PROPOSED MITIGATED NEGATIVE DECLARATION
RUNWAY 12/30 SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

PROJECT TITLE: Runway 12/30 Safety Area Improvement Project at Bishop Airport

LEAD AGENCY/PROJECT PROPONENT: County of Inyo, Department of Public Works

BRIEF PROJECT DESCRIPTION: To satisfy FAA regulations for runways serving the type of aircraft currently operating on Runway 12/30, the Proposed Project would provide a standard Runway Safety Area (RSA). This would be accomplished by clearing, cutting, filling, grading, and compacting approximately 14 acres of land near the runway ends within the RSA. An existing Los Angeles Department of Water and Power (LADWP) patrol road segment and segments of security fence line would be realigned to avoid encroaching within the RSA. Areas along the sides of the runway inside the RSA would also be graded to ensure an adequate, flat surface throughout the length of the RSA. The Proposed Project would not induce any changes in the frequency or type of operations occurring at Bishop Airport.

PROJECT LOCATION: Bishop Airport is located approximately 1.5 miles east of the City of Bishop in unincorporated Inyo County. Inyo County is located in the Eastern Sierra region east of the Sierra Nevada mountains and west of the Nevada border. A map showing the location of Bishop Airport in a regional context is provided as Figure 1, on page 2 in the Initial Study.

INITIAL STUDY: An Initial Study for the Proposed Project was prepared in accordance with the California Environmental Quality Act (CEQA) and its implementing guidelines to ascertain whether the proposed improvements to the RSA would result in a significant effect on the environment. A copy of the Initial Study is attached to this proposed Mitigated Negative Declaration (MND) and is incorporated by reference.

FINDING: Inyo County finds, on the basis of the whole record before it (including the Initial Study, and any comments received and responses thereto), that there is no substantial evidence that the Proposed Project with prescribed mitigation incorporated may have a significant effect on the environment and that this MND reflects Inyo County's independent judgment and analysis.

A mitigation measure is included in this project to avoid potentially significant effects related to temporary construction impacts. See page 22.

REVIEW PERIOD: The review period begins Thursday, April 11, 2024, and ends Tuesday, May 21, 2024. Public comments regarding the correctness, completeness, or adequacy of the Initial Study are invited. Comments received by the end of the review period will be considered before adoption of the MND. Written comments should be addressed to

Inyo County Public Works
Attention: Ashley Helms,
Deputy Public Works Director – Airports
703 Airport Rd.
Bishop, CA 93514

Comments on the Initial Study may also be submitted to ahelms@inyocounty.us.

Please ensure adequate time for receipt. All comments must be received by 5:00 p.m. Pacific Time on May 21, 2024.

PRIVACY NOTICE: Before including your address, phone number, email address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

DATE: April 11, 2024

Ashley Helms,
Deputy Public Works Director – Airports,
Inyo County
Department of Public Works
168 N. Edwards St.
Independence, CA 93526

Draft

RUNWAY 12/30 SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

Draft Initial Study/Mitigated Negative Declaration

Prepared for
County of Inyo

April 2024

ESA

Draft

RUNWAY 12/30 SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

Draft Initial Study/Mitigated Negative Declaration

Prepared for
County of Inyo
Department of Public Works
168 North Edwards Street
Independence, CA 93526

April 2024

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Introduction

Inyo County (County) proposes to improve the Runway Safety Area for Runway 12/30 at Bishop Airport (BIH or Airport) to meet design standards and safety requirements established by the Federal Aviation Administration (FAA). The Proposed Project is subject to discretionary approval by the County and thus subject to the California Environmental Quality Act (CEQA). As the owner and operator of the Airport, the County is the lead agency under CEQA for the purposes of this Initial Study. The following sections provide background information on the Proposed Project as well as a detailed project description.

Project Location

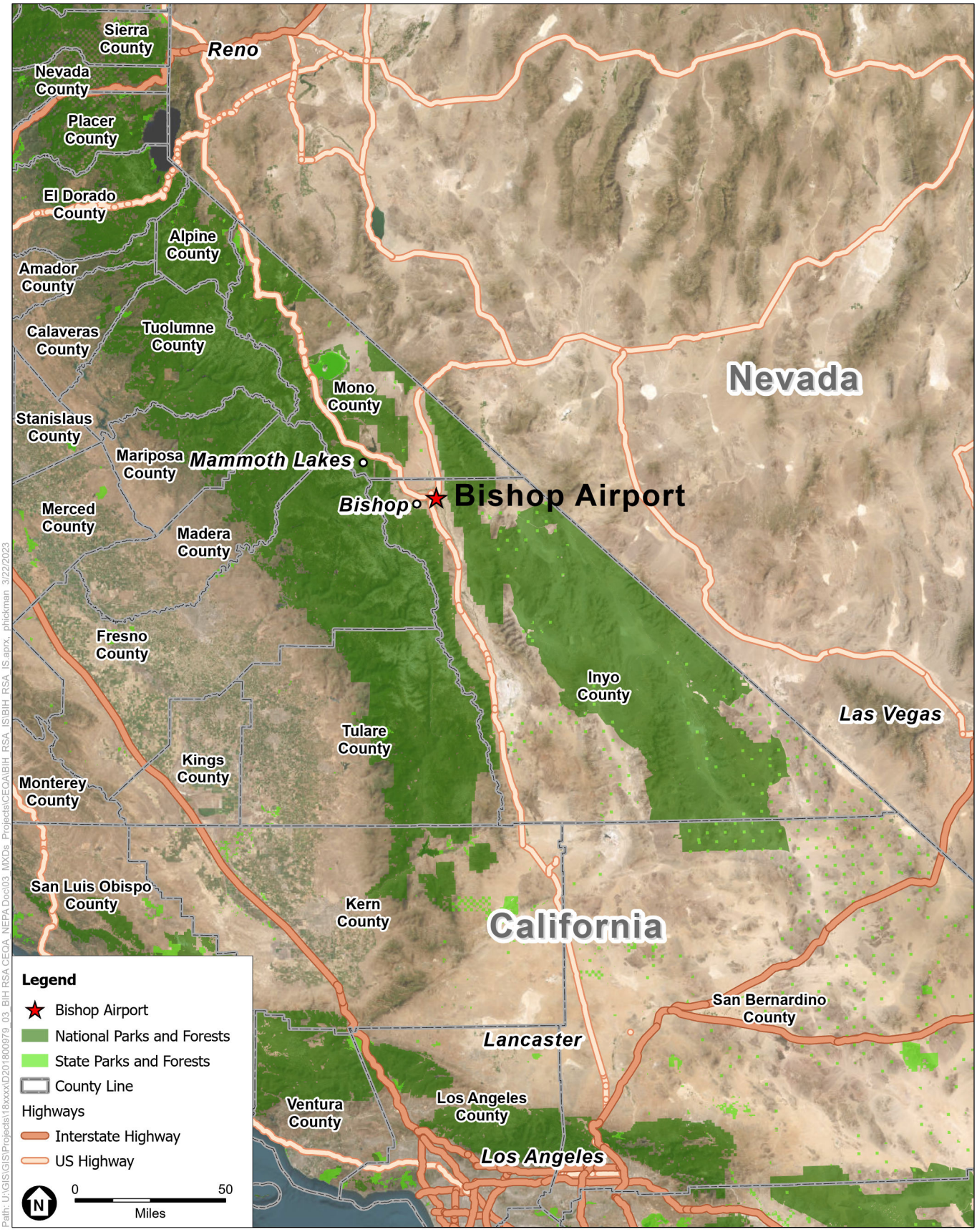
BIH is a public-use airport located in Inyo County in the Eastern Sierra region of California approximately 1.5 miles east of the city of Bishop and 267 miles northeast of the city of Los Angeles. The Airport's regional location is shown on **Figure 1**. The Airport is owned and operated by Inyo County and is situated on land leased from the City of Los Angeles Department of Water and Power (LADWP). The County also holds an easement for the airfield as well as other areas around the Airport, ensuring indefinite use of the property as an airport. The Airport and vicinity are shown on **Figure 2**.

Bishop Airport

BIH is designated in the FAA's 2023-2027 National Plan of Integrated Airport Systems (NPIAS) as a general aviation airport. The Airport serves general aviation activity, limited military activity, as well as charter and air cargo operations. Beginning in December 2021, commercial air passenger service was introduced to BIH, and the Airport will continue to serve commercial air passenger service into the foreseeable future.

Existing Airport Facilities and Services

BIH has three runways, Runway 12/30, Runway 17/35, and Runway 8/26, shown on Figure 2, which are designed to accommodate specific types of aircraft. The Airport's primary runway, Runway 12/30, is 7,498 feet long and 100 feet wide. The runway is oriented in a southeast/northwest direction and paved with asphalt concrete. Runway 17/35 is north-south oriented, 5,600 feet long by 100 feet wide, and paved with asphalt. Runway 8/26 is east-west oriented, 5,567 feet long by 100 feet wide, and paved with asphalt. Runway 8/26 is currently planned for closure with the Runway 8 end to be converted to a taxiway, and the Runway 26 end to be used as helicopter parking. Runways 12/30 and 17/35 are served by parallel taxiways (Taxiway A and Taxiway H, respectively). The Airport has three dedicated helipads south of the Runway 8 end.

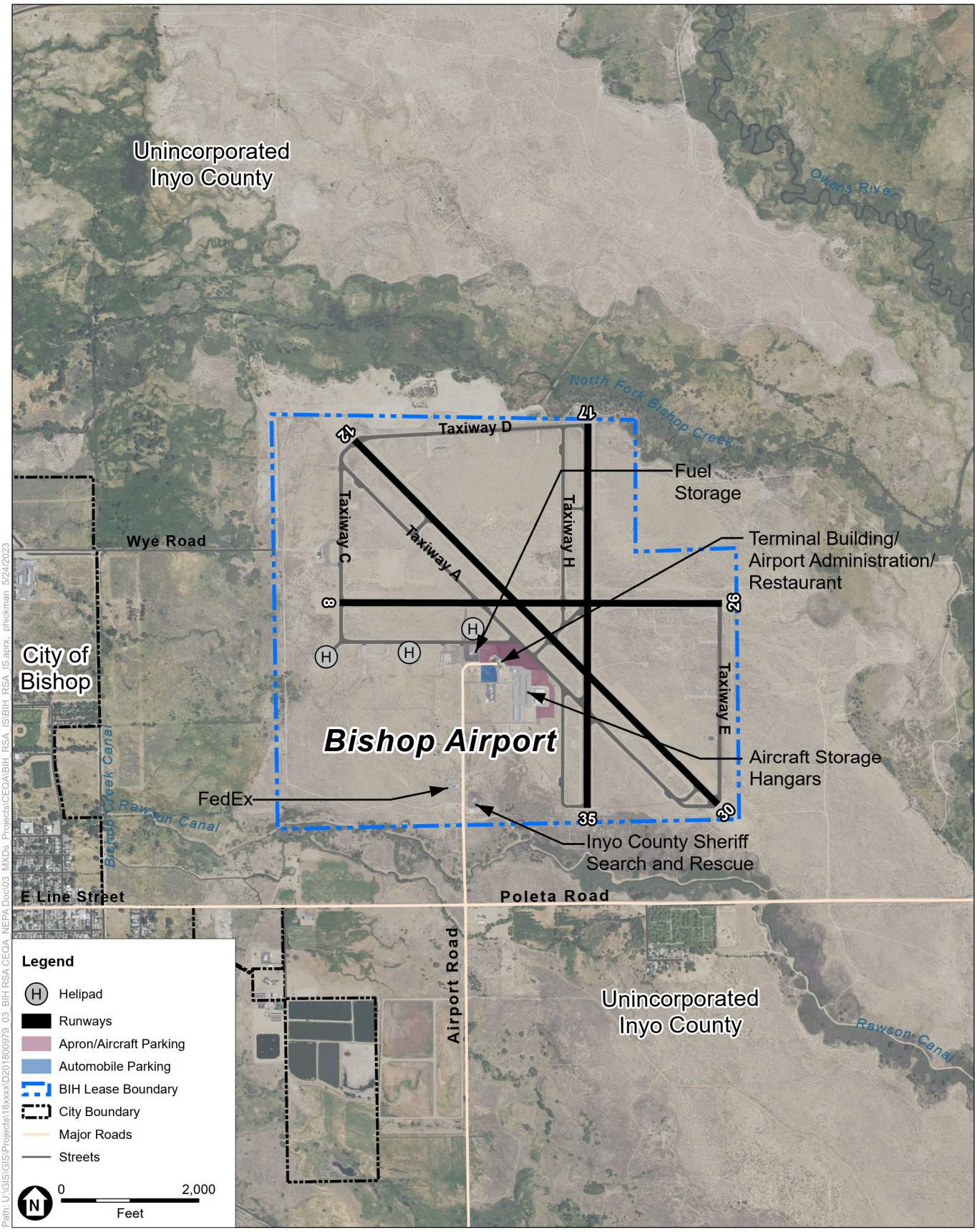


SOURCE: Esri; Inyo County Department of Public Works; ESA, 2020.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 1
Airport Location
Bishop Airport

ESA



SOURCE: Esri; Inyo County Department of Public Works; ESA, 2020.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 2
Vicinity Map
Bishop Airport

ESA

The current airport layout plan (ALP) shows that the existing Airport Reference Code (ARC) is B-II with a critical/design aircraft of the Lockheed P-3 Orion, and a future ARC C-III with critical/design aircraft of Boeing 737/Airbus 319. The ALP identifies ARC C-II aircraft (e.g., Bombardier CRJ-700) as the critical design aircraft[1] for Runway 12/30 with a future ARC C-III designation with a critical design aircraft of Boeing 737/Airbus 319.[2] Both Runways 12 and 30 provide four light Precision Approach Path Indicators (PAPIs).[3] Each PAPI light is angled to reflect the appropriate glide path for the runway end. Runway 12 has a 3.0-degree glide path and Runway 30 has a 3.52-degree glide path.

