or e-mail araceli.cazarez@lincolnca.gov.

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services

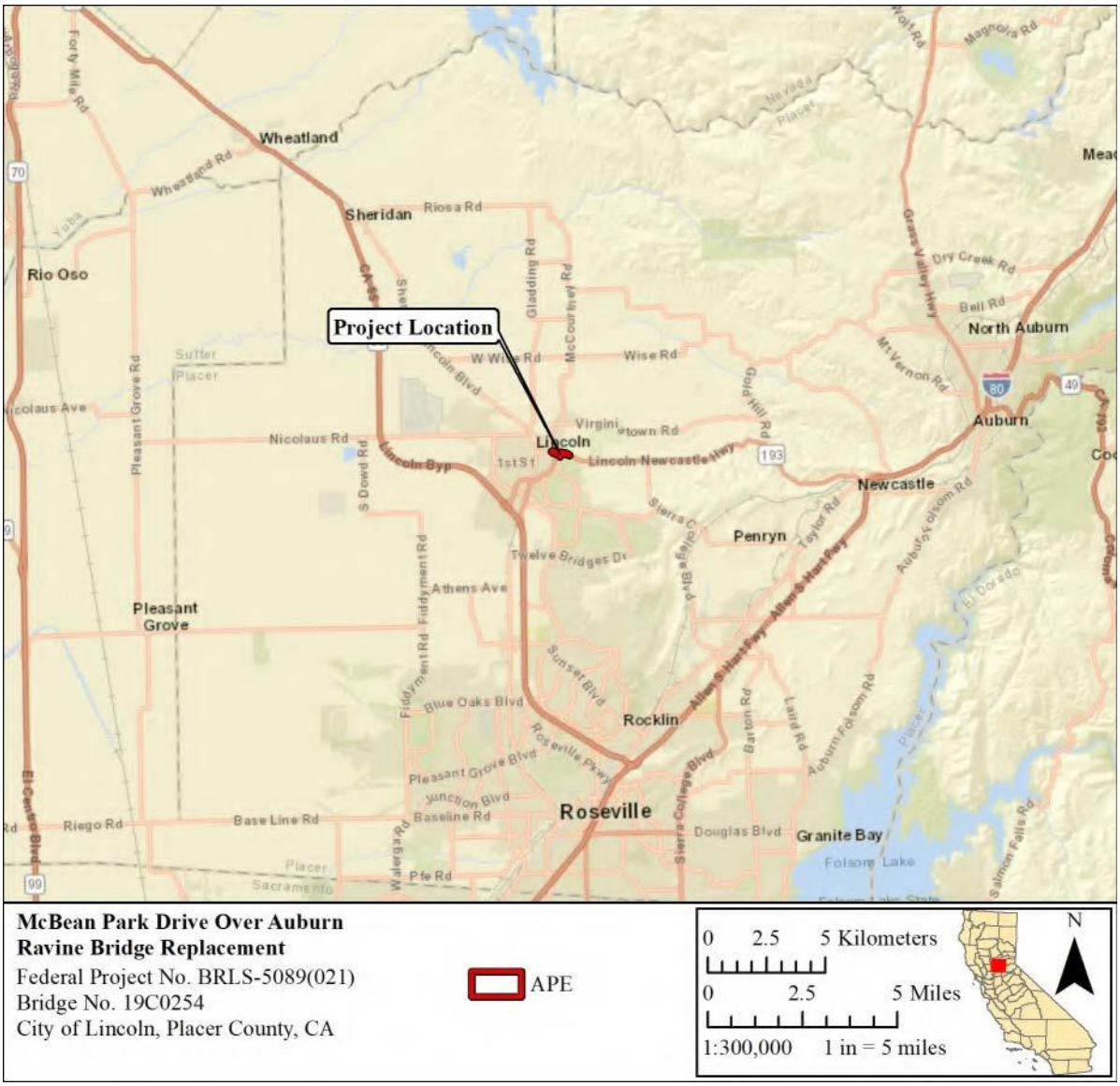
Thank You,

Araceli Cazarez

Araceli Cazarez
Engineering Manager

Attachments- Figure 1: Regional Vicinity, Figure 2: Project Location

City Hall
600 Sixth Street
Lincoln, CA 95648
(916) 434-2400
www.lincolnca.gov
City Manager's Office • Community Development• Engineering • Fire
Library • Recreation • Police • Public Works • Support Services



McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 2.5 5 Kilometers
0 2.5 5 Miles
1:300,000 1 in = 5 miles
N

McBean Park Drive Over Auburn Ravine Bridge Replacement
Federal Project No. BRLS-5089(021)
Bridge No. 19C0254
City of Lincoln, Placer County, CA

APE

0 250 500 Feet
N
0 50 100 Meters
1:4,000 1 in = 333 ft

7020 1290 0001 3654 4493

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Browns Valley, CA 95918

OFFICIAL USE

Certified Mail Fee	$3.60
$	$2.85
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.20
Total Postage and Fees	$7.65

Postmark Here: 0470 19 — MAY 19 2021 — 05/19/2021

Sent To: Grayson Coney / Tsi Akim Maidu
Street and Apt. No., or PO Box No.: PO Box 510
City, State, ZIP+4®: Browns Valley CA 95918

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

7020 1290 0001 3654 4509

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Elk Grove, CA 95624

OFFICIAL USE

Certified Mail Fee	$3.60
$	$2.85
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.20
Total Postage and Fees	$7.65

Postmark Here: 0470 19 — MAY 19 2021 — 05/19/2021

Sent To: Dalhton Brown - Wilton Rancheria
Street and Apt. No., or PO Box No.: 9728 Kent St
City, State, ZIP+4®: Elk Grove CA 95624

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

7020 1290 0001 3654 4516

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Auburn, CA 95603

OFFICIAL USE

Certified Mail Fee	$3.60
$	$2.85
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.20
Total Postage and Fees	$7.65

Postmark Here: 0470 19 — MAY 19 2021 — 05/19/2021

Sent To: Gene Whitehouse
Street and Apt. No., or PO Box No.: 10720 Indian Hill Road
City, State, ZIP+4®: Auburn, CA 95603

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

7020 1290 0001 3654 4523

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Elk Grove, CA 95624

OFFICIAL USE

Certified Mail Fee	$3.60
$	$2.85
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.20
Total Postage and Fees	$7.65

Postmark Here: 0470 19 — MAY 19 2021 — 05/19/2021

Sent To: Jesus Tarango - Wilton Rancheria
Street and Apt. No., or PO Box No.: 9728 Kent Street
City, State, ZIP+4®: Elk Grove CA 95624

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

7020 1290 0001 3654 4530

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Auburn, CA 95604

OFFICIAL USE

Certified Mail Fee	$3.60
$	$2.85
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.20
Total Postage and Fees	$7.65

Postmark Here: 0470 19 — MAY 19 2021 — 05/19/2021

Sent To: Clyde Prout
Street and Apt. No., or PO Box No.: PO Box 4884
City, State, ZIP+4®: Auburn CA 95604

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

7020 1290 0001 3654 4547

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Elk Grove, CA 95624

OFFICIAL USE

Certified Mail Fee	$3.60
$	$2.85
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.20
Total Postage and Fees	$7.65

Postmark Here: 0470 19 — MAY 19 2021 — 05/19/2021

Sent To: Steven Hutchason
Street and Apt. No., or PO Box No.: 9728 Kent Street
City, State, ZIP+4®: Elk Grove CA 95624

PS Form 3800, April 2015 PSN 7530-02-000-9047 — See Reverse for Instructions

CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Auburn, CA 95604

OFFICIAL USE

Certified Mail Fee $3.60

Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $1.20

Total Postage and Fees $7.65

Postmark Here
MAY 17 2021
USPS

Sent To Pamela Cubbler

Street and Apt. No., or PO Box No. PO BOX 4884

City, State, ZIP+4® Auburn CA 95604

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7020 1290 0001 3654 4585

From: Anna Starkey
Sent: Friday, October 22, 2021 10:35 AM
To: 'Edgar Garcia' <edgar.garcia@lincolnca.gov>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good morning,
Thank you for your reply. I believe the language for tribal monitors are likely the same as Wilton's. Here are UAIC's recommended mitigation measures and tribal monitoring requirements.
Let me know if you have any questions.

Kind regards,
Anna

From: Edgar Garcia <edgar.garcia@lincolnca.gov>
Sent: Friday, October 22, 2021 6:25 AM
To: Anna Starkey <astarkey@auburnrancheria.com>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good morning Anna,

No, worries! Yes, we can have two tribal monitors for both Wilton and UAIC for this project. Do the same recommended mitigation measures apply for the Wilton Rancheria?

Regarding the likely construction start date- It is anticipated that construction will probably start in 2023.

Thank you,
Edgar

From: Anna Starkey <astarkey@auburnrancheria.com>
Sent: Thursday, October 21, 2021 5:18 PM
To: Edgar Garcia <edgar.garcia@lincolnca.gov>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good afternoon,
My apologies for not getting back to you in a timely manner. This email got buried in my inbox, unfortunately. Will the City have two tribal monitors from both Wilton and UAIC for this project, or will we need to have a discussion with everyone regarding the tribal monitor mitigation?

Yes, UAIC still uses 347 for staffing the tribal monitors. For the resurfacing, I do not believe a tribal monitor would be warranted unless there will be excavation into original ground surface, which I don't think happens with resurfacing.
Did you already let me know when the likely construction date would be for the bridge?

Kind regards,
Anna Starkey

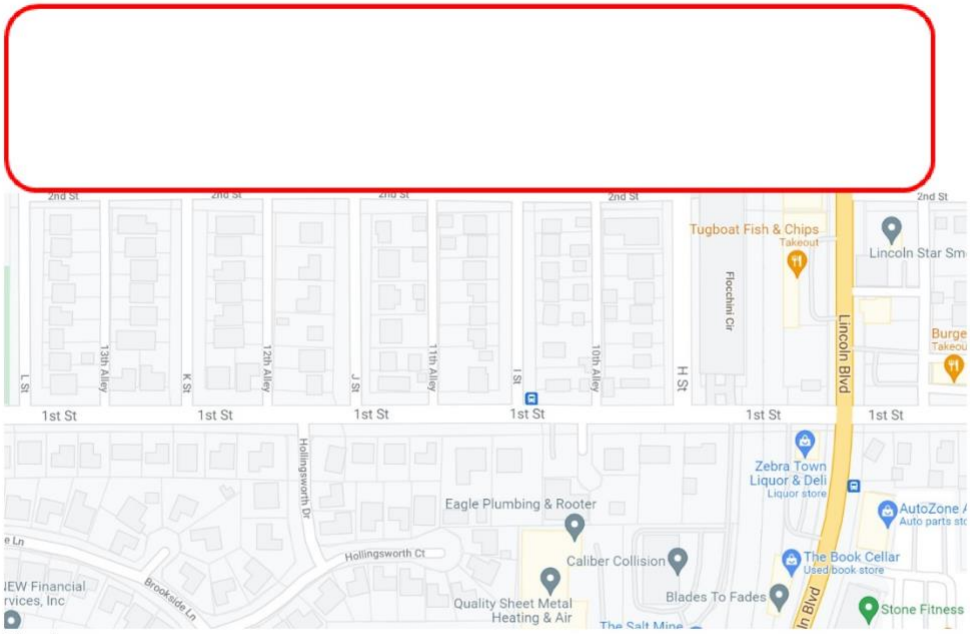
From: Edgar Garcia <edgar.garcia@lincolnca.gov>
Sent: Wednesday, October 13, 2021 3:40 PM
To: Anna Starkey <astarkey@auburnrancheria.com>; Melodi McAdams <mmcadams@auburnrancheria.com>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good afternoon Anna,

Regarding the request to have compensated tribal monitors present during ground-disturbing activities, who does UAIC use to monitor projects similar in kind? Is it going to be the same consultant that was used for the First Street Resurfacing Phase 1 project – 347 Group, Inc.?

Also, First Street Resurfacing Phase 2 project will be going out to bid in mid-November. Does the City need to have tribal monitoring for phase 2?

First Street Resurfacing Phase 2 Project Limits



Thank you,
Edgar

From: Anna Starkey <astarkey@auburnrancheria.com>
Sent: Friday, October 8, 2021 3:49 PM
To: Edgar Garcia <edgar.garcia@lincolnca.gov>; Melodi McAdams <mmcadams@auburnrancheria.com>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good afternoon,
Continuing with our AB52 consultation for this project, UAIC would like to have a discussion with the lead agency and Wilton Rancheria regarding both our request to have compensated tribal monitors present during ground disturbing activities.

I've attached UAIC recommended mitigation measures, which include having a tribal monitor present as the area is culturally sensitive with many known sites along the ravine. As the lead agency, you will need to determine if you will allow two separate tribes monitoring the project, however UAIC does consider this area to be directly within their tribal territory with close families ties to the Auburn Ravine area.

We are happy to have this discussion with you and Wilton so we can come to an agreement. Please include Melodi McAdams, UAIC Tribal Heritage Specialist, in the correspondences going forward regarding tribal monitoring.

Thank you

Kind regards,
Anna Starkey

The United Auburn Indian Community is now accepting electronic consultation request, project notifications, and requests for information! Please fill out and submit through our website. Do not mail hard copy letters or documents. *https://auburnrancheria.com/programs-services/tribal-preservation* ***Bookmark this link!***

Anna M. Starkey, M.A., RPA
Cultural Regulatory Specialist
Tribal Historic Preservation Department| UAIC
10720 Indian Hill Road
Auburn, CA 95603
Direct line: (916) 251-1565 | Cell: (530) 863-6503
astarkey@auburnrancheria.com |www.auburnrancheria.com

From: Edgar Garcia <edgar.garcia@lincolnca.gov>
Sent: Wednesday, August 25, 2021 6:26 AM
To: Anna Starkey <astarkey@auburnrancheria.com>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>; Travis Young <tyoung@auburnrancheria.com>; Joshua Stewart <jstewart@auburnrancheria.com>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good morning Ms. Starkey,

I tried sending the files requested yesterday, but apparently, it did not go through to the auburnrancheria.com. I am going to send the files in separate emails to avoid going over the memory limit.

Thank you,
Edgar

I'm using Adobe Acrobat.
You can view "2021-070 McBean Parkway Bridge Replacement NSR - Version 2.pdf" at:
https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:8dcc5dd9-f35a-4de9-9792-0caa3e60a18a
You can view "140276 2021 Bat Survey Report _03192021.pdf" at:
https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:a338dcd9-4d58-438c-98f7-bfd02e7f9411
You can view "140276_McBean BA_USFWS_20210531.pdf" at:
https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:8e90e3fb-ffce-42ab-8102-eb461126a9e8

From: Anna Starkey <astarkey@auburnrancheria.com>
Sent: Wednesday, August 18, 2021 4:05 PM
To: Edgar Garcia <edgar.garcia@lincolnca.gov>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>; Travis Young <tyoung@auburnrancheria.com>; Joshua Stewart <jstewart@auburnrancheria.com>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good afternoon,
Thank you for your email and providing me with your contact information. I've cc'd Josh Stewart and Travis Young, whom one of them would like to survey the project area. I understand that it is developed, but they will still be able to survey for tribal cultural resources and if there is a potential for buried sites to be present. I'd like to get the survey completed within the next two weeks.

Draft reports are preferred, that way if we read something that is of concern, we have a chance to comment on it.

Thank you,
Anna

From: Edgar Garcia <edgar.garcia@lincolnca.gov>
Sent: Monday, August 16, 2021 9:04 AM
To: Anna Starkey <astarkey@auburnrancheria.com>
Cc: Alison Bryson-Deveraux <adeveraux@cogstone.com>; Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good morning Ms. Starkey:

Thank you for your email. I was forwarded your email by my supervisor Araceli Cazarez. I want to introduce myself as the primary contact person for the City of Lincoln regarding McBean Park Drive over Auburn Ravine Bridge Replacement (Bridge 19C0254). In the future, if you need any information from the City, please feel free to contact me.

Regarding the request to review the items in the email below, the documents are still in the draft stages. Do you want the information in the draft or final stages? By when would you like to have the reports?

Thank you,

Edgar

Office: 916-434-2419
Cell: 530-401-1973

From: Alison Bryson-Deveraux <adeveraux@cogstone.com>
Sent: Friday, August 13, 2021 3:11 PM
To: Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Cc: Edgar Garcia <edgar.garcia@lincolnca.gov>
Subject: Re: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good afternoon, Araceli,

Were you or another representative for the City able to connect with Anna Starkey of the United Auburn Indian Community? I understand she's been attempting to get in contact wth the City in regards to the UAIC's interest in consulting on the McBean Park Drive Project and would like to speak with a City Rep.

Thank you,

Alison Bryson-Deveraux, MA
Archaeologist

Cogstone Resource Management
1518 W Taft Ave Orange, Ca 92865
714-974-8300 office | 805-975-5619 cell
adeveraux@cogstone.com www.cogstone.com
Field Offices in San Diego, Riverside, Morro Bay, Sacramento, Arizona

From: Araceli Cazarez <araceli.cazarez@lincolnca.gov>
To: Molly Valasik <mvalasik@cogstone.com>
Cc: Edgar Garcia <edgar.garcia@lincolnca.gov>, "mikes@quincyeng.com" <mikes@quincyeng.com>, 'Alison Bryson-Deveraux' <adeveraux@cogstone.com>
Sent: 7/20/2021 2:03 PM
Subject: RE: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Yes, absolutely.

Thank You,
Araceli Cazarez, ext. 1416
Engineering Manager
Capital Projects
Office Direct: (916) 434-2486
City of Lincoln CALIFORNIA
America's Hometown - A City of Opportunity

From: Molly Valasik <mvalasik@cogstone.com>
Sent: Tuesday, July 20, 2021 1:42 PM
To: Araceli Cazarez <araceli.cazarez@lincolnca.gov>
Cc: Edgar Garcia <edgar.garcia@lincolnca.gov>; mikes@quincyeng.com; 'Alison Bryson-Deveraux' <adeveraux@cogstone.com>
Subject: FW: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Hi Araceli,

I am forwarding a response from Anna Starkey, Cultural Regulatory Specialist of the United Auburn Indian Community (UAIC), regarding consultations for the McBean Park Drive over Auburn Ravine Bridge Replacement Project (No. 19C0254). The UAIC is requesting to consult under AB 52 and Section 106 and has requested information on the Project.