Landside facilities at the Airport include a terminal building, an airport administration building, a tensioned fabric building employed as an annex to the terminal building, an air cargo trailer, an aircraft parking apron and storage hangars, a maintenance building, an air ambulance/aircraft rescue and firefighting (ARFF) hangar, aircraft fuel storage facilities, an airport restaurant, and vehicle parking areas. FedEx, Suddenlink Communications, the Inyo County Sheriff, and the Eastern Sierra Transit Authority (ESTA) also maintain facilities within the Airport's leasehold.

Current Runway Safety Area – Runway 12/30

A runway safety area (RSA) is a rectangular area surrounding a runway that is designed to enhance safety for aircraft that undershoot, overrun, or otherwise leave the paved runway surface. Per FAA regulations, an airport must keep the RSA cleared, graded, drained, and accessible by ARFF equipment. The FAA defines RSA standards and dimensions based on the type of aircraft using the airport. Following these guidelines, the standard RSA for Runway 12/30 would be 500 feet wide, centered on the runway centerline, and extend 600 feet prior to the runway threshold and 1,000 feet beyond the runway end. The RSA surface should have no more than a three-percent slope for 200 feet off the runway end and a maximum slope of five percent thereafter. If an RSA does not provide 600 feet prior to the runway threshold, the FAA requires that either the RSA be improved to meet this criterion or that the runway threshold be permanently displaced.

Figure 3 depicts the existing Runway 12/30 RSA. The portions of the RSA beyond the existing Airport perimeter fence occupy land outside the current leasehold with the LADWP, but within the Airport's easement. Currently, the Runway 12 RSA meets FAA's design guidelines for approximately 285 feet prior to the threshold and 640 feet beyond the runway end.

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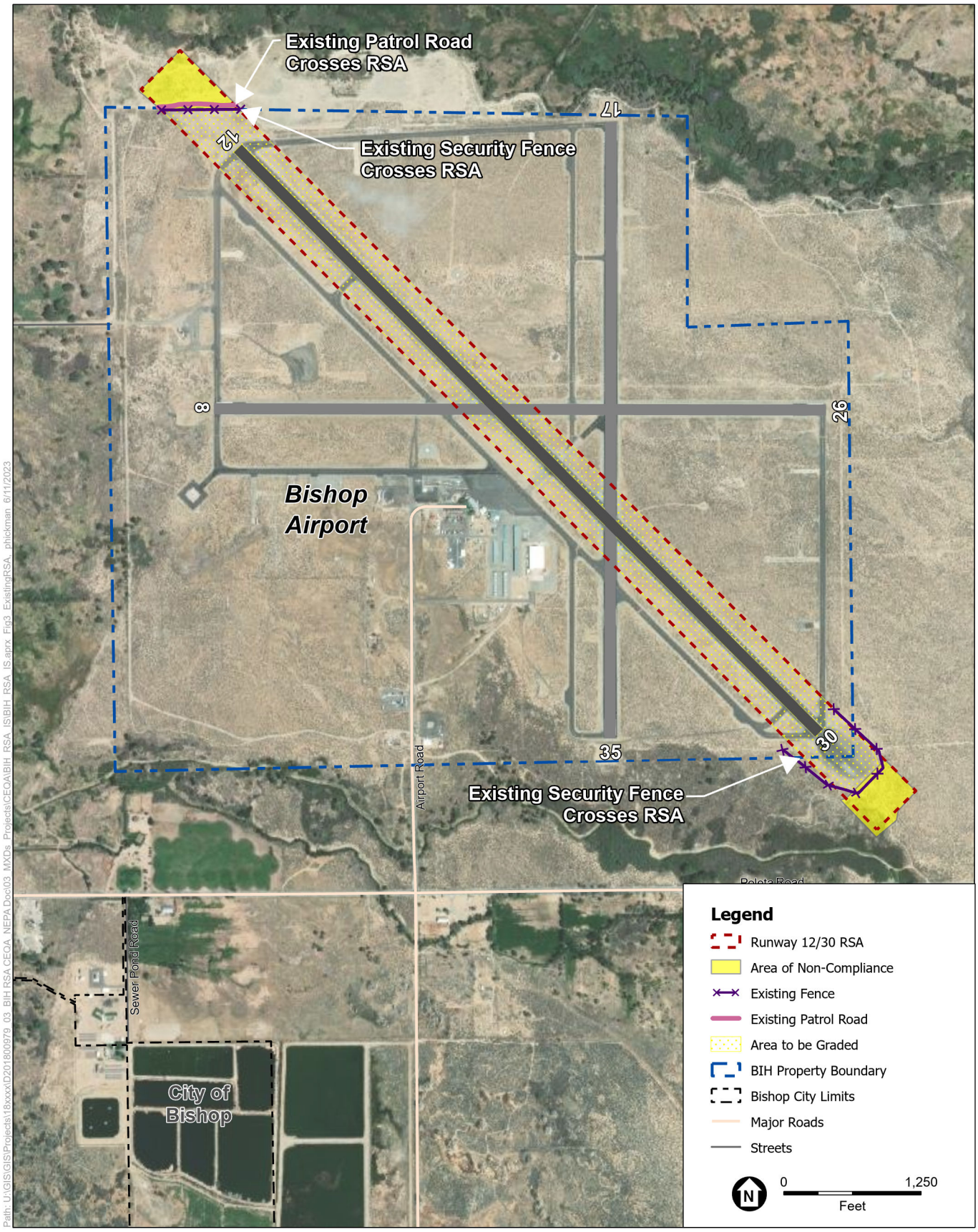
1 This term refers to "the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 annual operations, including both itinerant and local operations but excluding touch-and-go operations. An operation is either a takeoff or landing." (FAA Advisory Circular AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, June 2017.

2 ARC is an airport designation referenced on the ALP and derived from the airport's highest Runway Design Code (RDC). The RDC signifies the design standards to which the runway is to be built, and is composed of two codes, the Aircraft Approach Category (AAC) and the Aircraft Design Group (ADG), plus the approach visibility minimums. The ARC is comprised of only the AAC and ADG. The AAC is represented by a letter, A, B, C, D, or E, and represents a grouping of aircraft based on landing speed. The ADG is a classification of aircraft based in wingspan and tail height. B-II signifies an approach speed of 91 knots or more but less than 121 knots and a wingspan of 49' to 79' and a tail height of 20' to 30'. C-III signifies an approach speed of 121 knots or more but less than 141 knots and a wingspan of 79' to 118' and a tail height 30' to 45' (FAA Advisory Circular 150/5300-13B, *Airport Design*, March 2022).

3 A PAPI is a system of lights that provides visual descent guidance for aircraft on final approach to a runway.



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 3
Existing Runway 12/30 RSA
Bishop Airport

ESA

Similarly, the Runway 30 RSA meets FAA design guidelines for approximately 640 feet prior to the threshold and 245 feet beyond the runway end. The remaining 715 feet at the north end and 360 feet at the south end feature excessive slopes, noncompliant grading, and/or excessive vegetation. Declared distances are currently employed on Runway 12/30 to ensure adequate RSAs.[4] In addition, an LADWP patrol road currently runs through the RSA off the Runway 12 end, and the Airport security fence runs through the RSAs off both the Runway 12 and Runway 30 ends. As all non-essential objects should be located outside the RSA, these features should be realigned around the outer perimeter of a standard RSA.[5]

Project Description

To satisfy FAA regulations for runways serving the type of aircraft currently operating on Runway 12/30, the Proposed Project would provide a standard RSA. The Proposed Project, depicted on **Figure 4**, would involve the following components.

Runway Safety Area Improvements

Runway 12 End

Approximately 7.8 acres of land within the RSA beyond the Runway 12 end would be cleared of vegetation, cut, filled, graded, and compacted to provide a standard RSA. A detailed depiction of the area of cut, fill, and grading is featured on **Figure 5**.

The existing LADWP unpaved patrol road would be relocated outside the runway's Object Free Area (OFA). The portion of relocated road would be approximately 15 feet wide and 0.25 mile long.

Approximately 1,635 linear feet of existing perimeter fence would be removed and approximately 2,175 linear feet of new perimeter fence would be installed beyond the OFA boundary.

Runway 30 End

Approximately 6.5 acres of land within the RSA beyond the Runway 30 end would be cleared of vegetation, cut, filled, and graded to accommodate the proposed RSA improvements. A detailed depiction of the area of cut, fill, and grading is featured on **Figure 6**. Approximately 2,000 linear feet of existing perimeter fence would be removed and approximately 3,125 linear feet of new perimeter fence would be installed outside the OFA.

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[4] Declared distances are frequently used by Airport Authorities to comply with FAA requirements for Runway Safety Areas. Declared distances represent the maximum distances available and suitable for meeting takeoff, failed or rejected takeoff, and landing distance performance requirements. Declared distances are appropriate to use on runways that are planned to be improved to meet design standards at some later date but have design deficiencies in their existing state. In these circumstances, the publication of declared distances for the existing state is warranted to satisfy airport design requirements and as an operational imperative so that pilots have accurate runway length information for flight planning (FAA Advisory Circular 150/5300-13B, Airport Design, March 2022).

[5] Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, §3.10.1.4, March 31, 2022.

Runway Sides

The RSA alongside Runway 12/30 is generally in compliance with FAA regulations but would be graded to ensure an adequate, flat surface throughout.

Construction Activities and Schedule

Proposed Project construction activities would include site preparation, grading, and ground clearing to achieve a uniform surface, as well as realigning existing segments of fence line and patrol road. During the site preparation phase, approximately 11,276 cubic yards of organics, rock, and other materials would be relocated within the Airport lease boundary. During the grading phase, approximately 50,000 cubic yards of soil would be needed as fill. Cut material would supply the bulk of the necessary fill, with the balance being derived from 20,780 cubic yards of material from an on-airport borrow area immediately adjacent to the RSA beyond the Runway 12 end. Proposed Project construction is expected to commence in late 2024 and would last approximately three months.