We have documented UAIC's response in the draft ASR and will be providing Ms. Starkey a copy of the draft ASR. Please let me know if this is acceptable.

Thank you,

Molly Valasik, MA, RPA
CFO/Principal Archaeologist

Cogstone Resource Management
1518 W Taft Ave Orange, CA 92865
714-974-8300 office | 419-344-3622 cell
mvalasik@cogstone.com www.cogstone.com
Field Offices in San Diego, Riverside, Morro Bay, Sacramento, Arizona

We tell the stories of ancient life and human cultures both to promote an appreciation of the past and relevance to the future.™

From: Anna Starkey <astarkey@auburnrancheria.com>
To: "'adeveraux@cogstone.com'" <adeveraux@cogstone.com>, "'vladmire.poko@dot.ca.gov'" <vladmire.poko@dot.ca.gov>
Cc: Anna Cheng <acheng@auburnrancheria.com>
Sent: 5/28/2021 10:35 AM
Subject: AB52: McBean Park Drive Over Auburn Ravine Bridge Replacement Project (No. 19C0254)

Good morning,
On behalf of the United Auburn Indian Community, Tribal Historic Preservation Department, thank you for the notification and opportunity to consult on the McBean Park Drive over Auburn Ravine Bridge Replacement Project. UAIC has determined that the project area in culturally sensitive and has the potential for unrecorded Tribal Cultural Resources (TCRs). We would like to consult under AB 52 and Section 106 (with Caltrans) to discuss the topics listed in Public Resources Code section 21080.3.2(a), including project alternatives and mitigation measures for any direct, indirect, or cumulative impacts the project may cause to TCRs.

We request to review the cultural and biological report, project area photographs, the bridge design and the alternatives. We may require a site visit as well and can provide recommendations and mitigation measures after we have additional information. What type of CEQA document will be prepared and what is the timing? Below is a list of requests:

- Description of project
- Map/engineering drawings of project area
- Archaeological/Biological/TCR Reports
- Pedestrian survey results, including photographs
- Off-site improvements proposed
- Infrastructure required for project and off-site improvements
    - Types
    - Depths
    - Timing

Please confirm the receipt of this email and request to consult.

Thank you for involving UAIC in the planning process at an early stage. We ask that you make this letter a part of the project record and we look forward to working with you to ensure that tribal and cultural resources are protected.

Sincerely,
Anna Starkey

The United Auburn Indian Community is now accepting electronic consultation request, project notifications, and requests for information! Please fill out and submit through our website. Do not mail hard copy letters or documents. https://auburnrancheria.com/programs-services/tribal-preservation

Anna M. Starkey, M.A., RPA
Cultural Regulatory Specialist
Tribal Historic Preservation Department| UAIC
10720 Indian Hill Road
Auburn, CA 95603
Direct line: (916) 251-1565 | Cell: (530) 863-6503
astarkey@auburnrancheria.com |www.auburnrancheria.com

From: Cultural Preservation Department Inbox <cpd@wiltonrancheria-nsn.gov>
Date: June 9, 2021 at 11:07:05 AM PDT
To: adeveraux@cogstone.com
Cc: Cultural Preservation Department Inbox <cpd@wiltonrancheria-nsn.gov>
Subject: McBean Park Drive Over Auburn Ravine Bridge Replacement Project

Good morning,

Wilton Rancheria has identified cultural resource near your project's footprint. The Tribe would like to have a Tribal Monitor present during all ground disturbance.

The Tribes preferred method of treatment for Cultural Resources is preservation in place.

A tribal monitor should be present during any ground disturbance to treat any unearthed cultural materials, properly, with dignity and respect.

The Tribal Monitor will need to be compensated at the Tribe's current rate.

Please contact me at the info below so we can solidify an agreement before construction.

Thanks,

Mariah Mayberry
Wilton Rancheria
Tel: 916.683.6000 ext 2023 | Fax: 916.683.6015
9728 Kent Street | Elk Grove | CA | 95624
mmayberry@wiltonrancheria-nsn.gov
wiltonrancheria-nsn.gov

Good afternoon,

Thank you for sending over this project notification. Wilton Rancheria would like to set up consultation meeting for this project at your earliest convenience.

Thank you

Mariah Mayberry
Wilton Rancheria
Tel: 916.683.6000 ext 2023 | Fax: 916.683.6015
9728 Kent Street | Elk Grove | CA | 95624
mmayberry@wiltonrancheria-nsn.gov
wiltonrancheria-nsn.gov

From: Cogstone Resource Management <cogstoneconsult@cogstone.com>
Sent: Thursday, May 27, 2021 9:04 AM
To: Steven Hutchason <shutchason@wiltonrancheria-nsn.gov>
Subject: McBean Park Drive over Auburn Ravine Bridge Project

Good morning,

On May 20, 2021, Cogstone Resource Management sent a certified mail version of the attached letter regarding your input on the McBean Park Drive over Auburn Ravine Bridge Project located in Placer County, California. We would like to reach out to inquire if you have received this letter and if you have any comments regarding the project. Please see attached for more information regarding our Native American Assembly Bill 52 Consultation Request for the McBean Park Drive over Auburn Ravine Bridge Project, Placer County, California.

Thank you

Native American Group	Contact Name and Title	Date(s) and Method of First Contact Attempt	Date(s) and Method of Second Attempt	Date(s) and Method of Third Attempt	Date(s) of Replies Rec'd	Results
Colfax-Todds Valley Consolidated Tribe	Clyde Prout, Chairperson Pamela Cubbler, Treasurer	Certified Mail Letter sent 5/20/2021	Follow up email sent 5/27/2021	Phone call on 6/1/2020	6/1/2021	Ms. Cubbler would like to have monitoring conducted within areas of native sediments and/or undisturbed areas within the APE.
Tsi Akim Maidu	Grayson Coney, Cultural Director	Certified Mail Letter sent 5/20/2021	Follow up email sent 5/27/2021	Phone call on 6/1/2020	6/1/2021	Mr. Coney stated that he is no longer affiliated with the tribe and that the NAHC information is out of date.
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse, Chairperson	Certified Mail Letter sent 5/20/2021	Follow up email sent 5/27/2021		5/28/2021	On May 28, 2021 Ms. Anna Starkey responded on behalf of the United Auburn Indian Community (UAIC) that the Project APE is culturally sensitive and has the potential for unidentified Tribal Cultural Resources (TCRs). The UAIC would like to consult under AB 52 and Section 106 (with Caltrans) to discuss topics listed in Public Resources Code Section 21080.3.2(a) including project alternatives and mitigation measures for any direct, indirect, or cumulative impacts the project may cause to TCRs. The UAIC has requested to review the cultural and biological report, APE photographs, as well as the bridge design and any alternatives. In addition, the UAIC has requested to visit the site, if needed, and to provide recommendations and mitigation measures once they have received additional information including: description of project, map/engineering drawings of APE, archaeological/biological/TCR reports, pedestrian survey results and photographs, proposed off-site improvements, infrastructure required for the project and off-site improvements (types, depths, timing).

Native American Group	Contact Name and Title	Date(s) and Method of First Contact Attempt	Date(s) and Method of Second Attempt	Date(s) and Method of Third Attempt	Date(s) of Replies Rec'd	Results
						While in communication with the City of Lincoln in regard to the Project, representatives of the UAIC requested an in-field meeting with the City of Lincoln, Quincy Engineering and Cogstone Resource Management to discuss impact to potentially sensitive cultural resources and get better insight into what ground disturbing activities would be take place during the project. An in-field meeting was set for 11:00 am on Thursday, September 2, 2021 at the McBean Park Drive bridge, located on the corner of Ferrari Ranch Road and McBean Park Drive in Lincoln, California. In attendance was Travis Young and Creed Stedman with UAIC, Mike Sanchez with Quincy Engineering, Edgar Garcia with the City of Lincoln, and Alison Bryson-Deveraux with Cogstone Resource Management. Mike Sanchez and Edgar Garcia led a tour which covered the proposed APE for the Project. They escorted the group to the bridge location where they discussed the estimated depth of foundations and bridge supports, as well as road widening, grading and overall construction footprints. The UAIC representatives discussed known areas of archaeological resources near the project location and pointed out areas they believed potential resources could be identified during construction. As some areas of proposed construction would have significant ground disturbance, the UAIC representatives stated they would be formally

Native American Group	Contact Name and Title	Date(s) and Method of First Contact Attempt	Date(s) and Method of Second Attempt	Date(s) and Method of Third Attempt	Date(s) of Replies Rec'd	Results
						requesting the City of Lincoln to have tribal monitors from the UAIC on site during all ground disturbing activities associated with the Project. The City has agreed to Native American monitoring by the UAIC.
Wilton Rancheria	Steven Hutchason, Tribal Historic Preservation Officer Jesus Tarango, Chairperson Dahlton Brown, Director of Administration	Certified Mail Letter sent 5/20/2021	Follow up email sent 5/27/2021	Phone call on 6/1/2020	6/9/2021, 6/15/2021	Offices are still closed due to Covid. Left a message to contact Cogstone if they have any questions/comments about the project. Ms. Mariah Mayberry of the Wilton Rancheria responded that the Tribe has identified cultural resource near the project's footprint. The Tribe would like to have a Tribal Monitor present during all ground disturbance. The Tribes preferred method of treatment for Cultural Resources is preservation in place. A tribal monitor should be present during any ground disturbance to treat any unearthed cultural materials, properly, with dignity and respect. The Tribal Monitor will need to be compensated at the Tribe's current rate. Ms. Mayberry also requested via email, that the Tribe would like to set up a consultation meeting for the project at the earliest convenience. The City has agreed to Native American monitoring by the Wilton Rancheria.

APPENDIX D

HYDROLOGICAL RESOURCES

Bridge Replacement Project

Preliminary Hydraulic Study

Lincoln, California
BRLS-5089 (021)
BRIDGE 19C 0059

Mcbean Park Drive at Auburn Ravine

Prepared By:

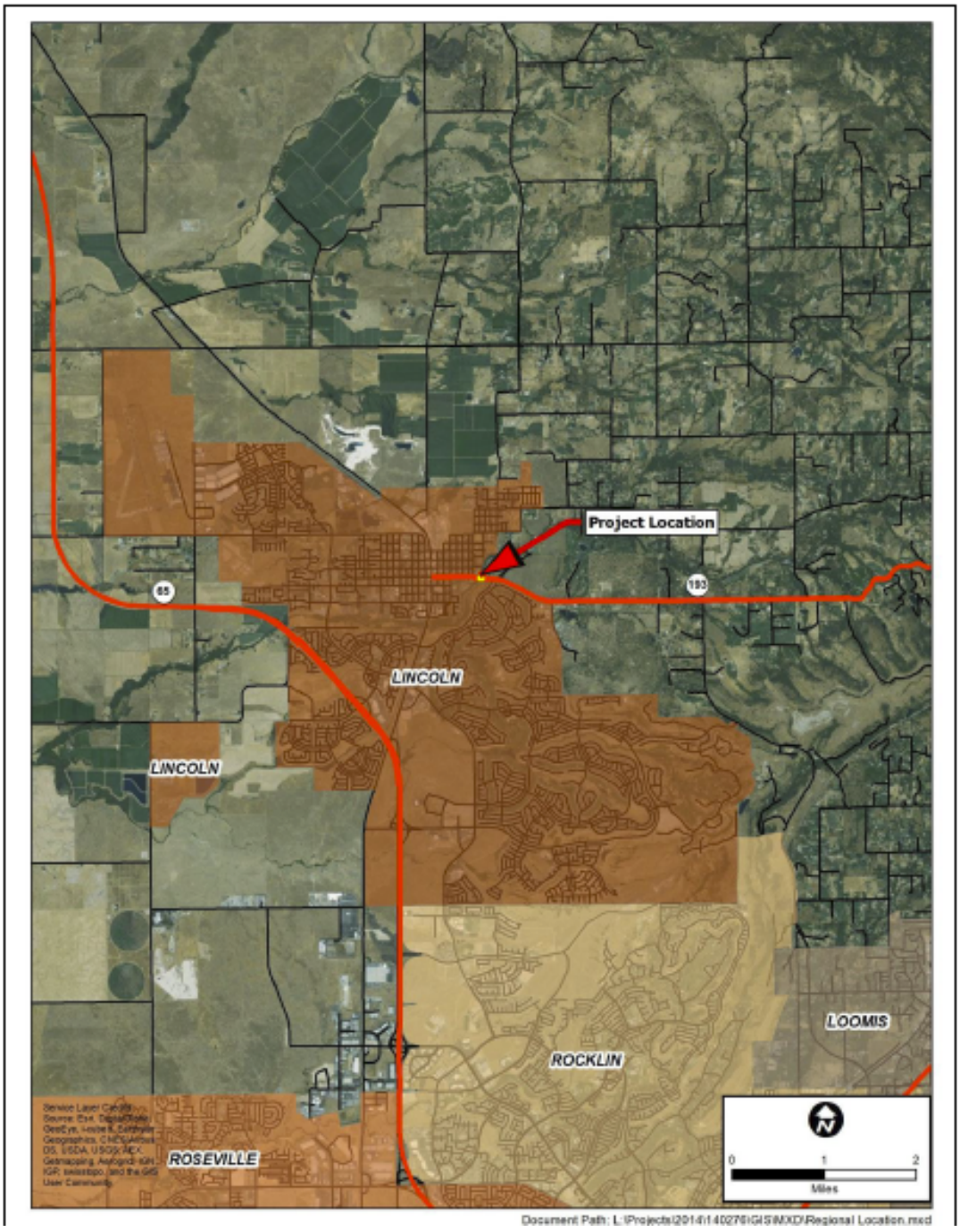
CIVIL ENGINEERING SOLUTIONS, INC.

Prepared By: _____ Date 09/26/2017
Thomas S. Plummer P.E., CFM
President
Civil Engineering Solutions, Inc.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES:



LOCATION MAP

1 General Description

Purpose of Report

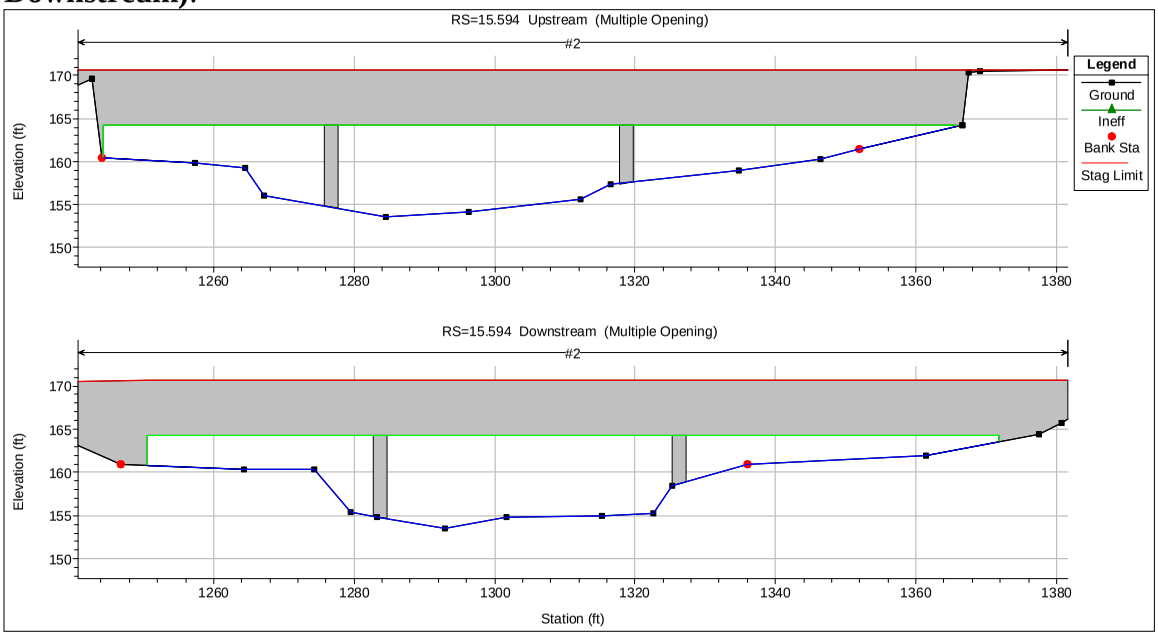
The purpose of this report is to present known operations and analysis of the existing bridge at Mcbean Park Drive at the Auburn Ravine Crossing. This report will present known operational issues, historical flooding records and analysis of the existing bridge. This report will also present alternatives for replacement which have been previously studied.

Project Location and Description

The bridge (19C0059) is located at Mcbean Park Drive at the Auburn Ravine Crossing. This crossing is located at the east edge of the downtown areas of the City of Lincoln (Auburn Ravine forms this eastern boundary).

The Bridge spans the creek for a width of 121 feet. There are two Chevron shaped (looking from plan view) peir which span the main channel approximately 42 feet apart. The bays of the bridge outside of the main channel tend to collect sediment and vegetation debris. The Cross Section of the bridge measured by FEMA in 2011 is shown in Figure 1.

Figure 1: FEMA Bridge Section for Upstream and Downstream Face (Looking Downstream):



Vertical Datum

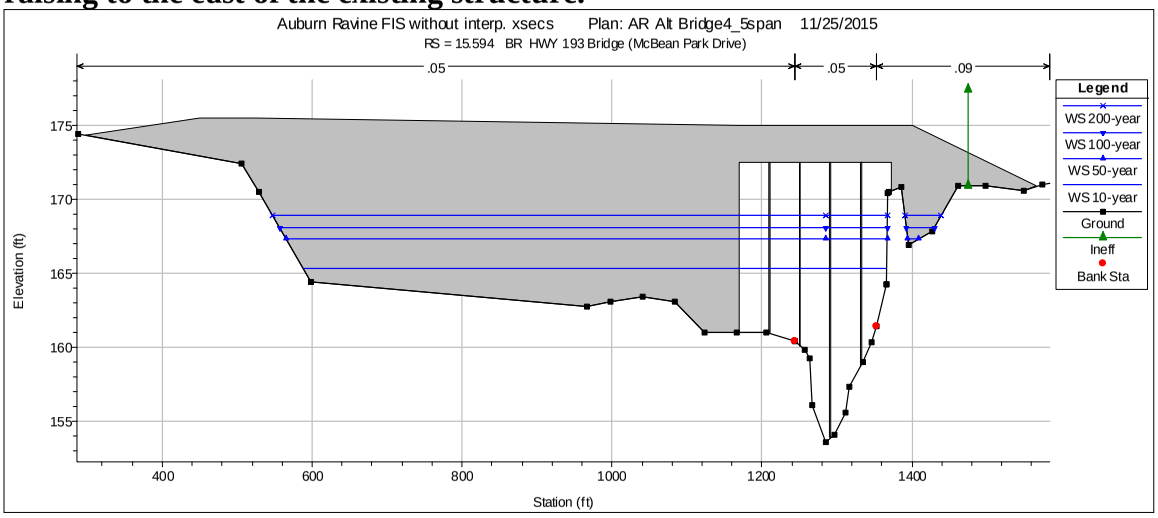
Studies for this bridge have been performed in both NGVD 29 and NAVD 88 vertical datums. Exhibits which do not explicitly cite the NCVD 29 Datum will be presented in NAVD88 datum.