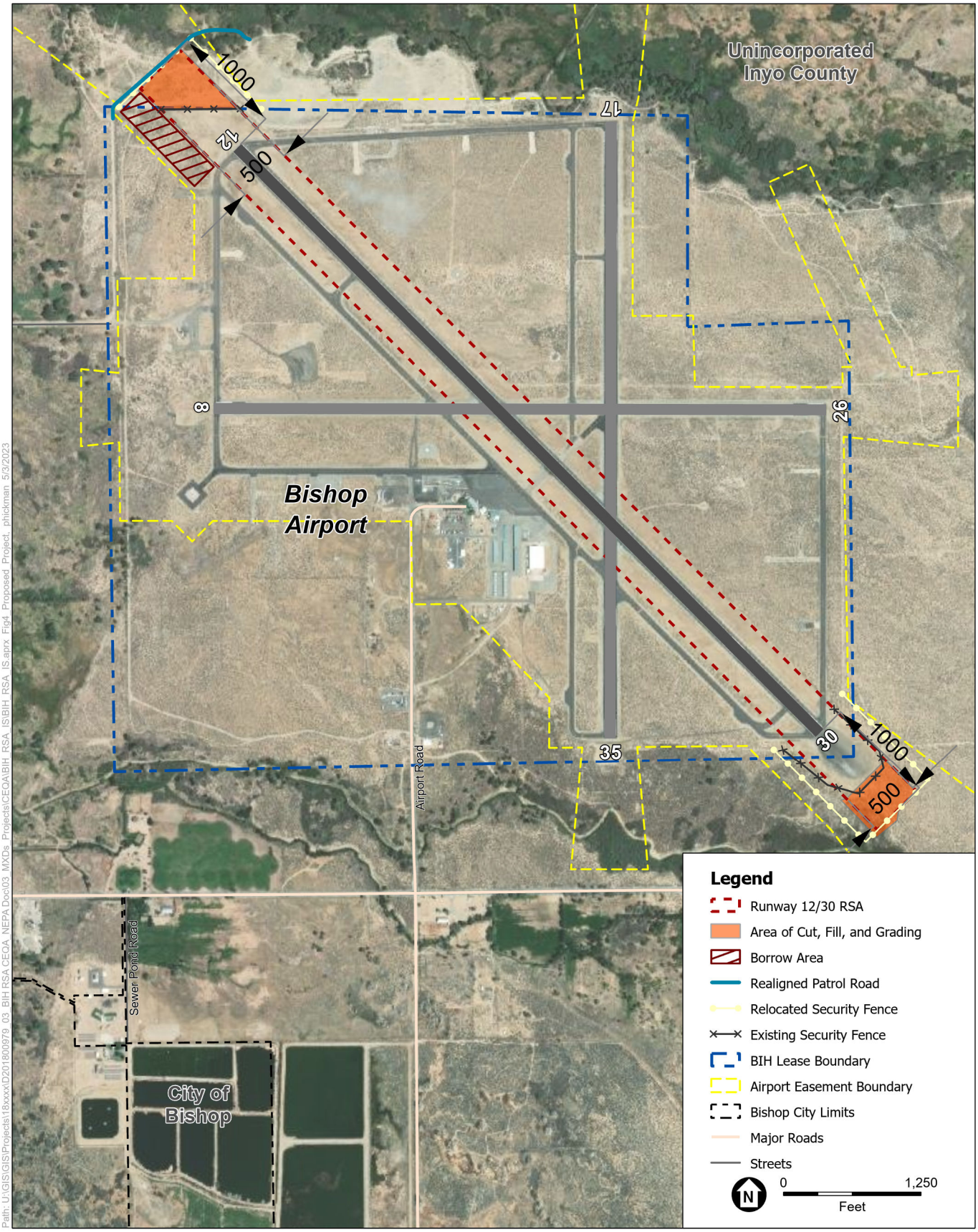
Operation

The Proposed Project would not involve any operational changes other than the elimination of some declared distances, as it would be conducted solely to establish a standard RSA around Runway 12/30. No additional landing or departure pavement would be introduced that could necessitate any other amendments to flight procedures.

Required Project Approvals

The following approvals would be required for the Proposed Project:

- Inyo County Public Works Department – CEQA review and adoption of the Mitigated Negative Declaration (MND) and Mitigation, Monitoring, and Reporting Program (MMRP)
- Lahontan Regional Water Quality Control Board – Construction activity resulting in a land disturbance of one acre or more necessitates application for a Construction General Permit issued by the State Water Resources Control Board.
- Federal Aviation Administration – Unconditional approval of those portions of the Airport Layout Plan for Bishop Airport that may depict components of the Proposed Project pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a) (16), and 14 CFR Part 77. Also, approval of funding for the Proposed Project.



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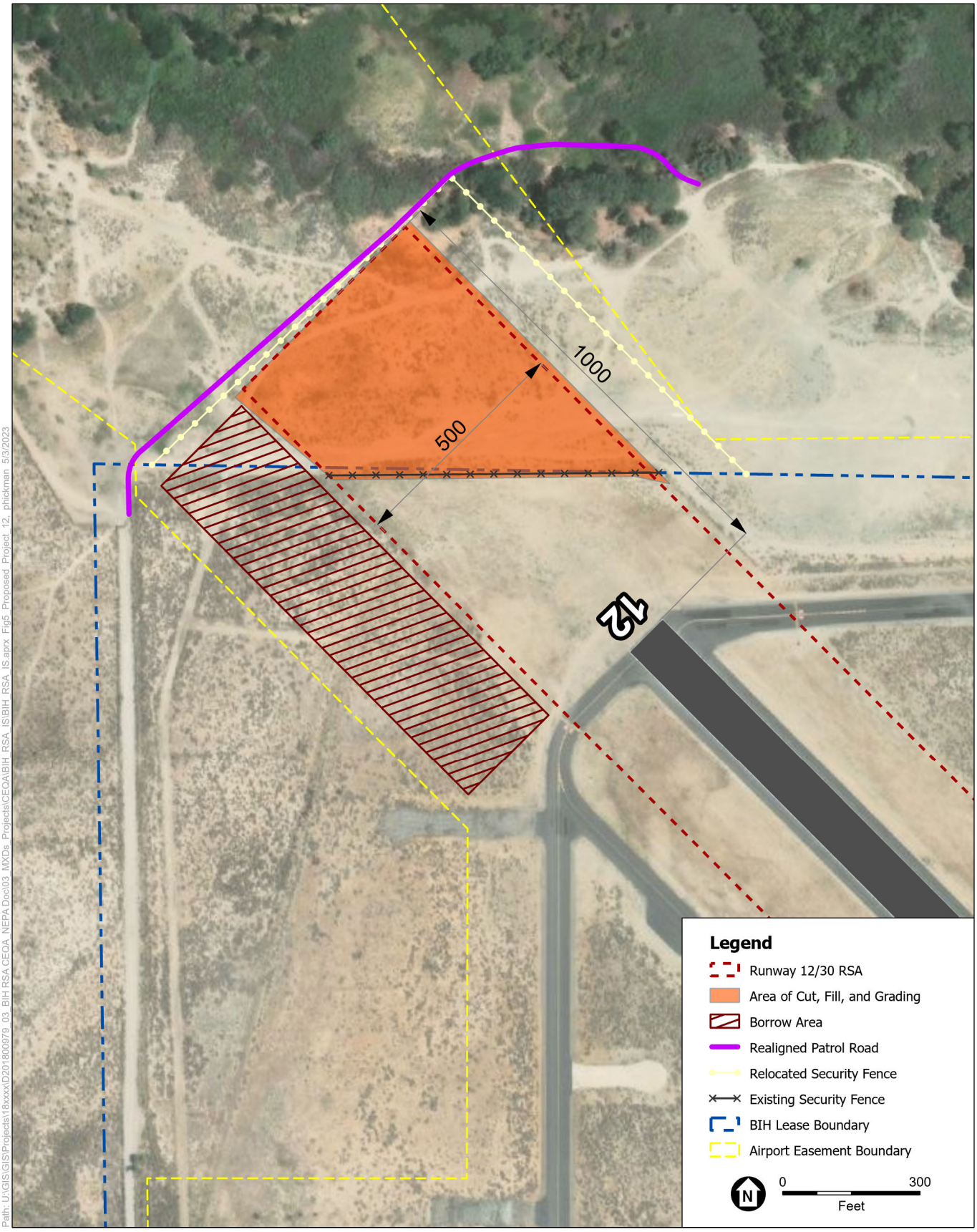
SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 4
Proposed Project
Runway 12/30

ESA



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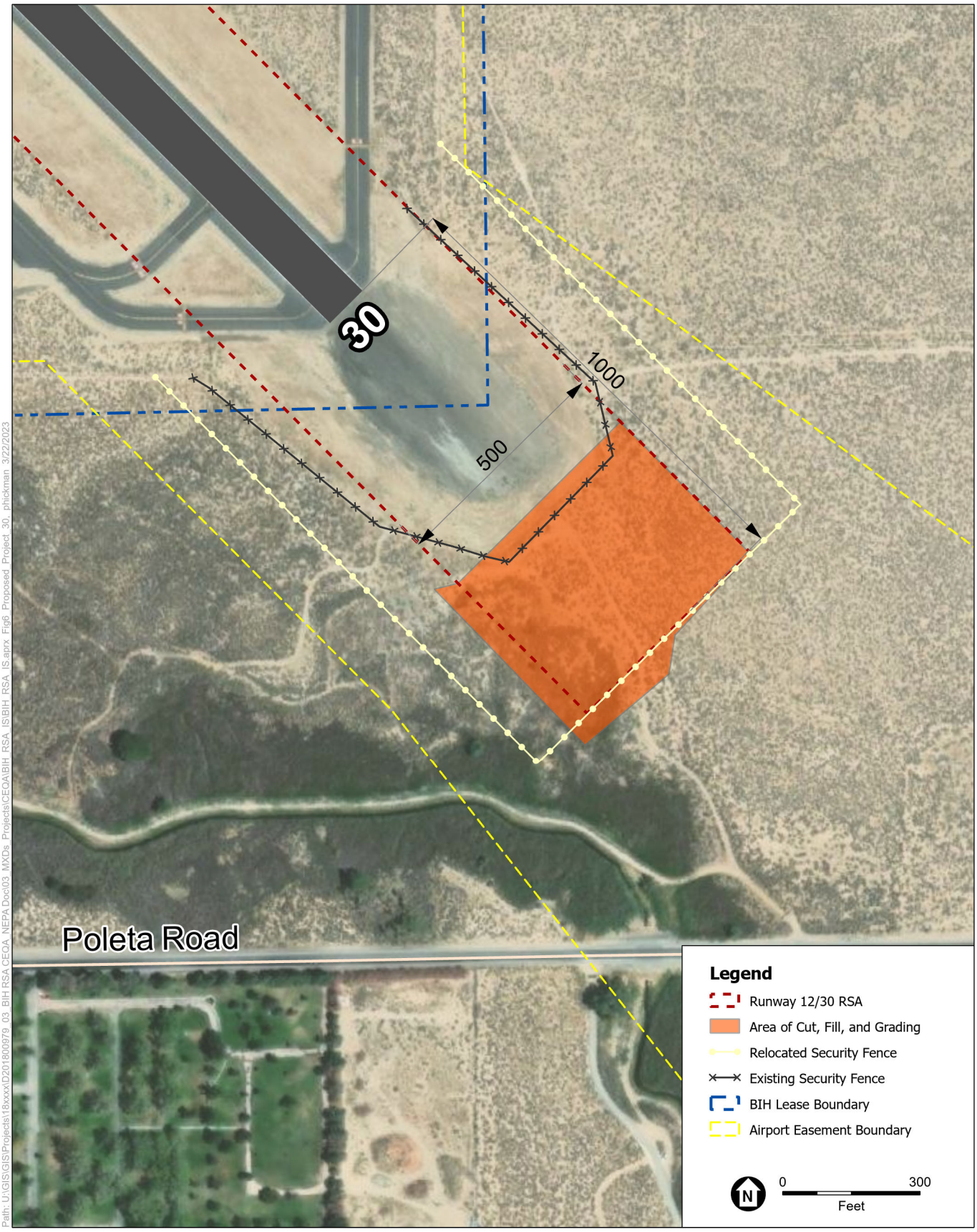
SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 5
Proposed Project
Runway 12 End

ESA



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SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 6
Proposed Project
Runway 30 End

ESA

ENVIRONMENTAL CHECKLIST

Initial Study

1. Project Title:	Runway 12/30 Safety Area Improvement Project at Bishop Airport
2. Lead Agency Name and Address:	County of Inyo, Department of Public Works
3. Contact Person and Phone Number:	Ashley Helms, Deputy Director of Public Works – Airports (760) 878-0200
4. Project Location:	Bishop Airport, Inyo County
5. Project Sponsor's Name and Address:	County of Inyo, Department of Public Works 168 North Edwards Street Independence, CA 93526
6. General Plan Designation(s):	Public Service Facilities (PF)
7. Zoning:	Public (P)

8. Description of Project:

Inyo County proposes to improve the Runway Safety Area for Runway 12/30 at Bishop Airport to meet design standards and safety requirements established by the Federal Aviation Administration (see *Project Description* in this document for a complete description of the Proposed Project).

9. Surrounding Land Uses and Setting:

Bishop Airport is located in a rural setting primarily surrounded by open space and agricultural land uses with a small area of residential development and a cemetery south of the Airport on Poleta Road. The Inyo County General Plan designates the majority of BIH property as Public Service Facilities (PF) with Light Industrial (LI) land use located in the southwestern corner of the Airport property. The Airport is within the Public (P) zoning district in the Inyo County Zoning Code. Lands surrounding the Airport are designated as Agriculture (A) in the Inyo County Plan and Open Space - 40 acre minimum (OS-40) in the Inyo County Zoning Code. While owned and operated by Inyo County, the Airport is located on property leased from the LADWP. Inyo County holds an easement on the land leased from the LADWP ensuring indefinite use of the property as an airport. The City of Bishop is located approximately one and a half miles west of the Airport.

10. Other public agencies whose approval is required:

Lahontan Regional Water Quality Control Board – Construction activity resulting in a land disturbance of one acre or more necessitates application for a Construction General Permit issued by the State Water Resources Control Board.

Federal Aviation Administration – Unconditional approval of those portions of the Airport Layout Plan for Bishop Airport that may depict components of the Proposed Project pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a) (16), and 14 CFR Part 77. Also, approval of funding for the Proposed Project.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The County of Inyo has consulted with California Native American tribes pursuant to Public Resources Code section 21080.3.1. The details of this consultation are provided in the *Cultural Resources* and *Tribal Cultural Resources* section of this Initial Study.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this Initial Study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
I.	**AESTHETICS —** Except as provided in Public Resources Code Section 21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion

a) Bishop Airport sits within California's Eastern Sierra region. The White Mountains are visible from the Airport looking to the east, and the Sierra Nevada Mountains are visible to the west and southwest. Lowland riparian areas are visible to the north and south of the Airport along North Fork Bishop Creek and Rawson Canal respectively. Views into the Airport are consistent with those of a working airfield with visible terminal and support buildings.

The Proposed Project would involve clearing and grading areas within the Runway 12/30 RSA to establish a uniform grade clear of any potential obstructions. This would involve removal of some low-lying vegetation. Areas of low elevation would be filled with sediment, and an existing fence line and patrol road would be realigned to avoid the RSA.

The Proposed Project would not include the construction of any buildings or other structures that would result in an obstruction of views of or damage to scenic resources or scenic vistas in the Airport area. Therefore, any impact on scenic vistas would be **less than significant**.

b) No state scenic highways are located in or easily visible from the Airport. Therefore, there would be **no impact** related to substantial damage of scenic resources within a state scenic highway.

c) The northern portion of the Runway 12/30 RSA at the Runway 12 end is situated within a publicly accessible open space area formerly used as a material pit but now occasionally used for passive recreational activities such as hiking and cycling. The area within the

RSA would be cleared of existing vegetation and filled to achieve an even grade. An existing fence would be realigned to follow the perimeter of the area and prevent public access. This would alter the appearance of a relatively small portion of this area that is currently within an airport easement already dedicated to airport use. Furthermore, the area to be cleared, filled, and graded is already adjacent to an operational airfield with sparse vegetation and is of no particular visual interest. Therefore, any impacts to the aesthetic character of the landscape would be **less than significant**.

d) The Proposed Project would not involve any introduction or reconfiguration of airfield lighting. The realigned patrol roads would not be lighted, and no other lighting sources would be introduced. The Proposed Project would not introduce any sources of glare, and no daytime or nighttime views would be affected. Therefore, there would be **no impact** on daytime or nighttime views in the area due to introduction of new sources of light or glare.

References

California Department of Transportation (Caltrans), 2023. *California State Scenic Highways*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed June 1, 2023.

Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
II. AGRICULTURE AND FORESTRY RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a) The Proposed Project would cut, fill, and grade a portion of the RSA extending south into land designated for Agriculture (A) by the Inyo County General Plan. The area to be graded and enclosed within a realigned fence is occasionally used for livestock grazing and measures 5.5 acres. However, this land is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as identified by the California Department of Conservation's Important Farmland Finder. Therefore, the Proposed Project would have **no impact** associated with conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

b) The Proposed Project would cut, fill, and grade a 5.5-acre portion of the RSA extending south into land owned by the LADWP and zoned by Inyo County as Open Space - 40 acre minimum (OS-40). The land is occasionally used for livestock grazing which is a permitted use in land with the OS-40 zoning designation. However, airports, landing fields, and airstrips are uses conditionally allowed by the OS-40 zone designation. The affected area is not subject to a Williamson Act contract. Furthermore, the affected area is currently subject to an easement securing it for aviation use. Therefore, the Proposed

Project would have **no impact** related to conflict with existing zoning for agricultural use or a Williamson Act contract.

c) The Proposed Project would cut, fill, and grade a 6.4-acre portion of the RSA extending north into land owned by the LADWP and with the zoning designation OS-40. The area is designated for Natural Resources (NR) use according to the Inyo County General Plan and is open to the public for forms of passive recreation such as hiking and off-road cycling. However, the area to be cut, filled, and graded is sparsely vegetated with no observable tree-cover. The Proposed Project would have **no impact** related to conflict with existing zoning for forest land or timberland.

d) The portions of the RSA to be cut, filled, and graded occur in sparsely vegetated areas, and no clearing of existing tree cover is anticipated. Therefore, the Proposed Project would have **no impact** associated with conversion of forest land to non-forest use.

e) The alteration of land associated with the Proposed Project would cut, fill, and grade areas within and existing RSA. These areas are sparsely vegetated, and the Proposed Project would involve grading the terrain to achieve a standard RSA. The land within the existing Runway 12/30 RSA is currently subject to an easement preserving use of the areas for aviation use. The realignment of the existing fencing and patrol road would be designed to avoid existing tree cover. Neither these nor any other element of the Proposed Project would result in conversion of agriculture or forest land to other uses. There would be **no impact** related to this significance criterion.

References

California Department of Conservation, 2020. *Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed February 21, 2023.

Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
III. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Technical Analysis

The Proposed Project's construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) (Version 2020.4.0) software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with the California air districts. CalEEMod is based on outputs from the California Air Resources Board (CARB) OFFROAD model and the CARB on-road vehicle emissions factor (EMFAC) model, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, heavy-duty off-road equipment, and on-road vehicles. Emissions from on-road vehicles were estimated outside of CalEEMod using EMFAC2021 emission factors for haul and material vendor trucks and worker vehicles.

Discussion

a) Bishop Airport is located within the jurisdiction of the Great Basin Unified Air Pollution Control District (GBUAPCD) and Great Basin Valleys Air Basin (Basin). There are four air quality plans in the GBUAPCD. However, the Airport is not located in any of the four planning areas, as the portion of the Owens Valley in which it is situated is in attainment with National Ambient Air Quality Standards (NAAQS).

The GBUAPCD enforces regulations to limit emissions of criteria air pollutants and toxic air contaminants (TACs) and regulating visible emissions, nuisance emissions, and fugitive dust emissions through Rules 401 (fugitive dust and visible emissions) and 402 (nuisance emissions). The Inyo County General Plan enumerates implementation measures to incorporate the air quality goals and objectives developed by the County in concert with the GBUAPCD. Implementation measures applicable to grading activities

include dust suppression requirements such as site watering or use of other dust suppressants, phasing, the covering of soil stockpiles, and suspension of grading activity during wind events exceeding 25 miles per hour. The Proposed Project would incorporate relevant GBUAPCD regulations during construction, including Rule 401, and no conflict with or obstruction of any air quality plan would occur. Thus, this impact would be **less than significant**.

b) As indicated above, the Airport is within Inyo County within the Great Basin Valleys Air Basin. Currently, neither Inyo County nor the GBUAPCD have established numerical significance thresholds for quantitatively determining air quality impacts. For the purposes of CEQA analysis, GBUAPCD uses the Mojave Desert Air Quality Management District (MDAQMD) standards as their regional significance thresholds. The Basin is in nonattainment for ozone (O_3) (volatile organic compounds (VOC) and nitrogen oxides (NO_X) as ozone precursors) and particulate matter (PM_{10}) under the California Ambient Air Quality Standards (CAAQS). Excluding PM_{10}, the Air Basin is unclassified or in attainment for all criteria air pollutants under the NAAQS. Only portions of the Great Basin Valleys Air Basin, such as Owens Lake, are in nonattainment for PM_{10}. The Airport is not located within these nonattainment areas. A technical report describing the air quality analysis was prepared for the Proposed Project and is included as **Appendix A**.

Construction activities associated with the Proposed Project would generate temporary and short-term emissions of criteria pollutants. Construction related emissions are expected from site preparation and grading activities. During the site preparation phase approximately 11,275 cy of organics, rock, and other materials would be relocated within the Airport lease boundary. During the grading phase approximately 50,000 cy of soil would be needed as fill with 20,780 cy of that material being transported from an on-airport borrow area. Proposed Project construction is expected to commence in late 2024 and would last approximately three months. Construction duration by phase is provided in **Table 1**. If project construction commences later than the anticipated start date, air quality impacts would be less than those analyzed herein, because a more energy-efficient and cleaner burning construction equipment fleet mix would be expected in the future, pursuant to State regulations that require construction equipment fleet operators to phase-in less polluting heavy-duty equipment. Therefore, air quality impacts would generally be less than those analyzed herein due to the likelihood of less emissions generated.

TABLE 1
ESTIMATED CONSTRUCTION SCHEDULE

Activity	Start Date	End Date	Duration (Work Days)
Site Preparation	9/1/2024	9/30/2024	30
Grading/Excavation	9/1/2024	11/30/2024	91
Skimming	9/1/2024	9/15/2024	15

SOURCE: ESA, 2023, in consultation with Inyo County Public Works.

The specific construction fleet may vary due to specific needs at the time of construction. The duration of construction activity and associated construction equipment was estimated based on consultation with Inyo County Public Works and CalEEMod default assumptions. A detailed summary of construction equipment assumptions by phase is provided in the modeling files in Appendix A of this Initial Study.

The maximum daily regional emissions from these activities are estimated by construction phase and compared to the MDAQMD significance thresholds. Maximum daily and annual criteria pollutant emissions are shown in **Table 2**. The calculations in **Table 3** incorporate compliance with dust control measures required to be implemented during each phase of construction by GBUAPCD Rule 401 (Fugitive Dust) where watering is assumed to occur three times per day. Project construction would not exceed any annual criteria pollutant thresholds established by the MDAQMD. However, Project construction emissions would exceed NO_X pollutant daily thresholds established by the MDAQMD. Therefore, impacts would be considered potentially significant.

TABLE 2
MAXIMUM REGIONAL CONSTRUCTION EMISSIONS – WITHOUT MITIGATION

	Emissions (pounds per day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	5.44	52.27	43.04	0.13	2.99	1.64
Grading	12.46	131.34	125.40	0.28	9.02	4.92
Skimming	1.93	17.03	11.34	0.04	1.18	0.63
Maximum Daily Regional Emissions	***19.82***	***200.64***	***179.77***	***0.45***	***13.20***	***7.18***
MDAQMD Regional Threshold	137.0	137.0	548.0	137.0	82.0	65.0
Threshold Exceeded?	No	**Yes**	No	No	No	No
	Emissions (tons per year)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	0.07	0.69	0.55	<0.01	0.04	0.02
Grading	0.42	3.94	3.53	0.01	0.39	0.22
Skimming	0.01	0.13	0.09	<0.01	0.01	<0.01
Maximum Annual Regional Emissions	***0.51***	***4.76***	***4.17***	***0.01***	***0.44***	***0.24***
MDAQMD Regional Threshold	25.0	25.0	100.0	25.0	15.0	12.0
Threshold Exceeded?	No	No	No	No	No	No

NOTES: Totals may not add up exactly due to rounding. Refer to Appendix A of this IS/MND for details.
SOURCE: ESA, 2023.

With implementation of **Mitigation Measure MM-AIR-1**, as described below, the regional daily NO_X emissions would be reduced to a level below the MDAQMD regional threshold as shown in Table 3. Therefore, impacts related to regional NO_X construction emissions would be **less than significant with mitigation incorporated**.