Preliminary Project Alternatives

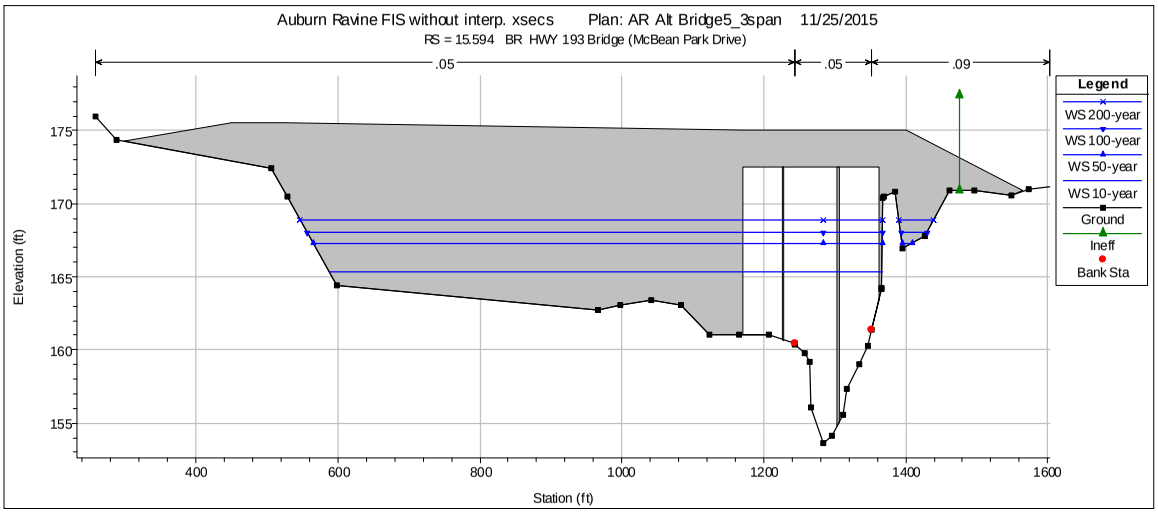
Three potential bridge replacement strategies have previously been studied by the City of Lincoln. The three alternatives were studied with the following criteria:

- Roadway will not be overtopped in the 100-year event
- 100-year flood elevations upstream of the bridge would be restored to the pre-roadway elevation rise conditions.
- Alternatives would provide CVFPB required three feet of freeboard to the soffit for the 200-year flood event.

Alternative 1: Requires a 200' span bridge with 1000' of adjacent roadway elevation raising to the east of the existing structure.



Alternative 2: Requires a 190' 3-bay span main bridge with 2 sets of piers with 1500' of adjacent roadway elevation raising to the west and east of the existing structure.



Final limits of roadway raise and roadway elevations would be determined by the requirements to achieve CVFPB freeboard, if required.

TABLE: Summary of Water Surface Elevations and Freeboard:

Bridge Alternative	200-Year WS Elev. (ft)	Lowest Soffit Elev. (ft)	Freeboard (ft)	100-year WS Elev. (ft)
1 – 5 bay	168.89	172.50	3.61	168.03
2 – 3 Bay	168.76	172.50	3.74	167.91

Project History

Storm events in 1995 and 1997 may have overtopped the roadway elevations east of the bridge location. In 2005(New Years Eve event) flood waters did not overtop the roadway or bridge elevations. Analysis of the Bridge (then State Route 193) inadequacies were assessed with the South Lincoln Master Drainage Plan (SLMP-AIO) in 1998 and 1999. It was found that due to limitations in the bridge opening and flow capacity that the potential for overtopping of the roadway east of the bridge was determined to exceed the City's and Caltrans standards. Overtopping of the roadway was expected to occur in less than a 10-year (10% chance) event. This study observed the clogged conditions of the bays on either side of the main channel at that time. In the 2005 event, the clogging was substantially removed by the storm event to the profiles shown in the FEMA analysis presented later in this report.

Figure 2: SLMP-AIO Analysis of Existing SR-193 Bridge at Auburn Ravine (NGVD 29 datum):

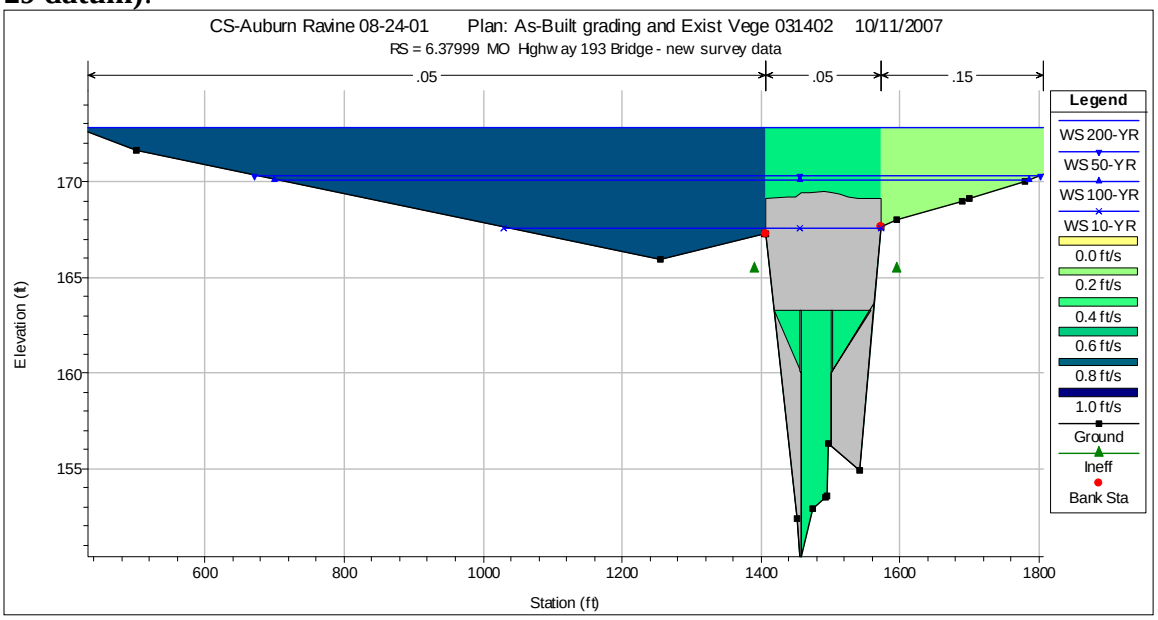
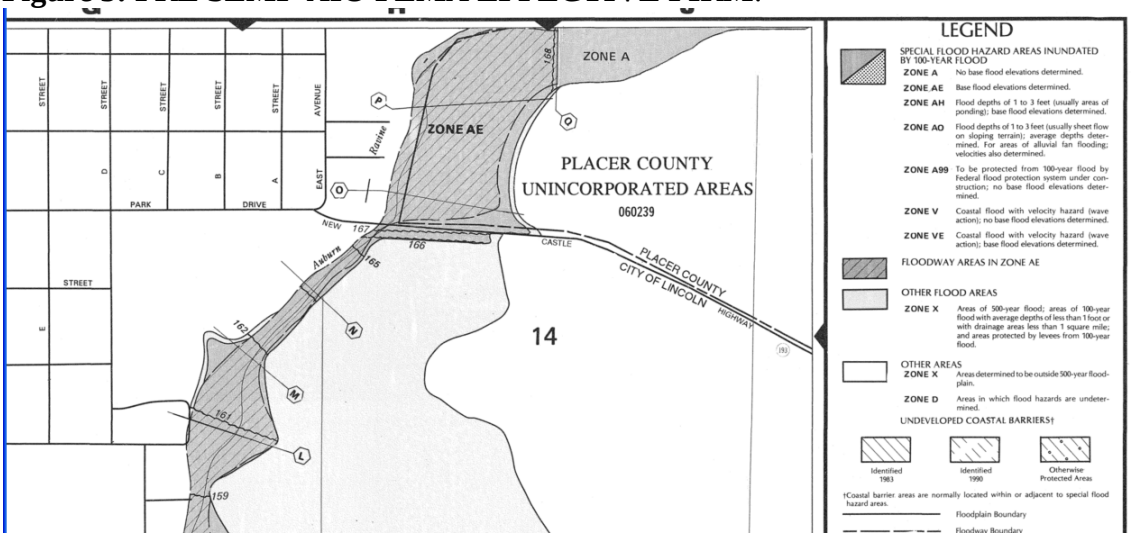


Figure 2 shows the approximate roadway overtopping elevations east of the bridge (left in exhibit) based on the NGVD 29 vertical datum used in the pre-2005 analysis. The roadway overtopping elevation per the topography maps obtained at that time showed overtopping could occur at elevation 165.90 (NGVD29) which would approximately equal elevation 168.3 in the NAVD 88 Datum. Note, the deck elevations shown in Figure 2 included obstructed area for the guard rail.

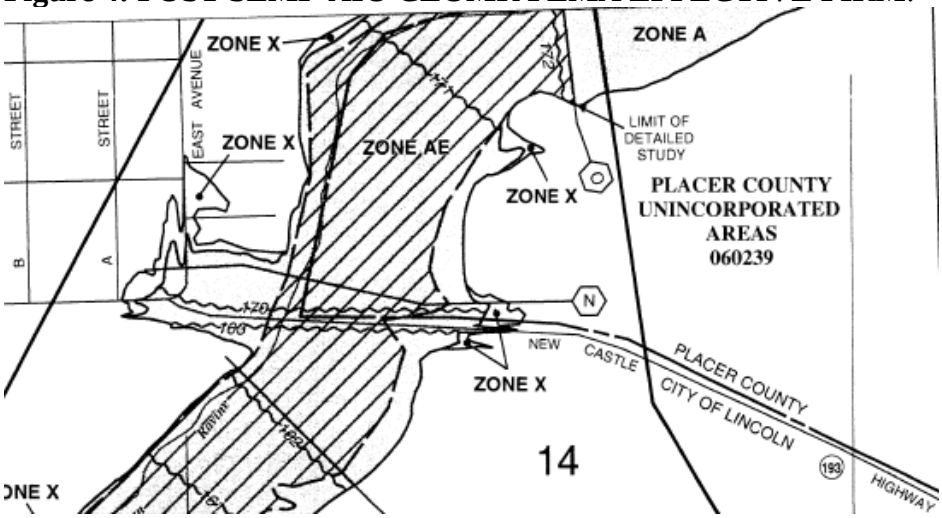
Prior to the SLMP-AIO, FEMA had seriously under-estimated the potential peak flow rates for the 100-year event and the base flood elevations were reported to be between 167 and 168 (NGVD 29) for this bridge location as shown in Figure 3.

Figure 3: PRE SLMP-AIO FEMA EFFECTIVE FIRM:



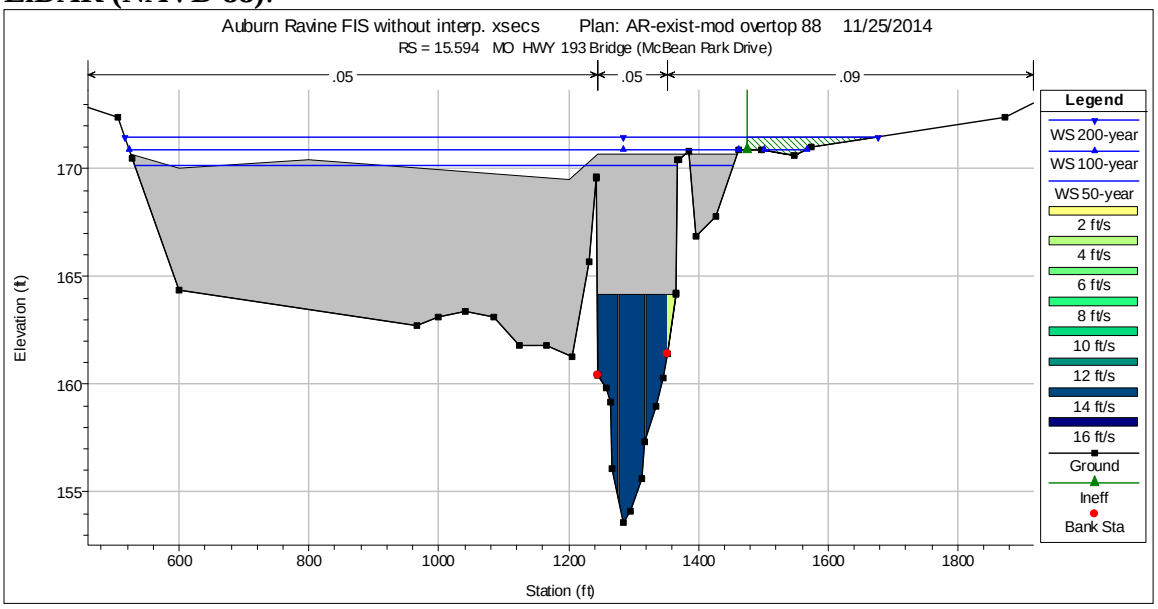
The SLMP-AIO improvements included an excavated overbank mitigation area which expended overbank flow capacity for the reach downstream of the bridge between SR-193 and SR-65. This partially lowered water surface elevations through the bridge location. However, it was recognized in the SLMP-AIO that the increased flood elevations upstream of the SR-193 bridge resulting from the improved hydrology, could result in flooding, which was not their desire. Sufficient flood attenuation mitigation was installed in the reach downstream of SR-193 at that time to compensate for future bridge improvements which would restore the originally mapped base flood elevations upstream of SR-193 bridge at Auburn Ravine. In 2005, The City of Lincoln applied for a LOMR for the as-built conditions of the creek, and it was received in 2008 (07-09-0934P-060239 & 07-09-0934P-060241). The BFE shown in the LOMR map is 170 (NGVD 29) for the 100-year event at the bridge crossing location.

Figure 4: POST SLMP-AIO CLOMR FEMA EFFECTIVE FIRM:



Since the SLMP-AIO analysis was performed in 1998 several changes have occurred. FEMA obtained new LiDAR topography for the bridge in 2009 (NAVD 88 Datum). Review of this topography demonstrated that roadway grade elevations had been modified east of the bridge. The roadway was flattened but the overtopping elevation was raised by about 2 feet. FEMA presented new hydraulic studies to Placer County and the City of Lincoln for the DRAFT DFIRM (mapmod) update in 2009. The Placer County communities challenged the technical basis of the revised modeling and mapping efforts and suggested several improvements be made to both the hydrology and hydraulics analysis and mapping methods before new effective maps would be delivered. A Cooperating Technical Partnership (FEMA-CTP) was formed between FEMA and the Placer County Flood Control District to revise the models to be more consistent with the Local Agency Comments. For Auburn Ravine, some changes to the hydrology models were necessary to apply the Ingram Slough diversion closer to SR-65 where it occurs rather than upstream of SR-193 (Mcbean Park Drive) where FEMA had it shown. Additionally some watersheds were omitted from the FEMA hydrology models. The CTP model revisions are nearly complete and remaining data provided in this report comes directly from the FIS update study models developed in that process. The revised effective FIRM's are being developed currently.

Figure 5: Revised Roadway/Flood Elevations per existing conditions – FEMA LiDAR (NAVD 88):



The roadway elevation changes noted appeared to have a considerable impact to upstream water surface elevations per the additional floodplain areas mapped in Figure 4. While the floodway did not include roadway areas outside of the bridge, the raising of the roadway increased water surface elevations by more than the NFIP allowable amounts. As a result, the City of Lincoln has negotiated with FEMA to have the ability to restore the original base flood elevations upstream of McBean Park Drive through bridge

improvements, noting that the mitigation for this is already installed. Note that in Figure 5, the obstructions for the east and west bays of the bridge have also been removed based on the 2005 cleansing event.

2 Hydrology

Hydrologic Method

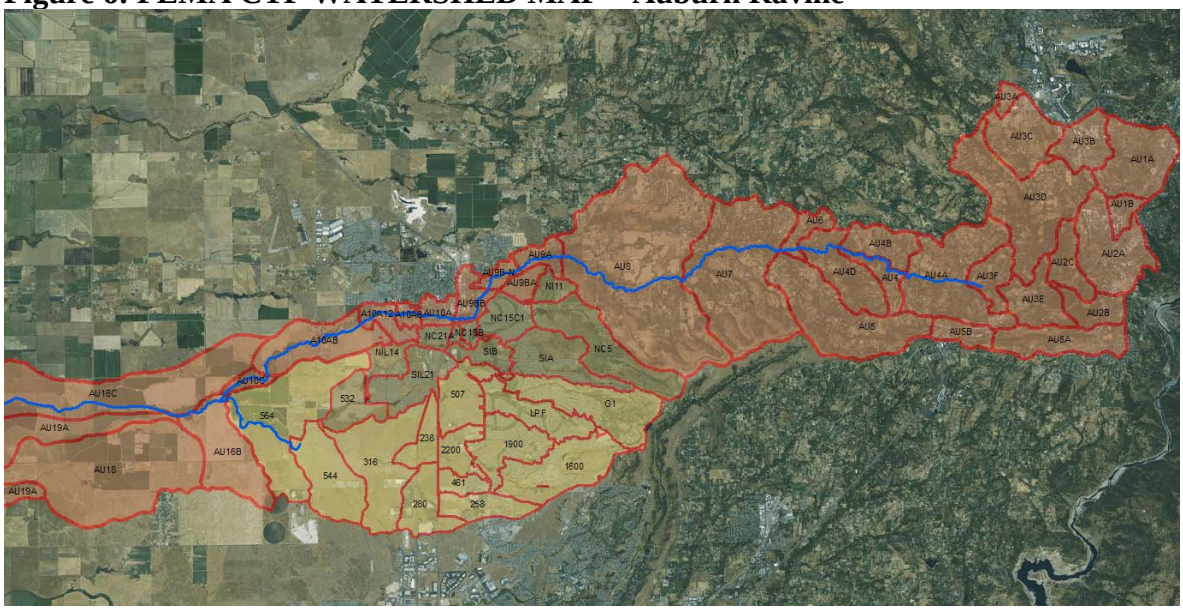
This study proposes to the use the flow rates specified in the FEMA-CTP analysis for the FIS update which is currently being finalized by FEMA. This is the most current and up-to-date hydrology Study for the Auburn Ravine Watershed. The Study is performed consistent with the requirements of the Placer County Stormwater Management Manual (SWMM), using published elevation varied precipitation rates from that same manual, and the kinematic wave hydrograph transformation process and factors described in that manual.