TABLE 3
MAXIMUM REGIONAL CONSTRUCTION EMISSIONS – WITH MITIGATION

	Emissions (pounds per day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	2.38	25.76	63.86	0.13	1.68	0.44
Grading	6.74	91.35	151.27	0.28	6.08	2.22
Skimming	0.69	5.47	20.26	0.04	0.69	0.18
Maximum Daily Regional Emissions	***9.81***	***122.58***	***235.38***	***0.45***	***8.45***	***2.84***
MDAQMD Regional Threshold	137.0	137.0	548.0	137.0	82.0	65.0
Threshold Exceeded?	No	No	No	No	No	No
	Emissions (tons per year)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	0.03	0.29	0.86	<0.01	0.02	0.01
Grading	0.16	2.13	4.71	0.01	0.26	0.09
Skimming	0.01	0.04	0.15	<0.01	0.01	<0.01
Maximum Annual Regional Emissions	***0.19***	***2.45***	***5.72***	***0.01***	***0.28***	***0.10***
MDAQMD Regional Threshold	25.0	25.0	100.0	25.0	15.0	12.0
Threshold Exceeded?	No	No	No	No	No	No

NOTES: Totals may not add up exactly due to rounding. Refer to Appendix A of this IS/MND for details.
SOURCE: ESA, 2023.

Mitigation Measure

MM-AIR-1: Equipment Emission Standards. The construction contractor shall utilize off-road diesel-powered construction equipment that meet or exceed the CARB and U.S. Environmental Protection Agency (USEPA) Tier 4 Interim off-road emissions standards for all equipment rated at 50 horsepower (hp) or greater and USEPA Tier 4 Final off-road emissions standards for all equipment rated at 400 hp or greater during Project construction. Such equipment shall be outfitted with Best Available Control Technology (BACT) devices including a CARB-certified Level 3 Diesel Particulate Filter or equivalent. A copy of each unit's certified tier specification or model year specification and CARB or GBUAPCD operating permit (if applicable) shall be available upon request at the time of mobilization of each applicable unit of equipment.

c) The Proposed Project would not expose sensitive receptors to excessive pollutant concentrations. The nearest sensitive receptors are residential uses located approximately 0.5 miles to the southwest of the Runway 30 end, which provides a substantial buffer distance from the Project's emission sources that would allow pollutants to disperse to very low concentrations at the sensitive receptors. As shown in Tables 2 and 3, construction emissions would not exceed significance thresholds. In addition, temporary TAC emissions associated with diesel particulate matter (DPM) emissions from heavy construction equipment would occur during the construction phase of the Proposed Project. According to the Office of Environmental Health Hazard Assessment (OEHHA), health effects from TACs are described in terms of individual cancer risk based on a lifetime (i.e., 70-year) resident exposure duration. Given the temporary construction schedule (approximately 3 months), the Proposed Project would not result in a long-term (i.e., lifetime or 70-year) exposure as a result of Proposed Project construction.

Furthermore, as discussed in item (b) above, the Proposed Project would be required to implement Mitigation Measure MM-AIR-1 to reduce regional NO_X emissions to below the MDAQMD daily significance threshold. The measure would have co-benefits of reducing emissions of PM_{10} and $PM_{2.5}$ from heavy-duty diesel construction equipment as the combined use of Tier 4 Interim off-road emissions standards and a Level 3 Diesel Particulate Filter or equivalent would further reduce the TAC emissions during construction activities. Therefore, impacts from TACs during construction would be **less than significant**.

d) Potential sources that may emit odors during construction activities include construction equipment exhaust. Further, construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of construction. Therefore, as the nearest sensitive receptor is approximately 0.5 miles to the southwest of the Proposed Project and through adherence with mandatory compliance with GBUAPCD Rule 401, construction activities or materials would not create objectionable odors or generate significant nuisance odors at off-site sensitive receptors.

Therefore, any impact associated with other emissions such as those leading to odors would be **less than significant.**

References

Environmental Science Associates, *Runway 12/30 Runway Safety Area Improvement Project at Bishop Airport Air Quality and Climate Analysis*, January 2023.

Inyo County General Plan, Goals and Policies Report, December 2001, p. 9-7.

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IV. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

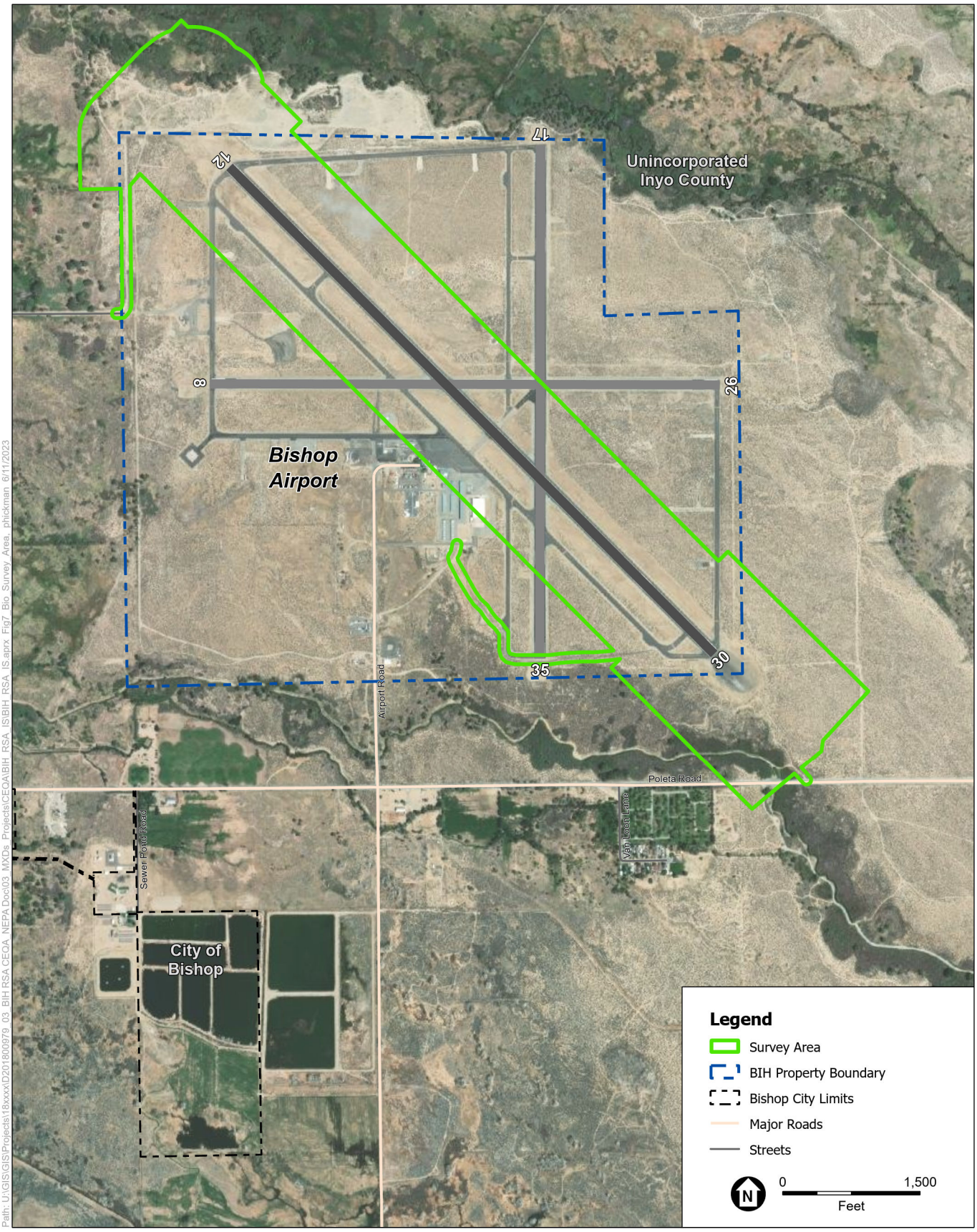
Technical Analysis

A Biological Resources Technical report has been prepared in support of the Proposed Project and is included in **Appendix B**. The report was developed to characterize biological resources in the survey area, depicted in **Figure 7**, and propose measures to protect sensitive biological resources during construction of RSA improvements.

An aquatic resources delineation was conducted in accordance with the Corps of Engineers Wetlands Delineation Manual*,* A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the *Arid West Region of the Western United States, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, and State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, where applicable. ESA also reviewed the U.S. Army Corps of Engineers (USACE) *Sacramento District Minimum Standards for Acceptance of Aquatic Resources Delineation Reports*, *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, and *Aquatic Resource Delineation Report Submittal Workshop* for information to include in the report, figures, and supporting data.

The Proposed Project survey area encompasses approximately 403 acres and includes the area of the proposed RSA improvements along with a 100-foot buffer to account for moving wildlife and hydrological resources. Prior to performing reconnaissance biological surveys, ESA reviewed publicly available data, subscription-based biological resource data, and survey area-specific information.

The survey area primarily consists of upland habitat. This includes areas with a mixture of low-intensity development, open space, and shrub/scrub habitat. The open areas surrounding the runway are routinely graded and maintained by the Airport operations staff for general aviation usage, which requires low-growing vegetation. The area to the northwest of the survey area was previously used for gravel mining, and is largely abandoned, except for occasional off-highway vehicle use.



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 7
Biological Resources - Survey Area

ESA

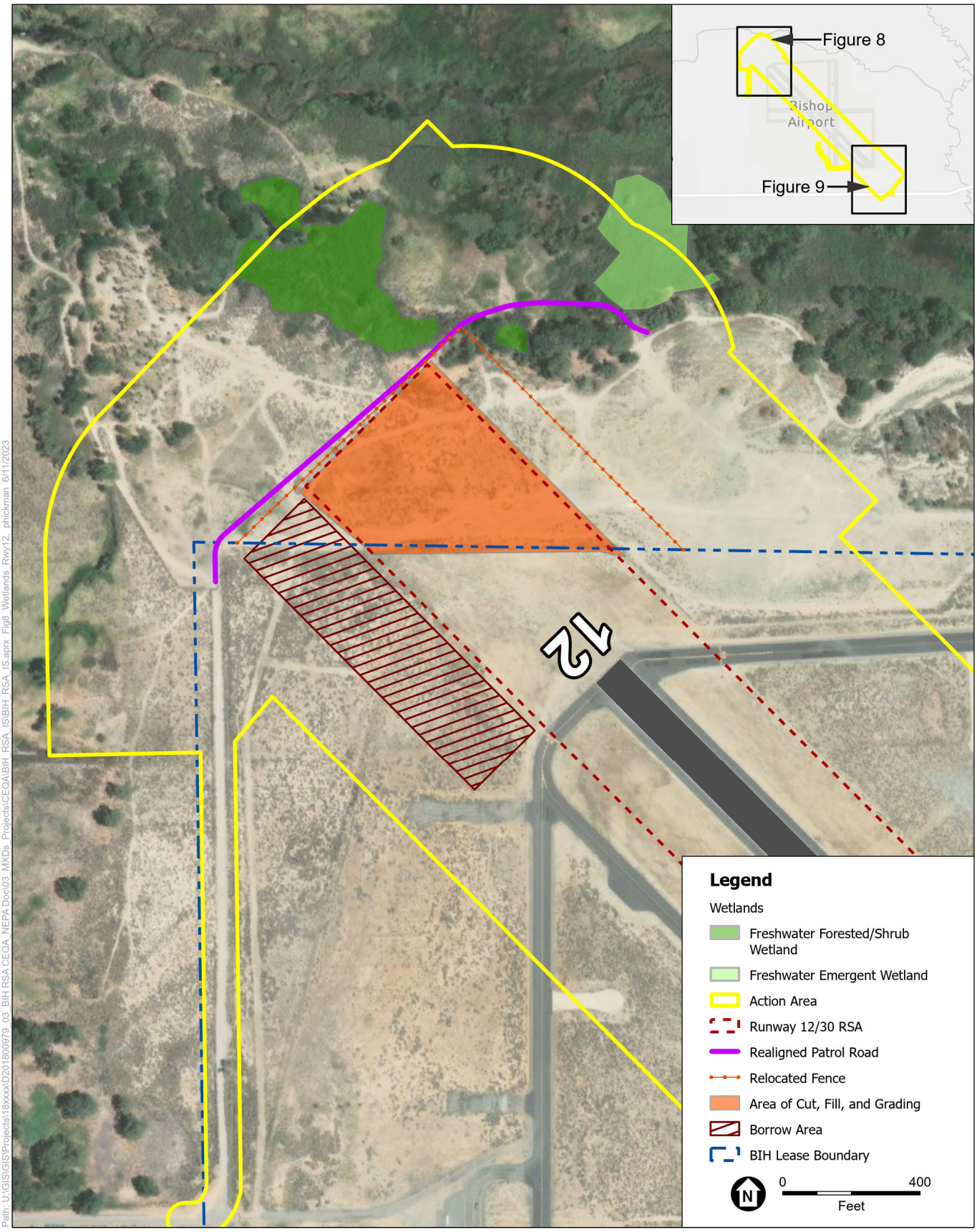
Discussion

a) The Proposed Project would not include any ground disturbance within or immediately surrounding the survey area that may affect habitat or threatened or endangered species and there is no designated critical habitat within the survey area. No candidate, sensitive, or special-status species identified during site surveys would be substantially adversely affected, including the Northern Harrier, Yellow Warbler, and Yellow-breasted Chat (**Appendix B** Biological Resources Technical Report). The U.S. Fish and Wildlife Service (USFWS) has designated Critical Habitat for Owens Tui Chub and Fish Slough Milk-vetch, but this Critical Habitat does not exist on or adjacent to the survey area. Critical Habitat for the Western Yellow-billed Cuckoo is proposed and under review, but the closest proposed location is over 100 miles south of the survey area. Potential for the Southwestern Willow Flycatcher to inhabit the Proposed Project area was determined to be low and associated potential habitat was determined to be of low-quality. The Proposed Project would have no impact on federally listed fish, plant, and avian species within or immediately surrounding the survey area. Furthermore, the Proposed Project would have **no impact** on state species of special concern.