The Placer County SWMM methodologies use their internal PDP software for generation of precipitation factors for elevation and storm centered locations, and runoff event frequencies. During the Dry Creek Watershed Update project (2007 to 2011), it was found there were errors in the PDP program which were fixed and a new program was released called PDP2.

Factors for the infiltration rates, % imperviousness were estimated using land use maps for the watershed. Hydrologic soil type factors are also used in the estimation of infiltration rates per table 5-3 of the SWMM.

The methodology utilizes the Hydraulic Engineering Center's HEC-1 software to develop flood hydrographs for watersheds and to combine and route them. Recently the Dry Creek Watershed Update Plan provided methodology to convert these models to the HEC-HMS software which is also often done when hydrograph based results (not just peak flows) are needed. This is usually the case where hydraulic routing models are employed such as in Dry Creek. Currently, FEMA does not propose to use hydraulic routing for the estimation of Auburn Ravine Peak flows and a steady state model is used.

Figure 6: FEMA CTP WATERSHED MAP – Auburn Ravine



Method Calibration

In 2011, the FEMA-CTP prepared a Flood-Frequency Analysis (FFA) based on gages in the Dry Creek and Cross Canal Watersheds (Auburn Ravine is part of the Cross Canal Watershed). The purpose of this FFA was to determine if the Placer County SWMM methodologies, using the HEC-1 and HEC-HMS software could accurately predict flood flows in these watersheds. This analysis can be downloaded at the following link:

http://www.civilsolutions.com/workspaces/PlacerCTP/FFA/

FEMA requested that USGS peer review the analysis. The conclusions of the reviewers were that the Placer County SWMM methodology adequately predicts flood event flows for FEMA and USGS purposes.

Rainfall

Per the Placer SWMM, Rainfall intensity's and depth duration information is provided in Chapter V of that document. It is recognized in the tables there that intensity of rainfall changes with elevation. The Auburn Ravine watershed includes a range of elevation from below 100 feet to nearly 2000 feet. The FEMA watershed analysis factors the variability of this rainfall by defining a centroid elevation for each watershed, and the precipitation is interpolated from the tables in Chapter V of the SWMM automatically using the PDP2 software.

Design Flow Rates

Table 1 compares the Peak flow rates for the 10-year, 50-year, 100-year and 200-year events for various recent studies. This analysis uses the peak flow rates determined with the 2011 FEMA-CTP Study as the most current and up-to-date analysis.

TABLE 1 – Comparison of Study Peak Flow Rates for McBean Road Crossing of Auburn Ravine (cfs):

Study	10-year	50-year	100-year	200-year
SLMP-AIO (1998)	7100	12600	14900	17700
Lincoln LOMR (2008)	5845	12795	13628	Not stated
FEMA-CTP (2011-2014)	5644	11078	13476	16005

3 Hydraulics

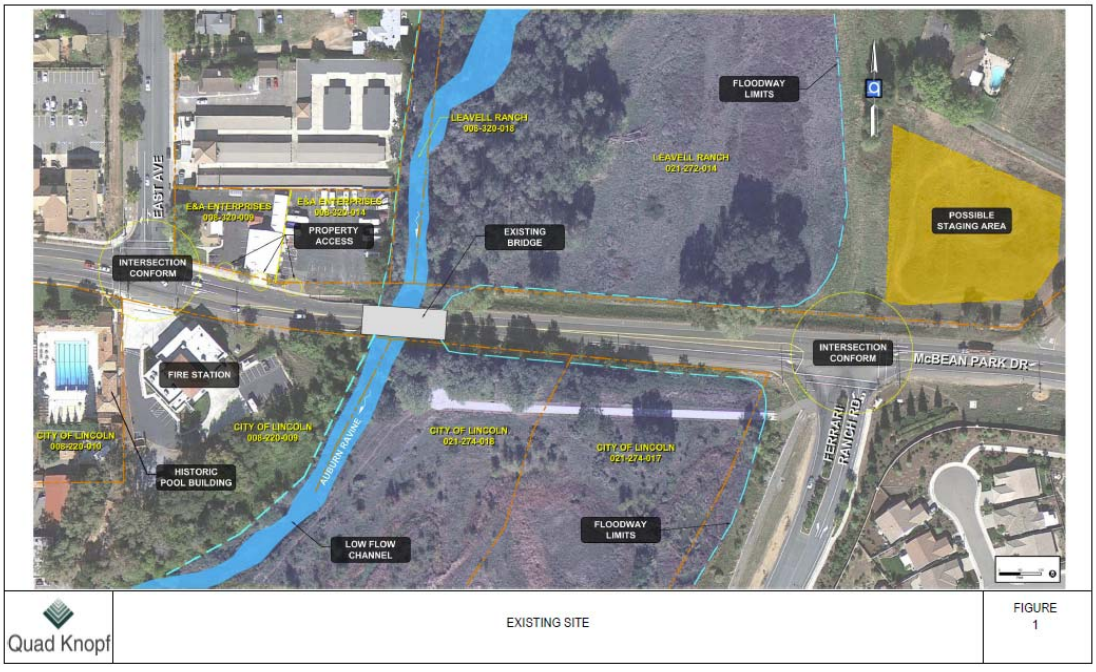
Hydraulic Analysis Methodology

The hydraulic analysis of the bridge is performed using the Hydrologic Engineering Center's HEC-RAS software. The base model was obtained from the FEMA-CTP model. Corrections were made for the roadway surface, as the FEMA-CTP model had a simplified roadway surface at a flat grade. The centerline of the roadway elevations were used for roadway areas not at the bridge. The curb overtopping elevation were used at the bridge locations. The elevations were determined based on the FEMA LiDAR. No Guard Rail was input in this model as obstructed area.

Manning's N-values were determined by the FEMA contractor, as well as other bridge factors. We did revise the bridge modeling methodology for the existing conditions to be the "pressure and weir" method, from the Energy Method previously used. This did not change upstream water surface elevations. The existing conditions bridge cross section is shown in Figure 5. This figure shows that overtopping of the existing roadway adjacent to the bridge is expected in the 10-year event (10% chance), and that flooding over the bridge deck is expected in events greater than the 50-year (2% chance)

Existing Bridge Structure Site

Figure 7: Existing Bridge Layout and Site Plan



NFIP Criteria Issues

The roadway elevation changes east of the bridge may trigger an NFIP issue. As a result the City of Lincoln has negotiated with FEMA that future bridge improvements can be installed which expand the capacity of the bridge and reduce upstream storage without triggering additional NFIP issues for work performed within the floodway. FEMA agreed that the original floodplain elevations could be restored.

With the additional consideration that attenuation mitigation for upstream reduced storage was more than compensated for in the overbank excavations downstream of the bridge, it was noted that additional capacity at a future bridge to lower upstream water surface elevations and eliminate roadway overtopping could be installed. However, additional demonstration of adequate mitigation would be required if that occurs.

FEMA FIS Update

The FEMA FIS update initiated in 2002 is still proceeding, and resolving the local community issues. It is expected that technical studies will be approved shortly. Hydrology is already approved, and the outstanding hydraulics analysis issues do not impact this bridge structure.

Bridge Analysis Results for Historical and Current Conditions

The results of previous and current analysis of the bridge are presented in figures 2-5. The Current analysis shows that the 50-year (2 % event) water surface elevation would be 170.18, the 100-year (1% event) water surface elevation would be 170.88 and the 200-year (0.5% event) would be 171.49. All of these events are expected to overtop the roadway east of the bridge location. The 100-year and 200-year events are expected to overtop the bridge also. The overtopping elevation of the roadway is 169.50 and the bridge is 170.70 (top of curb). The existing soffit elevation of the bridge is 164.20.

(NAVD 88 elevations above)

CVFPB Criteria

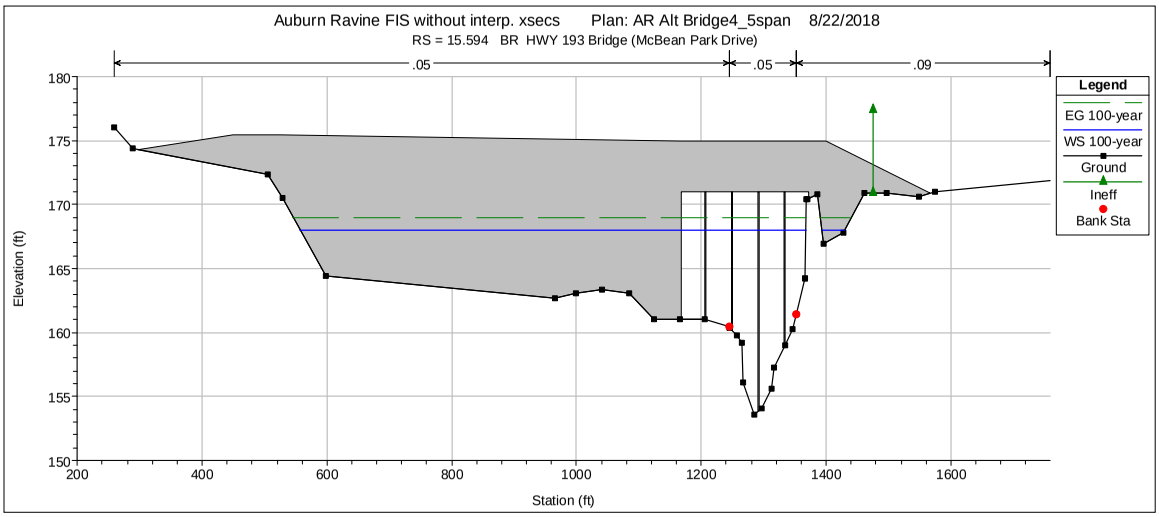
The Central Valley Flood Protection Board (CVFPB) claims Title 23 Section 8 listed stream jurisdiction over the Auburn Ravine Floodway. As a result bridge improvements within the Auburn Ravine Floodway require an encroachment permit. The currently enforced normal standards for the CVFPB require that 3 feet of soffit freeboard to the local design event water surface elevation (in this case the 100-year event has been

determined to be the Local Event Standard) of any new or replaced structures within the floodway.

The CVFPB does allow variances to their standards in cases where it can be demonstrated that achieving their standard creates a worse flooding problem (usually in requiring elevated abutment approaches).

Analysis of alternatives does demonstrate that achieving the CVFPB freeboard criteria is possible, but will require raising a section of roadway.

An alternative was developed for the analysis which achieves the 3 feet of freeboard criteria, with a 100-year water surface elevation on the upstream side of the bridge of 168.0 and a bridge soffit elevation of 171.0. The below cross section shows this alternative.



4 Stream Issues

Normal Annual Functions for Scour and Deposition

The section of Auburn Ravine near the City of Lincoln generally receives a cycle of sediment placement and scour each year. During the winter months, sediment is delivered to the Auburn Ravine low flow channel and sometimes the overbank areas through normal runoff events from seasonal storms. During the spring and summer months agricultural water deliveries transported in the creek generally wash away the sediment to the gravel and cobble river bottom. The dry season water deliveries vary from 17 cfs to almost 500 cfs. These flows are not sufficient to access overbank areas.

For this bridge this means that generally sediments and debris are placed in the east and west most bays of the bridge during the winter months, and these depositions are not

normally washed away by the dry season water deliveries. It is also believed that the shape of the western pier, a bent chevron with point on east side and ends on west side may contribute to the sediment collection issues in the west bay. During out of bank flows, the front edge of the pier confines the flow entering this bay, however, the chevron shape of the continuous pier increases the cross sectional the water is passing through to the midpoint of the bridge. This would reduce velocity and allow for sediment deposition mostly in the middle under the bridge, which is what is observed.

By 2002, the exterior bays of the bridge were nearly completely clogged and remained this way until 2005.

Performance in Flood Seasons

It was witnessed in the New Years Eve event of 2005 that flows which approach the 10-year event will wash away the collected materials in the east and west bays of the bridge (overbank areas). However, a smaller event in 2000 only added debris and sediment to these areas.

Stream Migration and observed issues downstream of the Existing Bridge

The existing bridge is all the way against the western bank of the Ravine. Some westerly erosion of this bank occurs upstream of the bridge. Downstream of the bridge, the low flow channel was directly adjacent to the toe of the western bank until 2005 when the low flow channel moved more than 100 feet away in some places, where it remains today. The large New Year's eve storm event was the event where most of the migration occurred. This sudden migration may be an indicator of the s-curve migration of the stream to the downstream. If this is occurring the existing bridge could become partially out of alignment with the low flow channel for the ravine and it may require erosion protection measures both upstream and downstream of the bridge to maintain the low flow stream channel at the current or proposed bridge location. A Geomorphologist should be consulted in the future regarding this issue.

5 Water Quality

Water Quality issues will not be addressed until design approaches are further identified.

6 Summary

This report and the included analysis demonstrates that based on current hydrologic and hydraulic analysis of Auburn Ravine, the existing bridge at McBean Park Drive is not capable of passing the 50-year or 100-year event without overtopping of the adjacent roadway and bridge. Furthermore, prior roadway improvements may have increased water surface elevations upstream of the bridge by obstructing overtopping flows, and increased conveyance capacity at the bridge location would be needed to correct this issue.

7 Appendices

Appendix A – DVD containing Models and report.

601 Pollasky Avenue, Suite 301 | Clovis, CA 93612

August 24, 2021

Mike Sanchez
Quincy Engineering
11017 Cobblerock Dr.
Rancho Cordova, California 95670

Subject: Water Quality Memo, McBean Park Drive Bridge Replacement Project, Lincoln, California

Dear Mr. Sanchez:

This water quality memo summarizes water quality issues related to the McBean Park Drive Bridge Replacement Project (Project). Based on this analysis, water quality issues will be minimal, and a Water Quality Assessment Report will not be necessary.

The City of Lincoln is proposing to replace the existing two-lane McBean Park Drive Bridge, which was considered functionally obsolete in 2012 when it was programmed in the Highway Bridge Program. It is hydraulically inadequate and fails to meet current safety standards. The replacement of the bridge has a potential to affect the water quality of Auburn Ravine. Our evaluation, which is summarized below, is based upon an analysis of water quality issues contained in the California Department of Transportation's (Caltrans) Revised Scoping Questionnaire for Water Quality Issues (provided separately if requested). Our evaluation indicates that the potential for water quality issues is minimal. Below is a summary of that evaluation.

There would be no effects to water quality based on the following factors:

- The Project is not within an area that has specific water quality requirements, is not within an Area of Special Biological Significance, and is not located in the Lake Tahoe or Mono Lake watersheds.
- Auburn Ravine is not identified as a Wild and Scenic River and is not connected to a drinking water source, recharge facility, or other high-risk area.
- The Project will not impact any downstream hydrologic sub-areas. There are nearby groundwater monitoring wells, but impacts to those wells are not anticipated.
- The Project will not permanently alter the alignment of Auburn Ravine, impede fish passage, or impact any wetlands, special aquatic sites, or endangered aquatic or wetland-dependent species.
- Because the Project will not permanently divert water, dewater Auburn Ravine, cause increases or other changes (time, duration) in runoff, or cause other potential stormwater runoff issues, the Project will not result in significant impacts to Auburn Ravine or to any downstream waterbody.

- Water quality issues will not occur due to erosion and discharges will not cause or contribute to a violation of water quality standards or water quality objectives and ultimately will not adversely affect the beneficial uses of waters of the State.
- A Total Maximum Daily Load has not been established for Auburn Ravine, and there is no established Waste Load Allocation at this time.
- Clearing and grubbing and disturbed soils will total approximately 0.56 acres. No slopes greater than 2H:1V will be cut and filled and no soil containing aerosol lead deposits are proposed for reuse.
- No equipment will be stored near water bodies and no sand blasting will occur over Auburn Ravine. There will be Environmentally Sensitive Areas (ESA) established near the staging area, but Best Management Practices (BMPs) will be in place to ensure no effects to water quality. Soils will not be stockpiled near any water body.

There would potentially be minor water quality issues resulting from the Project, but those would be addressed through implementing project-specific BMPs and avoidance and minimization measures. Potential water quality issues include:

- The potential for hazardous materials to be present and effect the water quality of the creek during bridge demolition.
- Temporary water diversion and dewatering of the creek could potentially affect water quality of the creek.
- The potential for stormwater to enter the creek and for erosion to occur, resulting in water quality issues within Auburn Ravine.
- Environmentally Sensitive Areas and floodplains that are present within the Project area could be affected.
- Construction activities below groundwater levels will be needed, consisting of excavations for abutment piles and pier foundations.
- Sensitive plants and wildlife species may be present within the Project area could be affected.

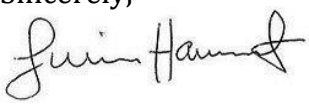
Temporary water diversion and dewatering will be conducted by establishing a containment dam in conformance with City specifications and regulations as required by the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS). To mitigate storm water discharge effects, standard erosion and pollutant control measures will be implemented prior to the commencement of construction to comply with the National Pollutant Discharge Elimination System General Permit conditions. A Storm Water Pollution Prevention Plan will be developed, identifying Best Management Practices to address soil erosion, discharge of construction pollutants, spill and water contamination prevention and minimize land disturbance. Sensitive species and ESAs will be avoided by implementing project-specific avoidance and minimization measures.

A Section 401 Clean Water Act (CWA) permit through the Regional Water Quality Control Board, a Section 404 CWA permit through the United States Army Corps. of Engineers (USACE), and a Section 1600 Lake and Streambed Alteration Agreement through the CDFW

are anticipated to be needed. Compliance with these regulatory measures will ensure that the Project meets water quality standards, waste discharge requirements, and will not substantially degrade water quality. It is likely that the CDFW permit will contain additional measures to protect fish and wildlife.

Please contact us at (559) 449-2400 if you have any questions regarding the contents of this summary or need additional information. It has been a pleasure to assist you with this Project.

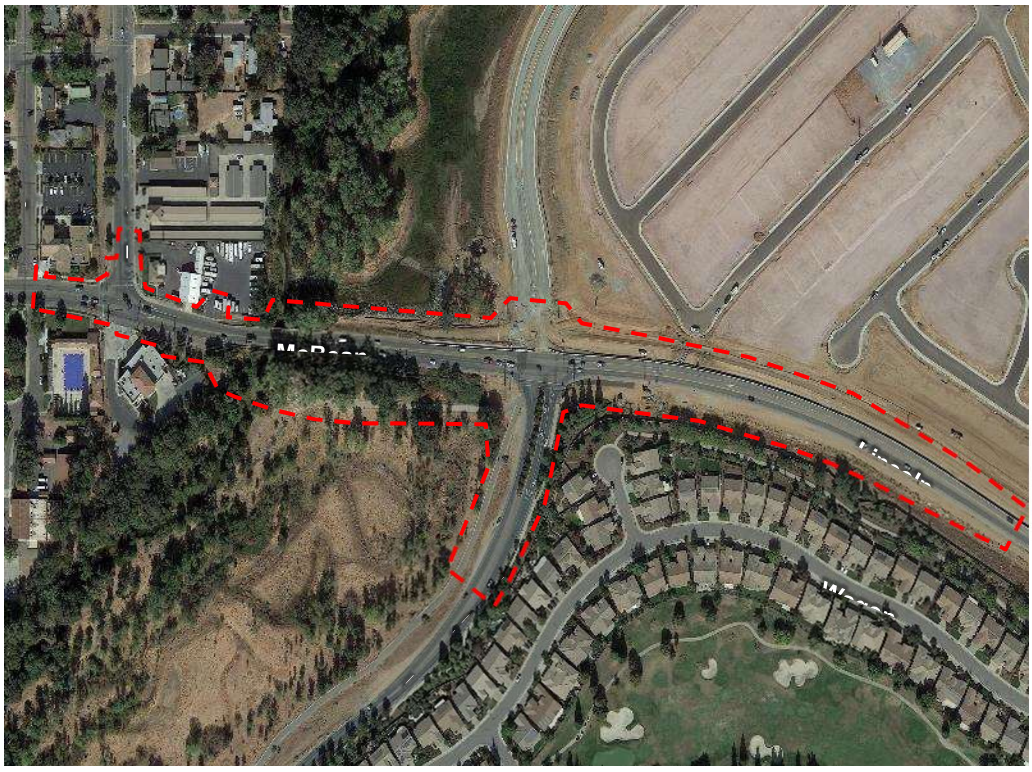
Sincerely,



Julie Hausknecht
Associate Environmental Scientist

APPENDIX E

NOISE STUDY REPORT



Noise Study Report

McBean Park Drive Bridge Replacement

at Auburn Ravine Bridge

November, 2021

Prepared for:
Quad Knopf, Inc.
601 Pollasky Avenue, Suite 301
Lincoln, CA 93612
Attention: Ernie Escobedo

Noise Study Report

McBean Park Drive Bridge Over

Auburn Ravine Bridge Replacement Project

November 2021

Prepared By: Paul Bollard, President Date: November 30, 2021

Phone Number (530) 537-2328

Company Name Bollard Acoustical Consultants, Inc.

Approved By: _____ Date: _____

Supervisor's Name, Title

Phone Number _____

Office Name _____

District/Region _____

Summary

McBean Park Drive Bridge (19C0254) over Auburn Ravine near downtown Lincoln, California is programmed in the Highway Bridge Program (HBP) for replacement. The bridge currently is overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The improvements would provide a safe reliable structure, support alternative modes of transportation involving bikes, pedestrians, and neighborhood electrical vehicles (NEV), and be acceptable to the community with minimal impacts to traffic and the surrounding environment.

The replacement of the bridge and roadway modification will be funded with Highway Bridge Program (HBP) and local matching funds.

The project is programmed as a bridge replacement project that will provide a wider bridge for vehicular, pedestrian and NEV use as well as enhance the seismic integrity of the bridge. More importantly the new bridge will be longer, and the profile will be raised significantly for necessary hydraulic conveyance. The bridge replacement involves the following activities:

- Removal of some of the constricting earthen fill prism from the floodway.
- Removal of the hydraulically inadequate and functionally obsolete (as classified in 2012 when programmed in the Highway Bridge Program) bridge.
- Construct a longer bridge.
- Replace the bridge with a wider bridge to accommodate three travel lanes, two shoulders and two sidewalks.
- Raise the roadway and bridge profile.
- Relocate overhead power and telecommunications as well as underground electrical and telecommunication facilities. Gas may also require relocation in the westerly roadway approach.

Existing sensitive land uses within the study area consist of the residential component of a fire station, a public swimming pool, interior areas of businesses, and single-family residences (both existing and under construction). A total of nineteen (19) representative receptor locations were modeled within the project study area for this analysis.

A combination of short and long-term noise surveys were conducted at six (6) locations during the month of May 2021 to quantify existing conditions and calibrate the Traffic Noise Model (TNM 2.5). Monitoring results indicate that the existing traffic noise levels are currently below applicable Noise Abatement Criteria (NAC) at all receptors located along the project corridor and that the project would not result in any adverse noise impacts.

Existing and future traffic noise levels were modeled using traffic volumes contained within the Village 1 Specific Plan Project. The Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) version 2.5 was used for the noise computations for the future "Build" and "No-Build" scenarios.

Future build noise levels are predicted to be approximately 3-7 dB $L_{eq}(h)$ above existing noise levels, which is well below the 23 CFR 772 12 dB Noise Abatement Criterion (NAC). The increase in traffic noise levels due to the project alone was computed to be approximately 1 dB, which is not considered significant relative to either Caltrans or CEQA criteria. Because the project-related increase in traffic noise levels is predicted to be less than significant, and because future traffic noise levels are not predicted to approach or exceed the applicable NAC at any of the receptors located along the project study corridor, consideration of noise abatement is not warranted for this project.

Construction noise exposure to sensitive receptor locations will be intermittent. The degree of construction noise impacts may vary for different areas of the project site depending on the construction activities. During the construction period, the contractors may be required to comply with the noise ordinances of the local jurisdiction.

Table of Contents

List of Figures

List of Tables

Page

List of Abbreviated Terms

CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
dB	Decibels
FHWA	Federal Highway Administration
Hz	Hertz
kHz	Kilohertz
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
$L_{eq(h)}$	Equivalent Sound Level over one hour
L_{max}	Maximum Sound Level
LOS	Level of Service
L_{xx}	Percentile-Exceeded Sound Level
mPa	micro-Pascals
mph	miles per hour
NAC	noise abatement criteria
NADR	Noise Abatement Decision Report
NEPA	National Environmental Policy Act
NSR	Noise Study Report
Protocol	Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects
SPL	sound pressure level
TeNS	Caltrans' Technical Noise Supplement
TNM 2.5	FHWA Traffic Noise Model Version 2.5

Chapter 1. Introduction

McBean Park Drive Bridge (19C0254) over Auburn Ravine near downtown Lincoln, California is programmed in the Highway Bridge Program (HBP) for replacement. The bridge currently is overtopped during mild storm events, rendering this major ingress/egress arterial of the City impassible and unsafe. The improvements would provide a safe reliable structure, support alternative modes of transportation involving bikes, pedestrians, and neighborhood electrical vehicles (NEV), and be acceptable to the community with minimal impacts to traffic and the surrounding environment.

The replacement of the bridge and roadway modification will be funded with Highway Bridge Program (HBP) and local matching funds.

The project is programmed as a bridge replacement project that will provide a wider bridge for vehicular, pedestrian and NEV use as well as enhance the seismic integrity of the bridge. More importantly the new bridge will be longer, and the profile will be raised significantly for necessary hydraulic conveyance.

The McBean Park Drive Bridge project must result in an adequate crossing of Auburn Ravine. Community members are in support of this project, as it would ensure improved access during emergencies and would mitigate flooding events. As such, options to replace the bridge provide an excellent opportunity to celebrate the history of Lincoln by enhancing the bridge with appropriate aesthetic features that could be designed to establish a gateway to downtown Lincoln and the historic district.

The **five primary goals** for the project are:

1. Replace the hydraulically inadequate bridge with a bridge that provides reliable general and emergency vehicle access during peak storm events.
2. Establish an enhanced river crossing.
3. Improve the hydraulic conveyance beneath the roadway to reduce the risk of upstream flooding.
4. Improve McBean Park Drive between the intersections of Ferrari Ranch Road and East Avenue to provide improved multi-modal connectivity for pedestrians, bicycles and, NEVs.
5. Maintain traffic on McBean Park Drive during construction.

The study includes (a) long-term noise measurements; (b) short-term measurements; (c) roadway traffic noise modeling using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) version 2.5.

1.1. Purpose of the Noise Study Report

The purpose of this NSR is to evaluate noise impacts and abatement under the requirements of Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise." 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. According to 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards. Compliance with 23 CFR 772 provides compliance with the noise impact assessment requirements of the National Environmental Policy Act (NEPA).

The Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol) (Caltrans 2020) provides Caltrans policy for implementing 23 CFR 772 in California. The Protocol outlines the requirements for preparing noise study reports (NSR).

1.2. Project Purpose and Need

The existing McBean Park Drive bridge structure was considered "Functionally Obsolete" in 2012 when it was programmed in the Highway Bridge Program and is hydraulically inadequate and fails to meet current safety standards.

The City has identified the following purposes for this project.

- To replace the 97-year-old Functionally Obsolete and hydraulically inadequate bridge.
- To widen McBean Park Drive and provide a standard 3-lane improved facility with standard shoulders and sidewalks consistent with City and American Association of State Highway and Transportation Officials (AASHTO) standards to accommodate vehicles, NEV's, bicycles and pedestrians.
- To minimize adverse long-term traffic noise and visual impacts that may result from raising the bridge profile.

Chapter 2. Project Description

2.1. Proposed Build Alternative

A preliminary evaluation has been developed to shift the alignment of the existing bridge south slightly to minimize impacts to the parcels north and west of the bridge. Minor retaining curbs and retaining walls may be needed around the driveway connections on the northwest side of the bridge and along the south side of the road west of the bridge and east of the fire station driveway. Large flow events under the bridge will be handled by an extended bridge.

Replacing the bridge will involve lengthening the bridge and raising the roadway profile (for hydraulic adequacy) approximately 5 feet. Given the CVFPB jurisdiction, the raised roadway profile is governed by a design event for a 100-year flood event plus 3 feet of freeboard. Downstream impacts were mitigated under "The South Lincoln Master Drainage Plan". These measures will be carried forward to this project, as they anticipated the bridge replacement at McBean Park Drive. This jurisdictional waterway will require a permit from the CVFPB.

The potential stage construction to replace the existing bridge with a new bridge will be:

1. Build a portion of the new bridge and portion of the roadway approaches sufficient to accommodate two lanes of traffic.
2. Shift traffic to the newly constructed southerly bridge/improvements portion.
3. Remove the existing bridge.
4. Complete the new bridge.
5. Shift traffic to the ultimate lane locations and open to all traffic (vehicular, pedestrians, bicycles, and NEV's).

The replacement bridge will increase the number of through vehicular lanes from two to three and provide two shoulders and two sidewalks.

The project improvements also include widening through, along, and beyond the intersection east of the bridge at Ferrari Ranch Road. The project will require widening of McBean Park Drive to allow two thru lanes in the westbound direction and one thru lane in the eastbound directions along McBean Park Drive through the intersection of

Ferrari Ranch Road as well as accommodate lane transition widening along Ferrari Ranch Road to conform to the intersection widening improvements. No improvements would be made to the intersection north of McBean Park Drive however, the existing traffic signal will need to be modified. The intersection of East Avenue with McBean Park Drive will also require improvements, including modifications to the existing traffic signal and existing storm drain. These improvements will allow, in the westbound direction of McBean Park Drive, one thru lane, one left-turn lane, and one right-turn lane. Improvements will not affect the fire station property to the south of the intersection. Since the project proposes to widen and the raise the roadway profile, it will introduce minor impacts to the parcels on the north side of McBean Park Drive between East Avenue and the bridge. However, it is anticipated that access to the existing driveways will be maintained after the project is completed.

With the proposed roadway widening, mainly to the south, existing utilities will need to be relocated; including the overhead utilities and poles along the south side of McBean Park Drive from East Avenue to Ferrari Ranch Road.

The proposed alternative project striping plan is provided in Appendix A.

2.2. No-Build Alternative

Under the No-Build Alternative, no changes would be made to McBean Park Drive in the project area.

Figure 2-1. Project Location Map

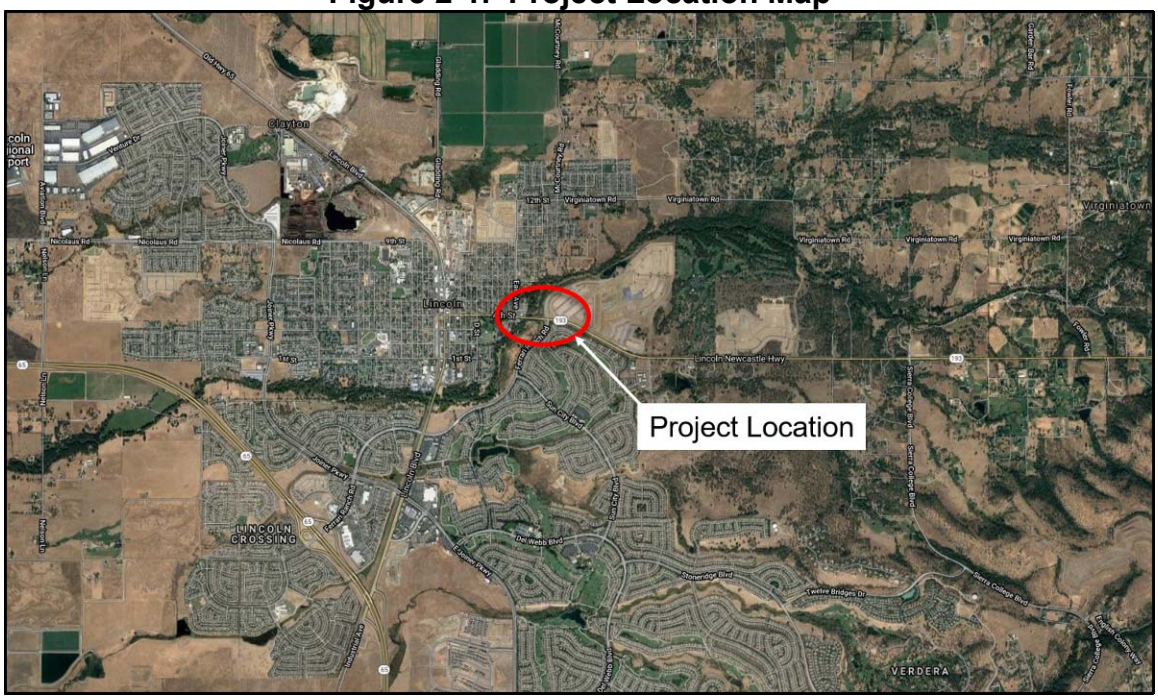


Figure 2-2. Project Vicinity Map

Chapter 3. Fundamentals of Traffic Noise

The following is a brief discussion of fundamental traffic noise concepts. For a detailed discussion, please refer to Caltrans' Technical Noise Supplement (TeNS) (Caltrans 2013), a technical supplement to the Protocol that is available on Caltrans Web site (http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf).

3.1. Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

3.2. Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

3.3. Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

3.4. Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

3.5. A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Table 3-1 describes typical A-weighted noise levels for various noise sources.

Table 3-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013.

3.6. Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the midfrequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

3.7. Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for noise abatement criteria (NAC) used by Caltrans and FHWA.

- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.

- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

3.8. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

3.8.1. Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

3.8.2. Ground Absorption

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

3.8.3. Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

3.8.4. Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often

constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receptor is rarely effective in reducing noise because it does not create a solid barrier.

Chapter 4. Federal Regulations and State Policies

This report focuses on the requirements of 23 CFR 772, as discussed below.

4.1. Federal Regulations

4.1.1. 23 CFR 772

23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. Under 23 CFR 772.7, projects are categorized as Type I, Type II, or Type III projects.

- FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment of the highway. The following projects are also considered to be Type I projects:

- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane,

- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane,

- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange,

- Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane,

- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

If a project is determined to be a Type I project under this definition, the entire project area as defined in the environmental document is a Type I project.

A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III project is a project that does not meet the

classifications of a Type I or Type II project. Type III projects do not require a noise analysis.

Under 23 CFR 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor "consider" noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design-year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). 23 CFR 772 does not specifically define the terms "substantial increase" or "approach"; these criteria are defined in the Protocol, as described below.

Table 4-1 summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual or permitted land use in a given area.

4.1.2. Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects

The Protocol specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or Federal-aid highway projects. The Protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA or more. The Protocol also states that a sound level is considered to approach an NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

The Technical Noise Supplement to the Protocol provides detailed technical guidance for the evaluation of highway traffic noise. This includes field measurement methods, noise modeling methods, and report preparation guidance.

Table 4-1. Activity Categories and Noise Abatement Criteria (23 CFR 772)

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

[1] The $L_{eq}(h)$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

[2] Includes undeveloped lands permitted for this activity category.

4.2. State Regulations and Policies

4.2.1. California Environmental Quality Act (CEQA)

Noise analysis under the California Environmental Quality Act (CEQA) may be required regardless of whether or not the project is a Type I project. The CEQA noise analysis is completely independent of the 23 CFR 772 analysis done for NEPA. Under CEQA, the baseline noise level is compared to the build noise level. The assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

4.2.2. Section 216 of the California Streets and Highways Code

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA-L_{eq}(h) in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. This requirement does not replace the "approach or exceed" NAC criterion for FHWA Activity Category E for classroom interiors, but it is a requirement that must be addressed in addition to the requirements of 23 CFR 772.

If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dBA-L_{eq}(h). If the noise levels generated from freeway and roadway sources exceed 52 dBA-L_{eq}(h) prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

Chapter 5. Study Methods and Procedures

This section describes the methods and procedures followed for the noise study, including the selection of representative receptor sites, noise measurement procedures, and traffic noise modeling required to conduct the analysis.