b) Rawson Canal (Water of the U.S. and State) is a perennial stream located on the southeastern end—beyond Runway 30—and is potential habitat for wetland and stream species (**Appendix C** Aquatic Resources Technical Report). The forested wetlands and scrub-shrub wetlands (willow shrubs and rose thicket) are located to the south along Rawson Canal are also considered to be riparian habitat. The proposed grading is approximately 100 feet north and would have **no impact** riparian habitat or other sensitive natural communities.

c) Wetland communities at the far north and south ends of the survey area were identified through research using the USFWS National Wetlands Inventory (NWI) database and field surveys conducted on November 1, 2022. The USFWS NWI identifies the presence of freshwater forested/shrub riparian habitat slightly within and adjacent to the survey area, but not within the proposed grading activities. **Figures 8** and **9** depict wetlands occurring proximate to the areas of cut, fill, and grading and other project elements. Field surveys confirm that these areas consist of perennial herbaceous vegetation, shrubby willow trees (Salix sp.), and rose (Rosa woodsii) bushes at the northern end—beyond Runway 12.

A stormwater pollution prevention plan (SWPPP) prepared in compliance with construction general permit requirements established in support of the Clean Water Act (CWA) would identify wetland areas proximate to the site and establish perimeter controls for erosion, sediment, and other potential pollutants. There would be no direct removal or modification of wetlands, marshes, vernal pools, or coastal wetlands by the Proposed Project (**Appendix C** Aquatic Resources Delineation), and the Proposed Project would have **no impact** on wetlands.

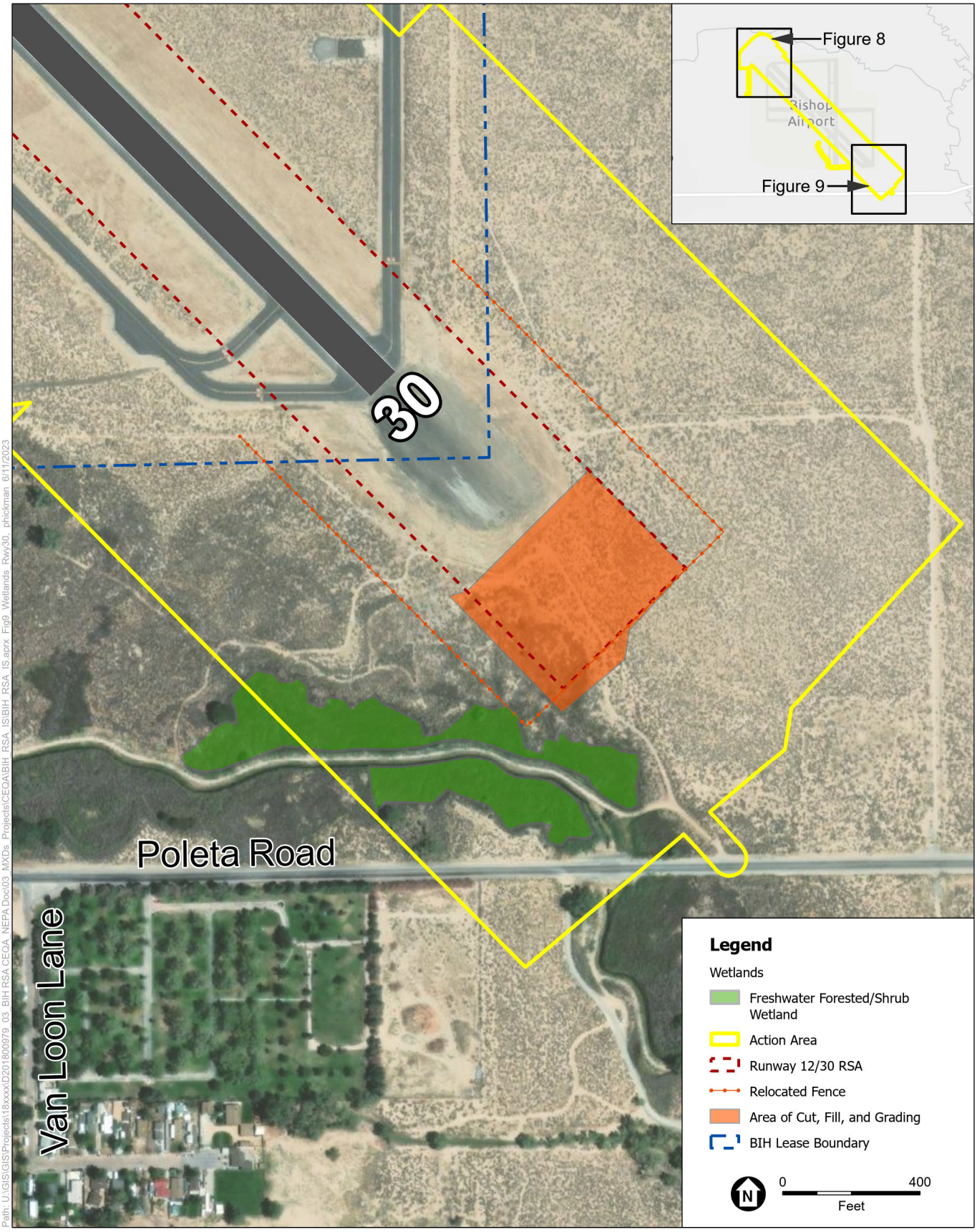


SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 8
Wetlands
Runway 12 End

ESA



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SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 9
Wetlands
Runway 30 End

ESA

d) According to the reconnaissance surveys associated with the Biological Resources Technical Report prepared for the Proposed Project, no state-listed species were observed within the survey area. The survey area is somewhat isolated from the habitat range for the Owens Valley Vole, Yellow-breasted Chat, burrowing owls, Yellow Warbler, and Northern Harrier. There are two mountain ranges on either side of Bishop and Owens Valley that can pose as barriers to migration for wildlife populations in the area. The survey area is currently used for the Bishop Airport runways and some off-road vehicle use. Wildlife can pass through or over fencing and can move through the survey area from surrounding areas. Surrounding non-disturbed areas provide access and movement for wildlife to move north/south throughout the region. There is no woody plant cover and little forage available for wildlife to reside in the survey area long term. The Proposed Project would have **no impact** on migratory wildlife corridors or nursery sites.

e) The survey area is primarily existing disturbed or mowed areas that would be leveled and graded. Otherwise, the rabbitbrush/greasewood/saltbush shrub community is not suitable habitat for many of the potential sensitive or protected species. There are no nesting or perching trees within the survey area and is a suitable distance away from the project to avoid impacts to wildlife. Riparian areas that could be potential habitat for several species are outside the survey area and would not be impacted. The Proposed Project would have **no impact** on potential habitat for threatened or endangered species, and no proposed removal of trees or other biological resources protected by local policies or ordinances.

f) The Proposed Project is consistent with airport industrial zoning that is part of comprehensive planning and master planning for the Airport and County. No conflicts exist with local, regional, or state habitat conservation plans. Thus, the Proposed Project would have **no impact** regarding conflicts with existing conservation plans.

References

Environmental Science Associates, *Runway 12/30 Safety Area Improvement Project at Bishop Airport Biological Resources Technical Report*, January 2023.

Environmental Science Associates, *Runway 12/30 Safety Area Improvement Project at Bishop Airport Aquatic Resources Delineation Report*, January 2023.

Construction Stormwater General Permit Order 2022-0057-DWQ, Attachment D, *Traditional Construction Risk Level Requirements*, September 2022.

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Technical Analysis

A historical/archaeological resources records search was conducted at the Eastern Information Center of the California Historic Resources Information System (CHRIS) in 20202 in support of the environmental review for the introduction of commercial air passenger service at Bishop Airport. The results of this records search were also used to evaluate the Proposed Project's compliance with the requirements of Section 106 of the National Historic Preservation Act (54 U.S.C. §§ 300101-307108 (1966)) and to meet the requirements of both NEPA and CEQA. In furtherance of the Section 106 process, an Area of Potential Effects (APE) was delineated for the Proposed Project. The APE is shown on **Figure 10**. The APE for the Proposed Project includes the extent of all proposed construction work and staging areas, encompassing an area of approximately 9 acres within the Runway 12 safety area and 6.5 acres within the Runway 30 safety area. The records search had three objectives:

1) determine whether known cultural resources have been recorded within the vicinity of the Bishop Airport property;

2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and

3) develop a context for the identification and preliminary evaluation of cultural resources.

The results of the search were received in September of 2020 and indicated 14 cultural resources studies have been conducted within a 0.25-mile radius of APE. Due to the sensitivity of these sites, their precise locations will not be disclosed in this document. However, any potential impacts will be assessed and documented.

The FAA, as lead agency on the NEPA EA being prepared for the Proposed Project, consulted verbally with California State Historic Preservation Office (SHPO) representative on March 15, 2024. The FAA described the Proposed Project, the APE, and the results of the CHRIS records search. The FAA is currently coordinating with the SHPO to deliver necessary materials. The Draft Initial Study will be updated to include any determinations resulting from coordination with the SHPO.

Pursuant to Public Resources Code Section 21080.3.1, Inyo County consulted with California Native American tribes regarding the Proposed Project. Letters describing and providing formal notification of the Proposed Project was sent to eight tribes on January 14, 2023: the Big Pine Paiute Tribe of the Owens Valley, the Bishop Paiute Tribe, the Fort Independence Indian Community of Paiutes, the Lone Pine Paiute-Shoshone Tribe, the Timbisha Shoshone Tribe, the Twenty-Nine Palms Band of Mission Indians, the Cabazon Band of the Mission Indians, and the Torez Martinez Desert Cahuilla Indians. The letters requested a written response within 30 days if consultation with the tribes was desired. A Bishop Paiute Tribal member was present on-site during the cultural resources surface survey. Coordination and communication with the Bishop Paiute Tribe regarding the Proposed Project have taken place and is currently ongoing.

The Tribal Consultation process is discussed further in **Appendix D**.