5.1. Methods for Identifying Land Uses and Selecting Noise Measurement and Modeling Receiver Locations

A field investigation was conducted to identify land uses along the McBean Park Drive project area of potential affect (APE) that could be subject to traffic and construction noise impacts from the proposed project. The geometry of the project relative to nearby existing land uses was also identified.

Land uses in the project area were categorized by land use type (Activity Category) as defined in Table 4-1. As stated in the Caltrans protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Nonetheless, the Protocol requires assessment at all representative land use types for disclosure purposes. Therefore, representative commercial uses were considered in this study.

Short-term and long-term measurement sites were selected to be representative of major developed areas within the project study area containing noise-sensitive uses. Long-term measurement sites were selected to capture the diurnal traffic noise level pattern in the project area. Short-term measurement locations were selected at locations with a clear acoustic view of the subject roadway, not necessarily at sensitive receptor locations. Both the long-term and short-term monitoring sites were used to assist in the TNM model calibration process.

5.2. Field Measurement Procedures

A field noise study was conducted in accordance with recommended procedures in TeNS. The following is a summary of the procedures used to collect short-term and long-term sound level data.

5.2.1. Short-Term Measurements

Short-term ambient noise level monitoring was conducted on May 25, 2021, at the two (2) locations identified as ST-1 and ST-2 in Appendix B. The primary purpose of the short-term noise level measurements was to collect data for subsequent calibration of the

highway traffic noise prediction model using actual vehicle count data during the samples. The short-term monitoring sites consisted of a location within the walking path south of McBean Park Drive (ST-1), and a location within the Del Webb Sun City residential complex (ST-2). Site ST-1 had a direct view of McBean Park Drive whereas Site ST-2 was shielded from view of McBean Park Drive by an existing noise barrier (Barrier B-1 in Appendix C).

Short-term noise measurements were conducted using a matched pair of Larson-Davis Laboratories (LDL) Model 831 integrating sound level meters equipped with PCB Piezotronics Model 377B02 ½" microphones. The sound level meters were calibrated before and after the survey sessions with an LDL Model CAL200 acoustical calibrator. At each short-term monitoring location, the two meters were placed side-by-side with the results compared to eliminate the potential for equipment malfunction.

The equipment used meets all of the pertinent American National Standards Institute (ANSI) specifications for Type 1 (precision) sound level meters (ANSI S1.4). The measurement microphones were fitted with wind screens. Microphones were set 5 feet above ground in all cases. Short-term measurement intervals were 20 minutes at site ST-1 and 15-minutes at site ST-2. The monitoring durations at each site were dictated by traffic volume present during the test period, pursuant to TeNS requirements.

The noise level data for each monitoring period were automatically recorded by the SLM, with the average and maximum noise levels transferred to field data sheets. Field staff attended each meter, noting extraneous noise sources and other pertinent data. Concurrent traffic counts were collected using manual counting devices. Short-term noise monitoring field data sheets are provided in Appendix E.

Vehicles were classified according to their type (i.e., autos, medium trucks, heavy trucks), with school buses and recreational vehicles being classified as medium trucks. An automobile was defined as a vehicle with two axles and four tires that are designed primarily to carry passengers. Small vans and light trucks were included in this category. Medium-duty trucks included all cargo vehicles with two axles and six tires. Heavy-duty trucks included all vehicles with three or more axles. The posted speed on McBean Park Drive is 35 mph west of Ferrari Ranch Road and 55 mph east of Ferrari Ranch Road. The posted speed on Ferrari Ranch Road is 35 mph south of McBean Park Drive. Traffic speeds present during the short-term surveys were quantified by driving a pace car at the prevailing vehicle speeds and noting the speedometer readings.

Atmospheric information (temperature, wind speed, cloud cover, and relative humidity) was observed during the measurement sessions. Atmospheric conditions during the noise level measurement sessions were conducive to traffic noise level measurement accuracy with no anomalous weather conditions present which would have adversely affected the measured sound levels.

5.2.2. Long -Term Measurements

Long-term noise level monitoring was used to quantify baseline highest hourly average noise levels at representative receptors located along the project corridor. Long-term monitoring was conducted at four (4) locations along the project corridor during the month of May, 2021. The long-term noise monitoring locations are identified in Appendix B. The long-term monitoring sites were selected to be as representative of residential outdoor activity area noise exposure or residential building façade noise exposure as feasible. The primary purposes of the long-term measurements were to 1) capture the existing highest hourly average noise level at each location; 2) to identify variations in sound levels throughout the day and; 3) to calibrate the TNM where necessary to reflect local conditions.

Long-term monitoring was conducted using similar equipment and during similar atmospheric conditions as described in the short-term monitoring section (5.2.1). The sound level meters were calibrated before and after the surveys with an LDL Model CAL200 acoustical calibrator. The measurement microphones were fitted with manufacturers wind screens and set 5 feet above ground. Long-term monitoring field sheets are provided in Appendix F.

It is important to note that the Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (Tens - 2013) permits the use of either short-term traffic noise level measurements with concurrent traffic counts or long-term monitoring to establish the existing highest hourly average noise level at receptor locations.

For this project, both long-term and short-term monitoring was conducted. The long-term monitoring period was 3-4 weekdays at each location. This approach allowed the direct identification of the existing highest hourly average noise level without the need to normalize the monitoring results for differences in traffic mix and volume, as was required for short-term noise monitoring sites. During hours when the highest hourly Leq was clearly generated by anomalous sources not directly related to traffic (i.e., emergency vehicle sirens), those anomalous sources were omitted prior to determination of the highest hourly average noise level.

In addition to identifying the noisiest hour baseline conditions, the long-term noise level measurements were used to check the accuracy of the Traffic Noise Model (TNM) in predicting the existing noisiest hour conditions. This evaluation was performed by comparing the noisiest hour determined from the long term measurement program against levels predicted using the TNM with existing traffic conditions.

5.3. Traffic Noise Levels Prediction Methods

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key inputs to the traffic noise model were the locations of roadways, traffic mix and speed, shielding features (e.g., topography and buildings), noise barriers, ground type, and receptors. The specific parameters modeled for this project are discussed below.

The modeled roadway configurations were based on drawings provided by Quincy Engineering. Traffic volume data for existing and future conditions were obtained from the Village 1 Specific Plan DEIR. Appendix D contains the traffic volumes and assumptions used for traffic noise modeling.

5.3.1. Traffic Modeling Parameters

Traffic volumes for McBean Park Drive and Ferrari Ranch Road were obtained from the Village 1 Specific Plan DEIR. Existing average vehicle speeds for all vehicle types were assumed to be 40 mph on Ferrari Ranch Road and McBean Park Drive west of Ferrari Ranch Road during the AM peak period, and 55 mph on McBean Park Drive east of Ferrari Ranch Road. Due to the signalized control of the intersection of McBean Park Drive and Ferrari Ranch Road, vehicle speeds vary depending on the signal direction and distance from the intersection. Because the project does not proposed substantial increases in roadway capacity, vehicle speeds were conservatively assumed to increase by 5 mph following completion of the project improvements due to reduced congestion at turn lanes.

Modeled vehicle type mix assumed 96% automobiles, 1% medium trucks, and 3% heavy trucks for McBean Park Drive and Ferrari Ranch Road. This distribution was based on BAC observations and vehicle counts conducted during short-term noise monitoring. Please refer to Appendix D for traffic assumptions used for this analysis.

5.3.2. Road Configurations

McBean Park Drive and Ferrari Ranch Road were modeled with 2 lanes for existing conditions. Under the Build Alternative, improvements would consist of adding an additional lane across the bridge and improved turning lanes at the intersection.

5.3.3. Terrain Lines

Terrain lines were modeled where 1) ground elevation was required or, 2) there are rapid physical terrain undulations exceeding five feet in elevation. Terrain lines were only modeled where a potentially affected receiver was nearby.

5.3.4. Existing Barriers

There are two existing masonry barriers in the project study area. The first (B-1, Appendix C), is an approximately 7-foot tall barrier on a 3-4 foot berm shielding residences within the Del Webb community located at the southeast quadrant of the intersection of McBean Park Drive and Ferrari Ranch Road. The second barrier (B-2) is approximately 7.5 feet tall constructed on a 2-3 foot berm providing shielding to a new residential development under construction in the northeast quadrant of the intersection of McBean Park Drive and Ferrari Ranch Road. Figures 5-1 and 5-2 show photographs of the existing barriers. The barrier locations are indicated in Appendix C.

Figure 5-1. Barrier in Southeast Quadrant of Intersection

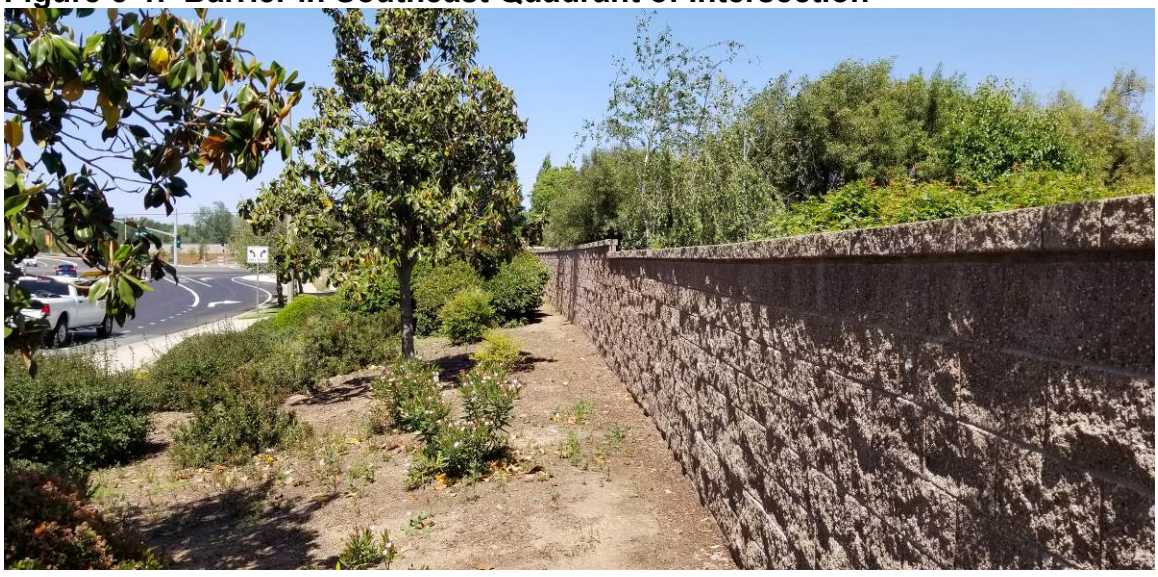


Figure 5-2. Barrier in Northeast Quadrant of Intersection

The Existing masonry noise barriers constructed to attenuate noise exposure from McBean Park Drive and Ferrari Ranch Road were modeled according to their current configuration.

5.3.5. Receivers

A total of nineteen (19) receivers were modeled for the project traffic noise assessment. These receivers correspond to existing and proposed future residential backyards, the pool area at McBean Park, and the interior residence area of the fire station, and the exterior facades of existing office/commercial uses (although no noise sensitivity was identified for the exterior spaces of these uses). It should be noted that each individual residence or commercial building located within the project study area was not modeled in this analysis. Rather, where possible receptors were selected to represent a group of acoustically similar land uses. The locations of the receivers analyzed in this study are provided in Appendix C.

Long-term noise monitoring was conducted at locations representing 4 of the 22 receptor locations evaluated in this study, with that monitoring occurring at 3 existing residences in the southeast quadrant (Del Webb Community) and at one location representative of the fire station exterior building façade exposure. Due to construction occurring within the residential development at the northeast quadrant of the intersection of McBean Park Drive and Ferrari Ranch Road, it was not feasible to conduct traffic noise monitoring from that location so the noise exposure at those future residences was modelled, not measured. Commercial locations without identified sensitive exterior areas were also modeled, but not monitored. Receiver placement was based on the nature of the site,

taking into account existing barriers and terrain. All receivers were modeled 5 feet above ground. Modeled receiver positions are shown in Appendix C.

5.4. Methods for Identifying Traffic Noise Impacts and Consideration of Abatement

Traffic noise impacts are considered to occur at receptor locations where predicted design-year noise levels are 12 dB or more greater than existing noise levels, or where predicted design-year noise levels approach or exceed the NAC for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol.

According to the Protocol, abatement measures are considered acoustically feasible if a minimum noise reduction of 7 dB at at least 1 impacted receptor location and 5 dB at other receptors is predicted with implementation of the abatement measures. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receptors, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations.

The overall reasonableness of noise abatement is determined by the following three factors:

- The noise reduction design goal.
- The cost of noise abatement.
- The viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

The Caltrans' acoustical design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one benefited receptor. This design goal applies to any receptor and is not limited to impacted receptors.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. Based on 2019 construction costs an allowance of $107,000 is provided for each benefited receptor (i.e., receptors that receive at least 5 dB of noise reduction from a noise barrier with one receptor receiving 7 dB reduction). The total allowance for each barrier is calculated by multiplying the number of benefited receptors by $107,000. If the estimated construction cost of a barrier is less than the total calculated allowance

for the barrier, the barrier is considered reasonable from a cost perspective. The viewpoints of beneficial receptors are determined by a survey that is typically conducted after completion of the noise study report. The process for conducting the survey is described in detail in the Protocol.

The noise study report identifies traffic noise impacts and evaluates noise abatement for acoustical feasibility. It also reports information that will be used in the reasonableness analysis including if the 7 dB design goal reduction in noise can be achieved at one benefitted residence with 5 dB at other benefitted residences, and the abatement allowances. The noise study report does not make any conclusions regarding reasonableness. The feasibility and reasonableness of noise abatement is reported in the Noise Abatement Decision Report.

Chapter 6. Existing Noise Environment

6.1. Existing Land Uses

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. Outdoor activity areas of residences were typically considered to be backyards. In addition to residential uses, the exterior of the existing pool within McBean Park, and the interior residence area of the fire station were considered sensitive receptors. Finally, the interior areas of the existing commercial uses located in the northwest quadrant of the project area were considered to be noise-sensitive areas for this analysis. As required by the Protocol, all developed land uses were evaluated for noise impacts even though noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level.

6.2. Receptors Analyzed in this Noise Study Report

A total of nineteen (19) representative noise-sensitive receptor locations were identified along the McBean Park Drive project study limits. Appendix C indicates the location of these receptors. Table 6-1 provides general descriptions of each representative receptor location.

Table 6-1. Receptors Analyzed in Noise Study Report

Receptor	Description	Address	Sensitive Area	Activity Category	NAC	# of Receptors Represented
NW-1	Office Spaces	421 McBean Park Drive	Exterior Façade	E	72	3
NW-2	Office/Commercial Space	110 McBean Park Drive	Exterior Facade	E	72	1
SW-1	McBean Memorial Swimming Pool	61 McBean Park Drive	O.A.A.	C	67	1
SW-2	Lincoln Fire Station #33	17 McBean Park Drive	Interior	D	52	1
NE-1	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
NE-2	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
NE-3	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
NE-4	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
NE-5	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
NE-6	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
NE-7	SFR – Under Construction	No Address - See Appendix C	Backyard	B	67	3
SE-1	SFR – Del Webb Community	890 Wagon Wheel Lane	Backyard	B	67	4
SE-2	SFR – Del Webb Community	908 Wagon Wheel Lane	Backyard	B	67	4
SE-3	SFR – Del Webb Community	108 Hay Wagon Court	Backyard	B	67	1
SE-4	SFR – Del Webb Community	109 Hay Wagon Court	Backyard	B	67	1
SE-5	SFR – Del Webb Community	926 Wagon Wheel Lane	Backyard	B	67	3
SE-6	SFR – Del Webb Community	944 Wagon Wheel Lane	Backyard	B	67	4
SE-7	SFR – Del Webb Community	974 Wagon Wheel Lane	Backyard	B	67	4
SE-8	SFR – Del Webb Community	998 Wagon Wheel Lane	Backyard	B	67	4

Notes:
SFR = Single Family Residential
O.A.A. = Outdoor Activity Area
NAC = State/Federal Noise Abatement Criteria (See Table 4-1)
Source: Bollard Acoustical Consultants, Inc.

6.3. Noise Measurement Results & Calibration

According to Section 4.4.1.1 of the Caltrans Technical Noise Supplement (TeNS), the purpose of model calibration is to fine-tune the prediction model to actual site conditions that are not adequately accounted for by the model. In general, model calibrations are recommended if the site conditions, roadway alignment, and profile in the design year relative to existing conditions are not expected to change significantly, as is the case with the McBean Park Drive Improvement project.

Both the long-term and short-term monitoring results were used to check the accuracy of the traffic noise prediction model in predicting existing traffic noise levels along the project corridor. TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. At the short-term monitoring sites, the model accuracy was checked by entering the observed speeds and traffic count data collected during the noise surveys into the TNM and comparing levels predicted by TNM with those inputs against measured levels. Table 6-2 shows the comparison of measured and modeled noise levels for the short-term measurements. The long-term monitoring

site data was used to check the model accuracy by comparing TNM predictions for existing conditions against the highest measured hourly Leq. Comparisons of measured short-term and long-term noise measurement results against levels predicted using TNM are presented in Tables 6-2 and 6-3, respectively. The noise monitoring locations are shown on Appendix B.

As noted in Table 6-2, the difference between measured and modeled short-term noise levels at both measurement sites were 1 dB or less. As a result, no offsets to the TNM were warranted for the receptors represented by ST-1 and ST-2.

Table 6-3 indicates that differences between levels measured at the long-term sites ranged from 0 to 2 dB of levels predicted using TNM at each of the four monitoring sites. As a result, no offsets to the TNM were warranted for the receptors represented by the long-term noise measurement sites.

Table 6-2. Short-Term Noise Measurement Results

Measurement Site No.	Nearest Receiver #	Duration	Land Use[1]	Measurement Date	Start Time	Autos	Medium Trucks	Heavy Trucks	Measured Leq, dBA	Predicted Leq, dBA[2]	Difference between predicted and measured Leq	TNM Calibration Offset, dB (K-Factor)
ST-1	SW-2	20 minutes	Fire Station	25-May-2021	7:31 am	314	4	10	62.0	61.8	0.2	None
ST-2	SE-5	15 minutes	SFR	25-May-2021	7:16 am	184	1	7	54.1	53.1	1.0	None

Notes:
1 - Land Use: SFR - single-family residence; REC – recreational area
2 - Levels predicted by TNM utilized observed vehicle counts and speeds present during the noise measurement interval as Model inputs.

Table 6-3. Long-Term Noise Measurement Results

Site No.	Receiver #	Description	Address	Measurement Dates	Measured Highest Hourly Leq, dBA	TNM Predicted Highest Hourly Leq, dBA	Difference
LT-1	SW-2	Fire Station	17 McBean Park Drive	May 4-7, 2021	60	60	0
LT-2	R7	SFR	108 Hay Wagon	May 4-7, 2021	56	54	2
LT-3	R8	SFR	926 Wagon Wheel	May 4-7, 2021	56	55	1
LT-4	R10	SFR	908 Wagon Wheel	May 5-7, 2021	56	55	1

Notes:
1 - Land Use: SFR - single-family residence, MFR – multi-family residence

Chapter 7. Future Noise Environment, Impacts, and Considered Abatement

7.1. Future Noise Environment and Impacts

Table 7-1 summarizes the traffic noise modeling results for existing conditions and design-year conditions with and without the project. For the analysis of noise levels at interior locations of sensitive receptors (fire station), a -25 dB offset was applied to the predicted exterior noise levels to account for typical building façade noise reduction.

Predicted design-year traffic noise levels with the project are compared to existing conditions and to design-year no-project conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts as defined under 23 CFR 772. The comparison to no-project conditions indicates the direct effect of the project.

As stated in the TeNS, modeling results are rounded to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between calculated sound levels of 64.4 and 64.5 dBA. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB.

Table 7-1 indicates that consideration of abatement is not required at any of the 19 representative receptor locations evaluated along the project corridor as both the project-related traffic noise level increase and future plus project traffic noise levels would be well below the applicable NAC.

Table 7-1. Predicted Future Traffic Noise Levels & Impacts

Receptor	Description	Area Analyzed	Activity Category	NAC	Existing Noise Level, Leq(h), dB	Future No-Build Level, Leq(h), dB	Future Build Noise Level, Leq(h), dB	Future Build – Existing, Leq(h), dB	Impact Type (S, A/E, or None)	Consideration of Noise Abatement Required?
NW-1	Office Spaces	Exterior Façade	E	72	67	69	70	3	None	No
NW-2	Office/Commercial Space	Exterior Facade	E	72	65	66	68	3	None	No
SW-1	McBean Memorial Swimming Pool	O.A.A.	C	67	49	51	52	3	None	No
SW-2	Lincoln Fire Station #33	Interior	D	52	34	36	37	3	None	No
NE-1	SFR – Under Construction	Backyard	B	67	48	53	53	5	None	No
NE-2	SFR – Under Construction	Backyard	B	67	51	56	57	5	None	No
NE-3	SFR – Under Construction	Backyard	B	67	52	56	57	5	None	No
NE-4	SFR – Under Construction	Backyard	B	67	53	58	59	5	None	No
NE-5	SFR – Under Construction	Backyard	B	67	54	59	59	5	None	No
NE-6	SFR – Under Construction	Backyard	B	67	53	58	59	5	None	No
NE-7	SFR – Under Construction	Backyard	B	67	53	58	59	5	None	No
SE-1	SFR – Del Webb Community	Backyard	B	67	54	60	61	7	None	No
SE-2	SFR – Del Webb Community	Backyard	B	67	54	59	60	7	None	No
SE-3	SFR – Del Webb Community	Backyard	B	67	53	59	60	7	None	No
SE-4	SFR – Del Webb Community	Backyard	B	67	54	59	59	5	None	No
SE-5	SFR – Del Webb Community	Backyard	B	67	55	60	61	5	None	No
SE-6	SFR – Del Webb Community	Backyard	B	67	56	60	61	5	None	No
SE-7	SFR – Del Webb Community	Backyard	B	67	54	59	60	5	None	No
SE-8	SFR – Del Webb Community	Backyard	B	67	55	59	60	5	None	No

7.2. Preliminary Noise Abatement Analysis

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. According to Table 7-1, however, future build noise levels are predicted to be below the applicable NAC at each receptor evaluated in this study. In addition, increase in traffic noise levels (future build – existing) is predicted to be well below the 12 dB threshold. As a result, no impacts are identified for this project which would require consideration of noise abatement.

Chapter 8. Construction Noise

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by Caltrans Standard Specification Section 14-8.02, "Noise Control," which states the following:

> Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m.
>
> Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Table 8-1 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006. See also: http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Chapter 9. References

Caltrans. 2013. Technical Noise Supplement. September. Sacramento, CA: Environmental Program, Noise, Air Quality, and Hazardous Waste Management Office. Sacramento, CA. Available: (http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf).

Caltrans. 2020. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. May. Sacramento, CA. Available: (http://www.dot.ca.gov/hq/env/noise/pub/ca_tnap_may2011.pdf).

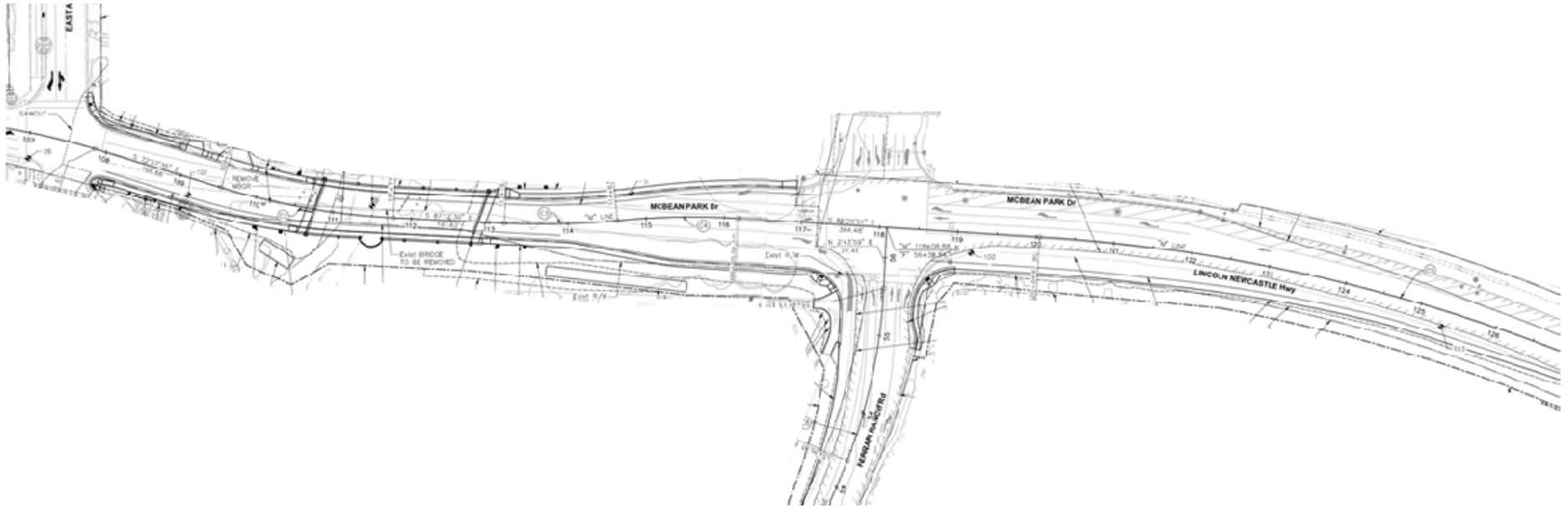
Federal Highway Administration (FHWA). 2004. FHWA Traffic Noise Model (TNM), Version 2.5. FHWA-PD-96-009. Washington D.C.

———. 2006. Roadway Construction Noise Model. February, 15, 2006. Available: (http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/).

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment.* (DOT-T-95-16.) Office of Planning, Washington, DC. Prepared by Harris Miller Miller & Hanson, Inc. Burlington, MA.

City of Lincoln Development Services Department. 2012. Village 1 Specific Plan Draft Environmental Impact Report. State Clearinghouse No. 2010102018

Appendix A Proposed Improvements



Legend

N

Scale (Feet)

0 100 200 300 400

McBean Park Drive Project

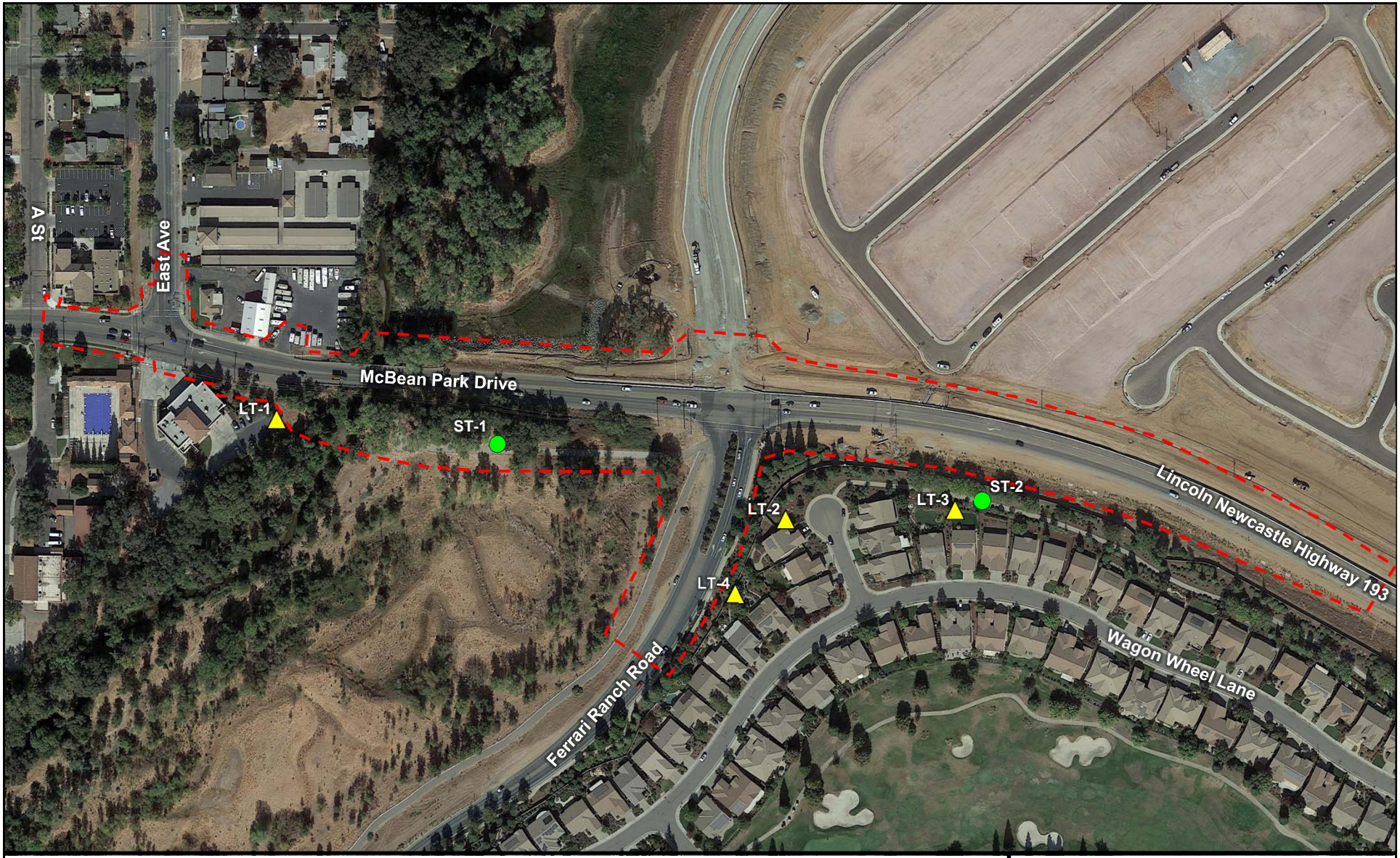
Lincoln, California

Proposed Improvements

Appendix A

BOLLARD Acoustical Consultants

Appendix B Noise Measurement Locations



Legend

- Area of Potential Effects (Approximate)
- Short-term Noise Measurement Locations
- Long-term Noise Measurement Locations

N

Scale (Feet)

0 100 200

McBean Park Drive Project

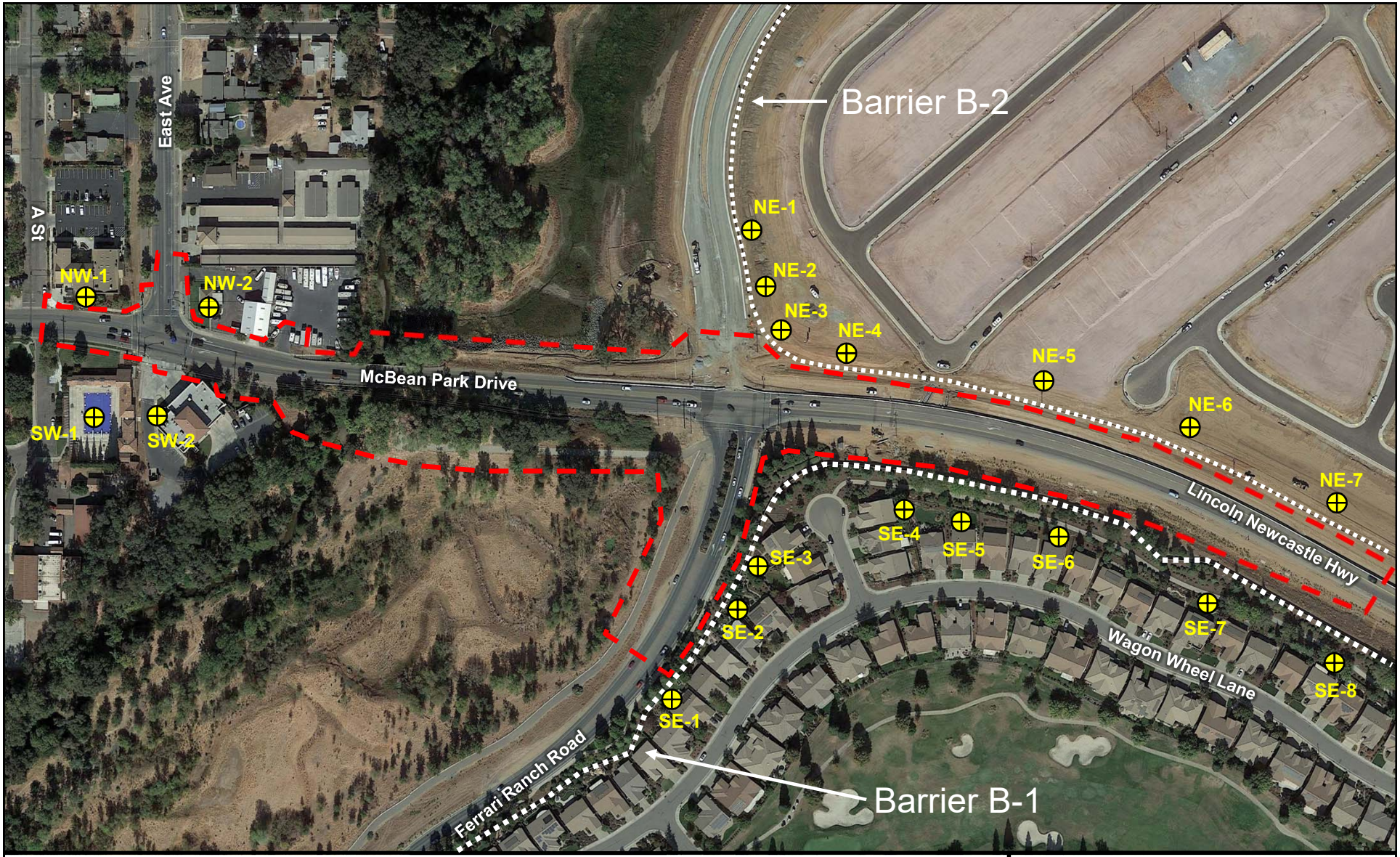
Lincoln, California

Noise Measurement Locations

Appendix B

BOLLARD Acoustical Consultants

Appendix C Receptor Locations



Legend

- Area of Potential Effects (Approximate)
- Receptor
- Existing Noise Barriers

N

Scale (Feet)

0 100 200

McBean Park Drive Project

Lincoln, California

Receptors and Barriers

Appendix C

BOLLARD Acoustical Consultants

Appendix D Traffic Noise Model Inputs

Appendix D - TNM Model Inputs

Existing Conditions					
		Peak Hour Volume			
Roadway	Segment	Autos	Med. Trk	Hvy Trk	Speed, MPH
McBean Park Drive	West of Ferrari Ranch Rd.	594	6	18	40
McBean Park Drive	West of Ferrari Ranch Rd.	512	5	15	40
Ferrari Ranch Road	South of McBean Park Dr.	369	4	11	35

Future No-Build Conditions					
		Peak Hour Volume			
Roadway	Segment	Autos	Med. Trk	Hvy Trk	Speed, MPH
McBean Park Drive	West of Ferrari Ranch Rd.	750	8	23	40
McBean Park Drive	West of Ferrari Ranch Rd.	1462	15	46	40
Ferrari Ranch Road	South of McBean Park Dr.	1253	13	39	35

Future Build Conditions					
		Peak Hour Volume			
Roadway	Segment	Autos	Med. Trk	Hvy Trk	Speed, MPH
McBean Park Drive	West of Ferrari Ranch Rd.	750	8	23	45
McBean Park Drive	West of Ferrari Ranch Rd.	1462	15	46	45
Ferrari Ranch Road	South of McBean Park Dr.	1253	13	39	40

Appendix E Short-Term Noise Measurement Field Data Sheets

SHORT-TERM TRAFFIC NOISE MEASUREMENT FIELD DATA SHEET

S.T. SITE #:	Description / Distance to Center Median:	
ST-1	Greenbelt Path West of Ferrari Ranch Rd / 114'	
PROJECT: McBean Park		DATE: 5/25/21
BAC JOB #: 2021-070	BAC STAFF: JUSTIN REYNOLDS	START TIME: 7:31 AM

Short-term monitoring conducted using two SLMs operating concurrently side by side									
SLM A	SLM #: 1	MODEL: LD 831		SLM S/N: 3524		CAL OFFSET			
SLM B	SLM #: 4	MODEL: "		SLM S/N: 4068		CAL OFFSET			
WEIGHTING: (circle one)	Flat	(A)	B	C	RESPONSE: (circle one)	Fast	(Slow)	Impulsive	MIC HEIGHTS: 5'

TEMP (F):	WIND SPEED / DIR:	SKY / R.H.:
64°	SE 12mph	clear / 56%

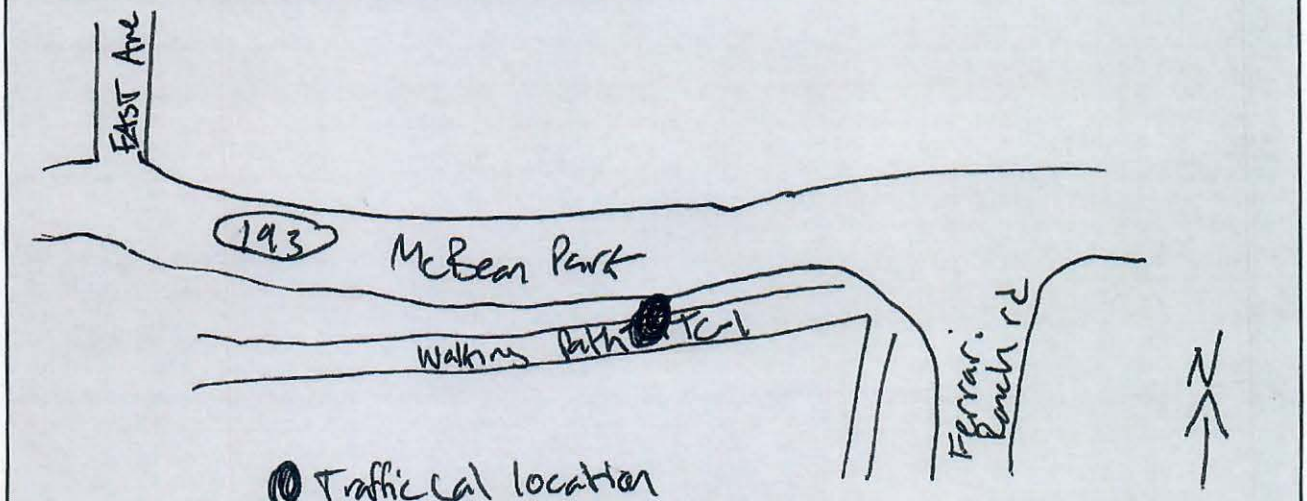
NOISE SOURCE(S) / NOTES / OBSERVATIONS / OBSTRUCTIONS:
Traffic / Signal @ Ferrari Ranch interrupts traffic flow. Speeds between 25-30, occasionally stopped @ light.