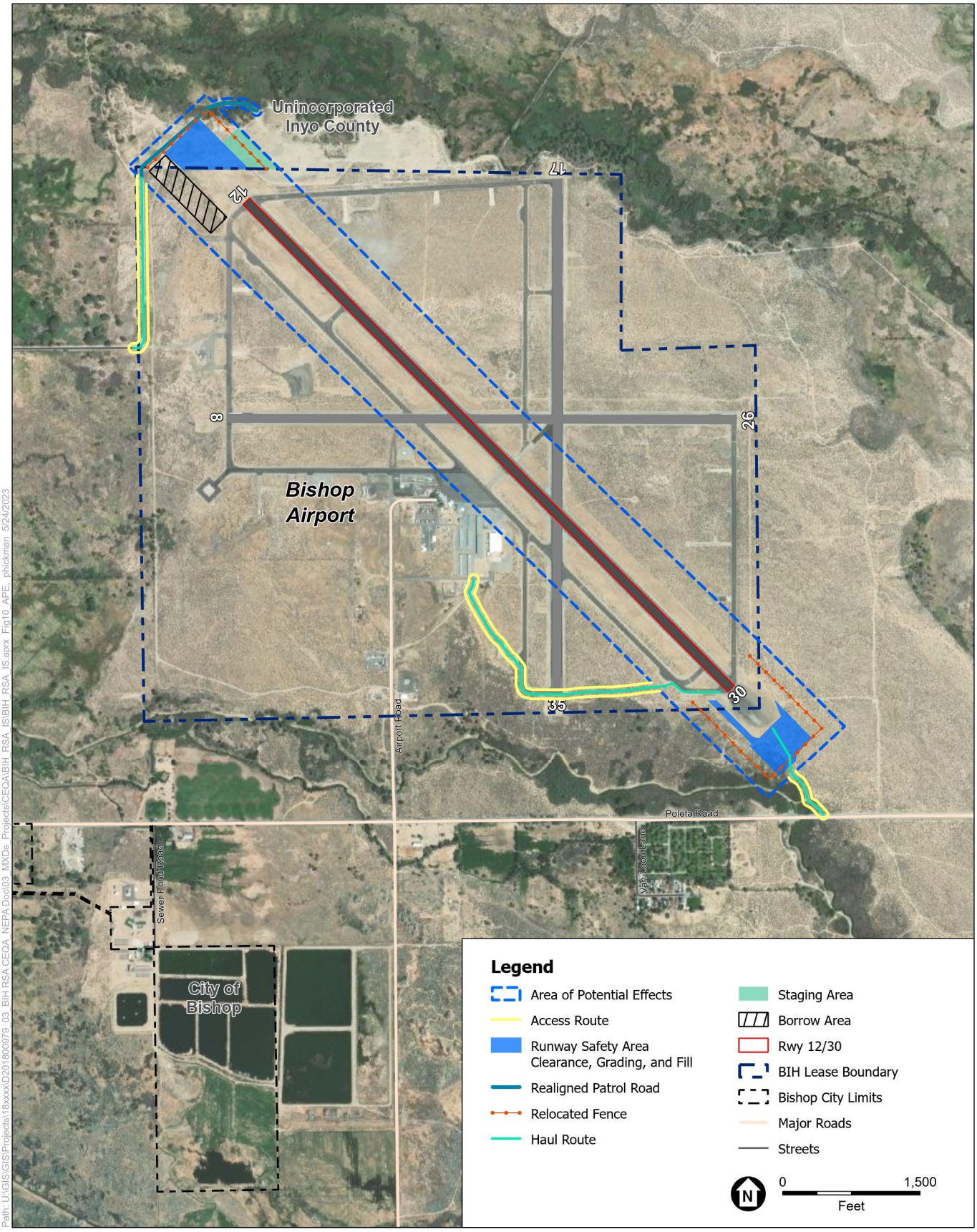
Discussion

a) The Proposed Project would involve areas of cut, fill, and grading in the RSA at each end of Runway 12/30. Additionally, approximately 5,300 feet of new fencing would be installed along the perimeter of the object free area, and a segment of a patrol road would be realigned around the improved RSA at the Runway 12 end. Although there are no cultural resources in the APE that are eligible for listing in the NRHP or the California Register of Historical Resources, there is a possibility previously unidentified cultural materials could be encountered during Project ground disturbing activities. To address this possibility, and to mitigate any potential adverse change in a historical resource, Inyo County would provide a cultural resources sensitivity and awareness training program for all personnel involved in Project construction, including field consultants and construction workers. The training program would be developed in coordination with a Secretary of the Interior-qualified archaeologist, and the County would invite affiliated Native American Tribal representatives to participate. The training program would impart information regarding sensitive cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The program would describe how to avoid and minimize the potential to disturb any heretofore unknown resources that may be in the Proposed Project vicinity and outline procedures to follow if any potential cultural resources are encountered. The training program would emphasize the requirement for confidentiality as well as culturally appropriate treatment of any discovery of significance to Native Americans.

Additionally, a Secretary of the Interior-qualified archaeologist would prepare a cultural resources monitoring plan prior to commencement of any construction activities. Components of this plan would include a detailed location map, individual monitoring responsibilities, the format and content of monitoring reports, protocols to be followed in the event of cultural resource discovery, and methods of securing any discovered resources.

Incorporation of these protocols into Proposed Project construction activities should minimize potential for disturbances leading to an adverse change of a historical resource, and no known registered or eligible historic resource is located where ground disturbance would occur.

Therefore, any adverse effect related to the change of a historical resource would be a **less than significant impact**.



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SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 10
Area of Potential Effect
for the Proposed Project (Undertaking)

ESA

b) No known archaeological resources have been documented in the areas where ground disturbance would occur. However, there is potential for previously unknown archeological resources to be discovered during ground disturbance activities. To address this potential and avoid substantial adverse change in the significance of an archaeological resource, mitigation measures have been recommended for incorporation into all construction activities. In addition to the mitigation measures discussed in item (a) above, a protocol for the unanticipated discovery of archaeological resources would be established. This protocol would specify that all construction activities within a 100-foot radius would halt in the event pre-contact or historic-era archaeological resources are encountered during construction. This would be followed by an inspection of the find by a Secretary of the Interior-qualified archaeologist within 24 hours. If the find is deemed pre-contact[6], affiliated Native American Tribal representatives would be invited to evaluate the find.

If the County determines, based on recommendations from a Secretary of the Interior-qualified archaeologist and affiliated Native American Tribal representatives, that the resource may qualify as a historic property, the resource would be avoided, if feasible. If avoidance is not feasible, the County would work with a Secretary of the Interior-qualified archaeologist and affiliated Native American Tribal representatives to determine treatment measures to avoid, minimize, or mitigate any potential impacts or adverse effects to the resource. This would include documentation of the resource and, if appropriate, data recovery or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource.

Incorporation of these protocols into Proposed Project construction activities should minimize potential for disturbances leading to an adverse change of an archaeological resource, and no known archaeological resource is located where ground disturbance would occur. Therefore, any potential for adverse effects related to the change of a historical resource would be **less than significant impact**.

c) No known human remains are present in the areas where ground disturbance would occur. However, there is always potential, if minimal, that previously undiscovered human remains could be uncovered during Proposed Project construction. To address this potential and mitigate any possible disturbance of human remains, a protocol for unanticipated discovery of human remains would be established. This protocol would specify all applicable State laws, including Section 7050.5 of the Health and Safety Code, will be followed in the event of discovery and recognition of human remains during construction. Furthermore, all construction activities within a 100-foot radius of the find will cease until the Inyo County Coroner Division has been contacted to determine that no investigation of the cause of death is required. The coroner will contact the Native American Heritage Commission within 24 hours if the coroner determines the remains to be Native American in origin. The Commission would then identify individuals determined most likely to have descended from the deceased. These individuals would then advise the County on the most appropriate treatment of the remains and any related funerary artifacts.

[6] Approximately 12,000 Years Before Present (YBP)

Incorporation of these protocols into Proposed Project construction activities should minimize potential for disturbances to human remains. Therefore, any potential for adverse effects related to the unanticipated discovery of human remains, including those interred outside of dedicated cemeteries, would be **less than significant impact**.

References

Environmental Science Associates, *Draft Cultural Resources Survey Report (Confidential)*, February 2023.

California Governor's Office of Planning and Research, *CEQA Guidelines*, Section 15064.5[d]

54 U.S.C. §§ 300101-307108 (1966), *National Historic Preservation Act*.

California Public Resources Code, Section 21080.3.1

California Public Resources Code, Section 5097.98

California Health and Safety Code, Section 7050.5.

Energy

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI. ENERGY — Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion

a) Proposed Project construction would involve cut, fill, and grading of 11.8 acres within the existing RSA for Runway 12/30. The grading would primarily involve filling areas of low elevation using cut material or material taken from an existing borrow area on the BIH premises. Construction energy consumption would result primarily from transportation fuels (e.g., diesel and gasoline) used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the project limits. Project construction would be performed by professional contractors and would not be anticipated to result in inefficient or unnecessary consumption of fuel resources. While not anticipated, construction could occur during nighttime hours, and electricity consumption for construction lighting would be supplied by diesel-powered generators, as there are no other accessible power sources at either end of Runway 12/30. However, even if nighttime construction were to occur, this fuel consumption would be minimal and is not anticipated to have an adverse impact on available fuel supplies. Therefore, no impacts on fuel or electricity supply and infrastructure associated with short-term construction activities would occur. Operation of on-site construction equipment would be conducted in accordance with best practices and applicable regulations, and no unnecessary consumption of energy resources is anticipated.

The Proposed Project would establish a standard RSA for Runway 12/30 at BIH. This would not induce any new aviation operations or other fuel consuming activity beyond the construction phases. Thus, regarding wasteful, inefficient, or unnecessary consumption of energy resources, the Proposed Project would be anticipated to have a **less than significant impact**.

b) The Proposed Project would cut, fill, and grade uneven terrain to provide a standard RSA Runway 12/30 at BIH. No energy consuming facilities would be constructed. None of the Proposed Project elements would conflict with the energy efficiency or renewable energy policies of the Inyo County General Plan. Neither would any aspect of the Proposed Project conflict with the *Energy Efficiency Strategic Plan* adopted by the California Public Utilities Commission or the *Desert Renewable Energy Conservation Plan* adopted by the California Energy Commission. Therefore, regarding conflicts with or obstruction of any state or local plans for renewable energy or energy efficiency, the Proposed Project would have **no impact**.

References

California Energy Commission, *Desert Renewable Energy Conservation Plan*, September 2016.

California Public Utilities Commission, *Energy Efficiency Strategic Plan*, January 2011.

Inyo County, Inyo County General Plan, Chapter 8.10, *Energy Efficiency*.

Inyo County, *Inyo County Renewable Energy General Plan Amendment*, March 28, 2015.

Geology and Soils

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VII. GEOLOGY AND SOILS — Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Discussion

a.i) The Proposed Project site is proximate to the Fish Slough Fault within the Eastern California Shear Zone. According to the California Department of Conservation's interactive Earthquake Hazards Zone mapping application, a portion of the area of cut, fill, and grading would occur on a parcel which lies, partially or in total, in an Alquist-Priolo Earthquake Fault Zone. The Proposed Project would involve earth moving in the form of cut, fill, and grading, but ground disturbance would be limited to a depth of no greater than 20 feet at any point. However, the areas of cut, fill, and grading are outside of the fault zone, and no rupture of a fault would be anticipated. Therefore, any potential for death or injury due to rupture of an earthquake fault would represent a **less than significant impact**.

a.ii) Construction of the Proposed Project would involve cut, fill, and grading to achieve a standard RSA for Runway 12/30 at BIH. No habitable structures or activities associated with concentrations of people would be introduced to any of the altered areas. The presence of construction personnel would be temporary, and construction activity would take place outside of

identified fault zones. Thus, any potential for death or injury due to seismic ground shaking associated with the Proposed Project would be a **less than significant impact**.

a.iii) The Proposed Project would provide a standard RSA for Runway 12/30 at BIH. No habitable structures or impervious surfaces would be constructed as part of the Proposed Project. Soil would be properly compacted to maintain a uniform surface according to all applicable regulations. The resulting RSA would be left clear of any structures or activity in order to preserve aviation safety. The Proposed Project would not occur in any liquefaction zone as mapped by the California Department of Conservation. No ground failure or liquefaction would be anticipated to occur and no structures would be affected if such an event occurred. Therefore, any potential for death or injury due seismic-related ground failure would be a **less than significant impact**.

a.iv) The RSA improvements would be graded to achieve a uniform grade within the RSA. The finished surface in the RSA would transition to the existing grade at an appropriate slope according to best practices and all applicable regulations. The compacted fill would remain free of structures or other loads to be supported, and The Proposed Project would not occur in any landslide zone as mapped by the California Department of Conservation. Therefore, potential for death or injury due to landslides would be a **less than significant impact**.

b) The RSA improvements would be graded to achieve a uniform grade within the RSA. The finished surface in the RSA would transition to the existing grade at an appropriate slope according to best practices and all applicable regulations. Likewise, erosion prevention measures would be implemented during and after construction. Therefore, potential for erosion or loss of topsoil would be a **less than significant impact**.

c) No element of the Proposed Project would be located on a fault zone, liquefaction zone or landslide zone as mapped by the California Department of Conservation. The grading occurring within the RSA would be performed according to best practices and all applicable regulations to achieve the appropriate level of compaction and avoid any on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, potential for any of these occurrences would be considered a **less than significant impact**.

d) The Proposed Project elements are located on soils generally coarse in texture and not prone to expansion. No habitable structures would be constructed as part of the Proposed Project, and human activities would be restricted from the RSA. Therefore, any risk to life or property due to expansive soils would be considered a **less than significant impact**.

e) No habitable structures requiring septic tanks or sewer service are included in the Proposed Project. Human activity would be restricted from the RSA. Thus, no septic tank or other sewer alternative would need to be supported by the soils associated with the Proposed Projects. There is **no impact** regarding adequate support for the use of septic tanks or alternative waste water disposal systems.

f) The Proposed Project construction would occur in areas devoid of unique geological features or known paleontological resources in accordance with best practices, construction

would be monitored to avoid disturbance of any as yet undiscovered paleontological resources. Any potential to destroy unique paleontological resources or geological features would be a **less than significant impact**.