SPEEDS	EB ~~NB~~	AUTOS: 25	MT: 25	HT: 25
	WB ~~SB~~	AUTOS: "	MT: "	HT: "

COUNTS	EB ~~NB~~	AUTOS: 214	MT: 3	HT: 5
	WB ~~SB~~	AUTOS: 100	MT: 1	HT: 5

RESULTS	SLM A	LEQ: 62	LMAX: 82.3	DURATION: 20min
	SLM B	LEQ: 61.6	LMAX: 81.3	DURATION: 20 min

SKETCH:
(include north arrow and distances to property lines and structures)



Bollard Acoustical Consultants, Inc. (BAC)

SHORT-TERM TRAFFIC NOISE MEASUREMENT FIELD DATA SHEET

S.T. SITE #:	Description / Distance to Center Median:	
ST-2	Walking Path Behind 926 Wagon Wheel Ln / 130'	
PROJECT: McBean Park		DATE: 5/26/21
BAC JOB #: 2021-070	BAC STAFF: Justin Reynolds	START TIME: 7:16 AM

Short-term monitoring conducted using two SLMs operating concurrently side by side				
SLM A	SLM #: 1	MODEL: LARSON DAVIS 831	SLM S/N: 3524	CAL OFFSET
SLM B	SLM #: 4	MODEL: "	SLM S/N: 4068	CAL OFFSET

WEIGHTING: (circle one)	Flat	(A)	B	C	RESPONSE: (circle one)	Fast	(Slow)	Impulsive	MIC HEIGHTS: 5'

TEMP (F): 55°	WIND SPEED / DIR: CALM	SKY / R.H.: Partly Cloudy / 61%

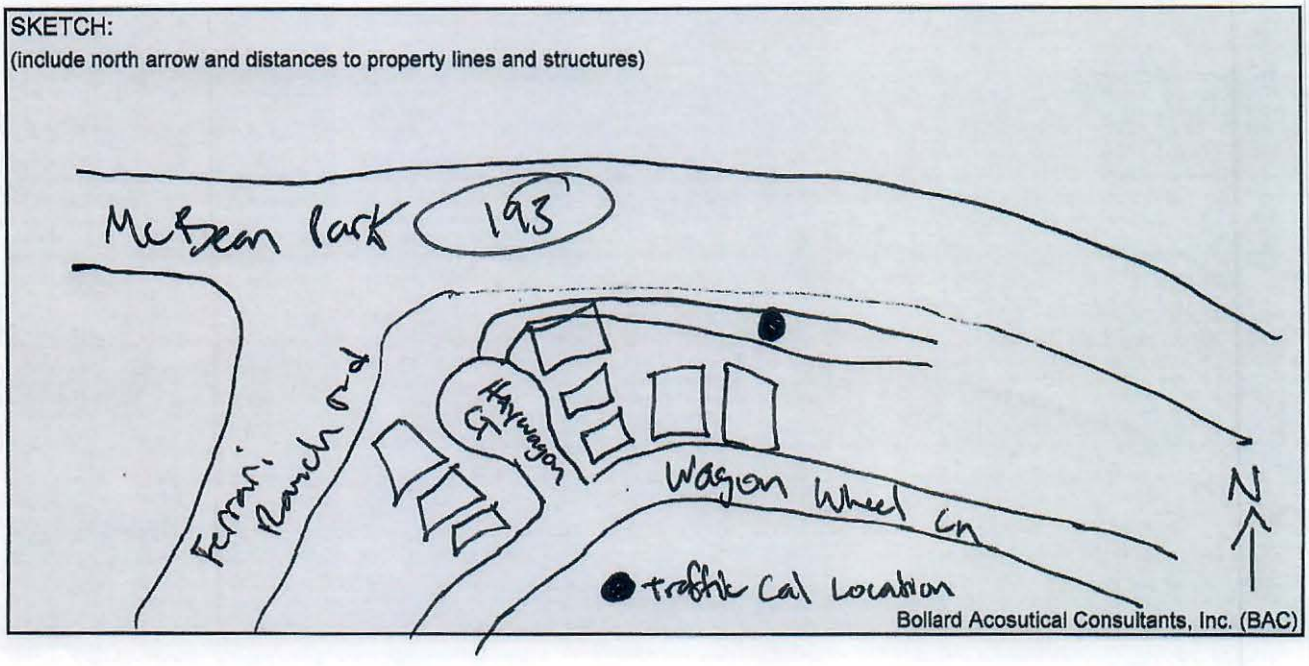
NOISE SOURCE(S) / NOTES / OBSERVATIONS / OBSTRUCTIONS:
Traffic / Signal at Ferrari Ranch interrupts traffic flow. [redacted] speeds between 18 - 30 mph, occasionally stopped @ light.

SPEEDS	NB	AUTOS: 25	MT: 25	HT: 25
	SB	AUTOS:	MT:	HT:

COUNTS	~~EB~~ NB	AUTOS: 106	MT: 1	HT: 6
	~~WB~~ SB	AUTOS: 78	MT: 0	HT: 1

RESULTS	SLM A	LEQ: 54	LMAX: 62.7	DURATION: 15 min
	SLM B	LEQ: 54.2	LMAX: 62.6	DURATION: 15 min

SKETCH:
(include north arrow and distances to property lines and structures)



Appendix E-3
Short-Term Site 1 (ST-1) Photos

Appendix E-4
Short-Term Site 2 (ST-2) Photos

Appendix F Long-Term Noise Level

Appendix F-1 : Long - Term Traffic Noise Measurement Field Data Sheet

L.T. SITE #	SITE DESCRIPTION	LAT/LON
1	Lincoln Fire Station No. 33	38°53'23.78"N, 121°7'1.09"W
PROJECT	McBean Park Drive Project	START DATE/TIME [illegible]3/21 / 2 PM
BAC JOB # 2021-070	BAC STAFF Justin R.	END DATE/TIME 5/10/21 / 10 AM

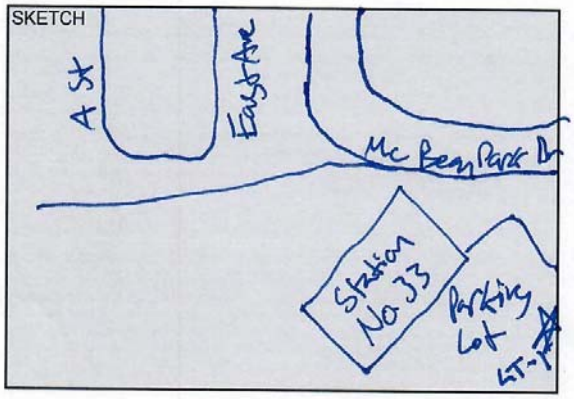
BAC METER #	SLM MODEL	SLM S/N
6	Larson Davis Model 820	0976
CALIBRATOR LDL CA-200	CAL S/N 4519	CAL LEVEL 114dB
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F)	WIND SPEED / DIR	SKY / R.H.
84°	16 mph NW	clear / 16%

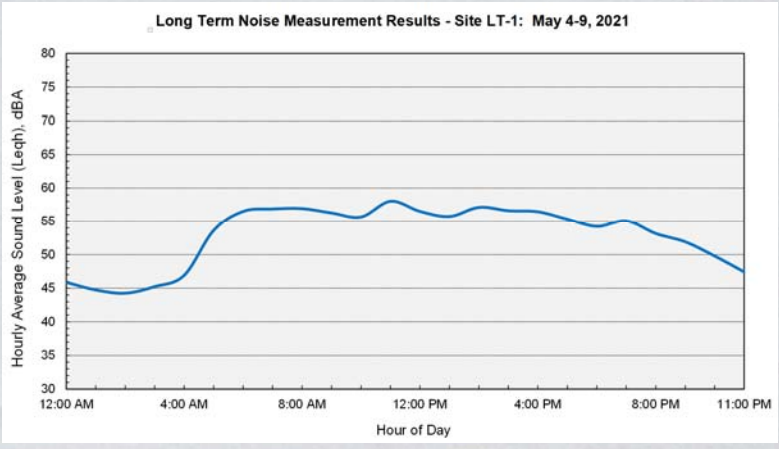
NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS: Traffic signal at East Ave and McBean Park Dr interrupt traffic flow.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	35-45	AUTOS	35-45	AUTOS	35-45
	MED. TRK	1	MED. TRK	1	MED. TRK	1
	HVY TRK	1	HVY TRK	1	HVY TRK	1

SKETCH



RESULTS GRAPH



Appendix F-2 : Long - Term Traffic Noise Measurement Field Data Sheet

L.T. SITE #	SITE DESCRIPTION	LAT/LON
2	108 Hay Wagon Ct	38°53'22"N / 121°16'49"W
PROJECT	McBean Park Drive Project	START DATE/TIME
BAC JOB # 2021-070	BAC STAFF Justin &	END DATE/TIME

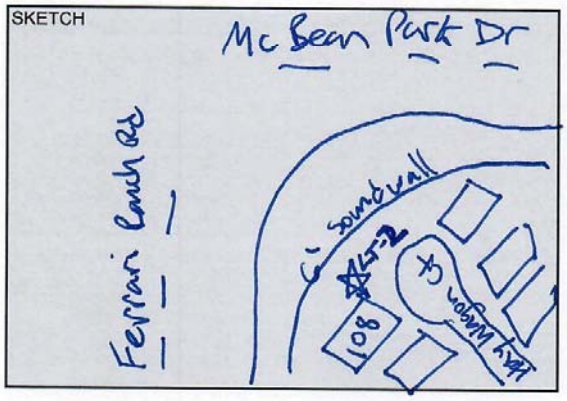
BAC METER #	SLM MODEL	SLM S/N
5	Larson Davis Model 820	1129
CALIBRATOR: LDL CA-200	CAL S/N: 4519	CAL LEVEL: 114 dB
WEIGHTING (circle one): Flat (A) B C	RESPONSE (circle one): Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND: 5'

TEMP (F)	WIND SPEED / DIR	SKY / R.H.
84°	16 mph NW	clear / 16%

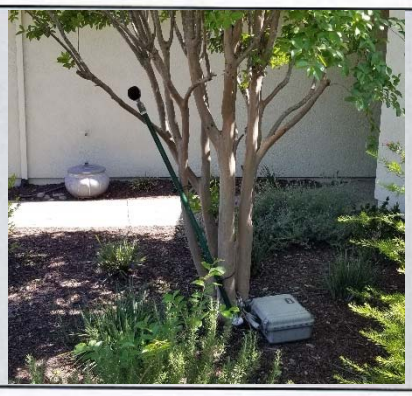
NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS: Sound wall approx 6' Traffic Signal at Ferrari Ranch interrupts traffic flow.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	35-45	AUTOS	35-45	AUTOS	35-45
	MED. TRK		MED. TRK		MED. TRK	
	HVY TRK		HVY TRK		HVY TRK	

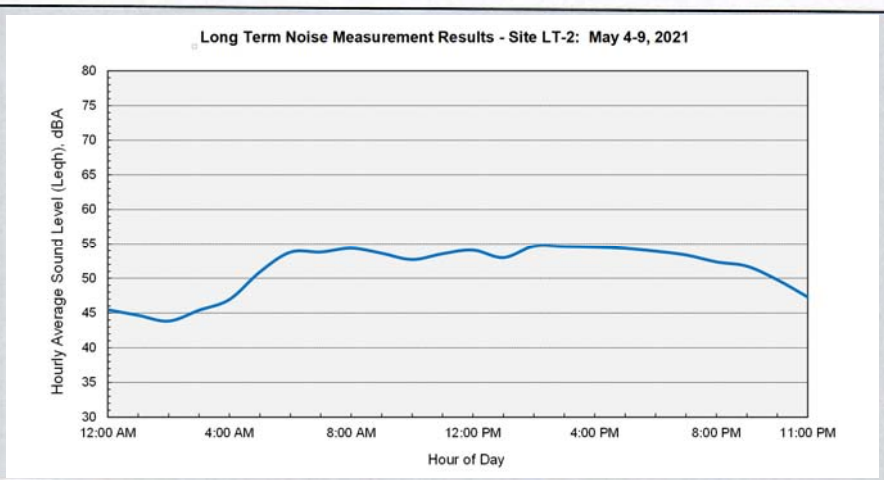
SKETCH



PHOTO



RESULTS GRAPH



Appendix F-3 : Long - Term Traffic Noise Measurement Field Data Sheet

L.T. SITE #	SITE DESCRIPTION	LAT/LON
3	926 Wagon Wheel Ln	38°53'22"N / 121°16'44"W
PROJECT	McBean Park Drive Project	START DATE/TIME
BAC JOB # 2021-070	BAC STAFF Justin R.	END DATE/TIME

BAC METER #	SLM MODEL	SLM S/N
2	Larson Davis Model 820	1124
CALIBRATOR: LDL CA-200	CAL S/N: 4519	CAL LEVEL: 114dB
WEIGHTING (circle one): Flat (A) B C	RESPONSE (circle one): Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND: 5'

TEMP (F)	WIND SPEED / DIR	SKY / R.H.
84°	16 MPH NW	Clear 16%

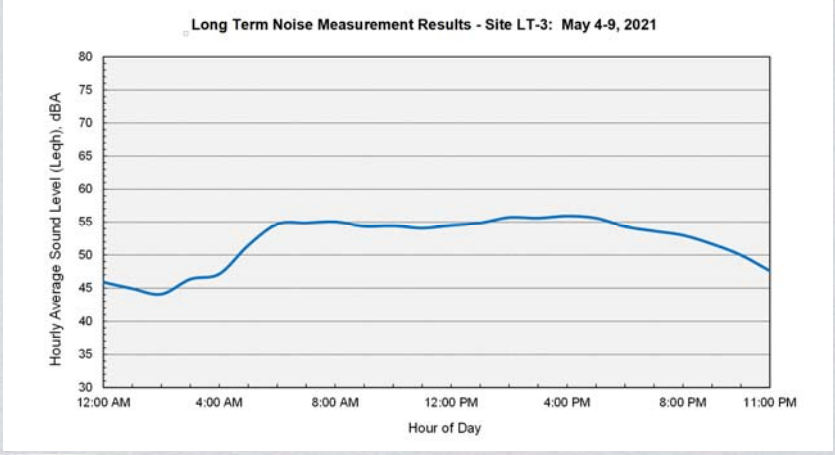
NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS: Walking path between SLM and sound wall. Sound wall approx 6' tall.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	35-45	AUTOS	35-45	AUTOS	35-45
	MED. TRK	1	MED. TRK	1	MED. TRK	1
	HVY TRK		HVY TRK		HVY TRK	

SKETCH

PHOTO

RESULTS GRAPH



Appendix F-4 : Long - Term Traffic Noise Measurement Field Data Sheet

L.T. SITE #	SITE DESCRIPTION	LAT/LON
3	926 Wagon Wheel Ln	38°53'22"N / 121°16'44"W
PROJECT	McBean Park Drive Project	START DATE/TIME
BAC JOB # 2021-070	BAC STAFF Justin R.	END DATE/TIME

BAC METER #	SLM MODEL	SLM S/N
2	Larson Davis Model 820	1124
CALIBRATOR: LDL CA-200	CAL S/N: 4519	CAL LEVEL: 114dB
WEIGHTING (circle one): Flat (A) B C	RESPONSE (circle one): Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND: 5'

TEMP (F)	WIND SPEED / DIR	SKY / R.H.
84°	16 MPH NW	Clear 16%

NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS: Walking path between SLM and sound wall. Sound wall approx 6' tall.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	35-45	AUTOS	35-45	AUTOS	35-45
	MED. TRK	1	MED. TRK	1	MED. TRK	1
	HVY TRK		HVY TRK		HVY TRK	

SKETCH

PHOTO

RESULTS GRAPH