References

California Department of Conservation, EQ Zapp: *California Earthquake Hazards Zone Application*, < https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed March 14, 2023.

Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a) Construction activities associated with the Proposed Project would result in emissions of carbon dioxide (CO2) and, to a lesser extent, methane (CH4) and nitrous oxide (N2O). Construction-period greenhouse gas (GHG) emissions were estimated with the same CalEEMod emissions software and EMFAC2021 emission factors and based on the same construction schedule and activities as described above in the Air Quality Section. For the purposes of CEQA analysis, GBUAPCD uses the MDAQMD daily 548,000 pounds per day and annual 100,000 tons carbon dioxide equivalent (CO2e) per year standards as their regional significance thresholds. The MDAQMD's threshold was developed to meet the mandate of Assembly Bill (AB) 32 for emissions reduced to 1990 levels by 2020. As the Proposed Project would be constructed and operational after 2020, this analysis also considers an adjusted threshold of 328,800 pounds per day and 60,000 tons (54,431 metric tons) CO_{2e} per year, reflecting the Senate Bill (SB) 32 madidate of 40 percent reductions below 1990 levels by 2030. The Proposed Project's construction GHG emissions are shown in **Table 4**. As indicated in the table, the construction emissions for the Proposed Project would not exceed any annual or daily GHG thresholds established by the MDAQMD. Therefore, impacts related to the GHG emissions emitted by the Proposed Project would be **less than significant**.

TABLE 4
PROPOSED PROJECT CONSTRUCTION GREENHOUSE GAS EMISSIONS

Emissions Sources	CO_{2e} (Metric Tons per Year)	CO_{2e} (lbs/day)
Off-Road Equipment	860	30,794
On-Road Sources	95	14,728
Water and Office	112	2,722
Project Total GHG Emissions	***1,067***	***48,244***
MDAQMD Significance Threshold	90,719	548,000
MDAQMD Adjusted Significance Threshold	54,431	328,800
Significant Impact?	***No***	***No***

NOTES: Totals may not add up exactly due to rounding. Refer to Appendix A of this IS/MND for details.

SOURCE: ESA, 2023

b) The State of California has enacted several laws and the governor has signed at least three executive orders regarding GHGs. AB 32 (the Global Warming Solutions Act), passed by the California legislature on August 31, 2006, required the State's global warming emissions to be reduced to 1990 levels by 2020. The reduction was accomplished by 2016 through an enforceable statewide cap on GHG emissions that was phased in starting in 2012. Per AB 32, the California Air Resources Board (CARB) must develop a Scoping Plan to describe the approach California will take to reduce GHGs to meet these goals and must update the Plan every five years. SB 32 expanded upon AB 32 to require statewide GHG emissions to be reduced to 40 percent below 1990 levels by 2030.

The temporary construction schedule (approximately 3 months) and resultant emissions would not significantly impact GHG levels. As shown in **Table 4** above, the Proposed Project would not exceed the MDAQMD's daily and annual project level thresholds developed to meet the reduction mandates of AB 32 or the adjusted 2030 threshold meeting the reduction mandates of SB 32 in 2030. Therefore, the Proposed Project is not anticipated to conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases such as AB 32, SB 32, and CARB's Climate Change Scoping Plan. Therefore, any conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases would be a **less than significant impact**.

The greenhouse gas emissions analysis is described further in Appendix A.

References

Environmental Science Associates, *Runway 12/30 Runway Safety Area Improvement Project at Bishop Airport Air Quality and Climate Analysis*, January 2023.

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Discussion

a) The Proposed Project involves cut, fill, and grading portions of the Runway 12/30 RSA to attain a standard RSA. This would also involve realignment of existing fencing and a segment of a patrol road. No change in operations or activity at BIH would be associated with completion of the Proposed Project, and no on-going activities involving hazardous materials would be introduced or expanded by the Proposed Project. Proposed Project Construction would involve use of vehicles and equipment operation of which would require fuels, lubricants, oils, solvents, and other potentially hazardous materials. The accidental release of hazardous materials due to the improper transport and handling of the common hazardous materials associated with the construction of the proposed could potentially occur. However, the transport, storage, and use of hazardous materials is regulated through various federal, state, and local laws and policies, enforced by multiple departments at local, municipal, and state levels. Hazardous materials, when used for construction activities according to their intended use and in compliance with existing laws and policies, would not present a significant threat to public health or the environment. Therefore, any associated impact would be **less than significant**.

b) The Proposed Project's purpose is to improve safety conditions at BIH by achieving a standard RSA for Runway 12/30 wherein most human activity would be restricted. The Proposed Project would not introduce or expand any on-going activities involving hazardous materials at BIH.

Construction activities associated with the Proposed Project would be performed in accordance with best practices and all applicable regulations addressing the handling of hazardous materials, and no Resource Conservation and Recovery Act (RCRA) or other known sites associated with hazardous materials are present in areas of ground disturbance. Hazardous materials, when used for construction activities according to their intended purpose and in compliance with existing laws and policies, would not present a significant threat to public health or the environment. Thus, any hazard to the public or environment related to release of hazardous materials due to upset or accident would be a **less than significant impact**.

c) The Proposed Project areas of ground disturbance are more than one mile from the nearest school, and no new school sites are proposed within one-quarter mile of any Proposed Project element. Therefore, there would be **no impact** concerning any emission of hazardous substances or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

d) No known hazardous materials sites as described in Government Code Section 65962.5 are located within any areas of ground disturbance associated with the Proposed Project. Any risk associated with being located on a hazardous materials site would be a **less than significant impact**.

e) The Proposed Project is located within the airport influence area for BIH and would achieve a standard RSA for Runway 12/30 at BIH which would enhance safety for aviation operations. The Proposed Project would also reduce third-party risk by enclosing the RSA within security fencing surrounding the airfield. This is consistent with the objectives of the *Inyo County Policy Plan and Airport Comprehensive Land Use Plan*. Furthermore, the Proposed Project would not induce any residential development or noise emitting activities with potential to disturb residential areas. Therefore, any potential effects related to creation of a safety hazard or excessive noise for people residing or working in the project area would be a **less than significant impact**.

f) All Proposed Project elements are intended to enhance safety at BIH by clearing, grading, and enclosing the RSA for Runway 12/30. This would not interfere with implementation of or physically interfere with any emergency response plan or emergency evacuation plan. All existing access and egress points at the BIH airfield would be maintained. ARFF teams would actually have improved access to all portions of the RSA, as existing fencing would be realigned to include the entire RSA within the BIH security perimeter. Therefore, any adverse effect related to interference with implementation of an emergency response plan, emergency evacuation plan or associated physical access would be a **less than significant impact**.

g) The Proposed Project would occur in a Fire Hazard Severity Zone classified as "high" per the Office of the State Fire Marshal's *2022 Fire Hazard Severity Zones Map* for Inyo County.

However, no habitable structures are included with any element of the Proposed Project. Thus, no structures would be introduced which could pose a potential risk regarding wildfires. Proposed Project construction would be performed according to best practices and all applicable regulations regarding fire prevention, and no habitable structures occur within one-quarter mile of the Proposed Project elements. Therefore, any potential for loss, injury, or death associated with the Proposed Project would be a **less than significant impact**.

References

Inyo County, *Inyo County Policy Plan and Airport Comprehensive Land Use Plan*, December 1991.

California Office of the State Fire Marshal, *Fire Hazard Severity Zones Map*, <https://egis.fire.ca.gov/FHSZ/>. Accessed March 16, 2023.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

a) The Proposed Project would include areas of cut, fill, and grading as well as relocation of segments of fencing and a patrol road. These improvements would be implemented to achieve a standard RSA for Runway 12/30 at BIH. No new structures or impervious surfaces would be introduced as part of the Proposed Project. No change in aviation activity would be anticipated upon Proposed Project completion, and no increase in waste discharge or non-point source pollutants would be expected. The cut, fill, and grading activities occurring during construction would require the use of heavy equipment on-site, potentially including excavators, bulldozers, semi-trucks, and other grading equipment. This would disturb existing surface vegetation and surface sediments at the project site. The loosening of surficial soil could result in increased erosion from the project site, as well as an increase in sedimentation downstream in the event of a storm. Thus, construction of the Proposed Project could potentially result in increased sediment loads downstream.

In addition to sediment, the use of heavy machinery on site would increase potential for construction related pollutant discharge during storm events. Construction related oils, greases,

fuels, and other potential construction-period water quality pollutants could become intermingled with stormwater, resulting in degraded water quality downstream.

Proposed Project construction would be performed in compliance with the state National Pollutant Discharge Elimination System (NPDES) General Construction Permit and any subsequent General Permit in effect at the time of project construction. The applicable permits authorize stormwater and authorized non-stormwater discharges from County construction activities and would be required prior to commencement of the construction phase of the project. As part of this permit requirement, a SWPPP would be prepared prior to construction consistent with the requirements of the Regional Water Quality Control Board (RWQCB). The SWPPP would incorporate all applicable best management practices (BMPs) to ensure that adequate measures are taken during construction to minimize water quality impacts. Compliance with applicable regulatory requirements would ensure that the project construction impacts to water quality would be **less than significant**.

b) The Proposed Project would not introduce any facilities which would generate demand on groundwater supplies. Recharge to the groundwater system in the GSA is primarily attributable to precipitation in the Owens River valley and from runoff from the Sierra Nevada Mountains. The cut, fill, and grading which would occur under the Proposed Project would be limited to a depth of 20 feet would not be anticipated to substantially interfere with groundwater flows through the site. Increases in demand for groundwater supplies associated with construction activities would be temporary and are not expected to substantially decrease groundwater supplies. Therefore, any potential for a substantial decrease in groundwater supplies or interference with groundwater recharge would be a **less than significant impact**.

c.i) The Proposed Project would involve cut, fill, and grading to raise areas of low elevation for the purpose of achieving a uniform grade in the Runway 12/30 RSA. As indicated in Appendix C, no streambeds or other surface water courses would be modified as part of the Proposed Project. Transitions to existing grades outside the RSA would be stabilized with appropriate erosion control measures in keeping with industry best practices and all applicable regulations. Likewise, appropriate barriers would be emplaced to prevent silt from entering nearby streambeds during ground disturbance activities. Thus, any potential adverse effect related to substantial erosion or siltation on- or off-site would be a **less than significant impact**.

c.ii) The Proposed Project would not introduce any new impervious surfaces. Finished grades would be sloped appropriately to avoid excessive rates of stormwater flow, and runoff would be conveyed in accordance with BMPs and all applicable regulations. The Proposed Project would raise areas of 100-year floodplains totaling approximately 0.7 acres and another 0.2 acres of 500-year floodplain. **Figures 11** and **12** depict the areas of floodplains situated in areas where cut, fill, and grading would occur. However, the Proposed Project would not impact natural and beneficial floodplain values. The Proposed Project would shore up an existing area within the floodplain through cutting, filling, and grading. This would have a negligible effect on the flow of floodwater and is not likely to result in an alteration of flood water flow that could produce unacceptable upstream or downstream flooding. Therefore, any adverse impact associated with a

substantial increase in the rate or amount of surface runoff resulting in flooding on- or off-site would be a **less than significant impact**.

c.iii) As stated in item c.ii above, the Proposed Project would not introduce impervious surfaces which would intensify stormwater flows. Finished grades within the RSA would be relatively flat per FAA design standards. Stormwater runoff would be conveyed in accordance with best management practices and all applicable regulations. No additional aircraft operations or other airfield activities would be induced by the Proposed Project, and no associated increase in exposure to pollutants would be anticipated. Existing stormwater conveyance and capture infrastructure would continue to avert non-point source pollution at BIH. Therefore, any potential adverse effects associated with runoff in exceedance of capacity of existing or planned stormwater drainage systems or introduction of sources of pollution would be a **less than significant impact**.

c.iv) As stated in item c.ii above, the Proposed Project would raise areas of 100-year floodplains totaling approximately 0.7 acres and another 0.2 acres of 500-year floodplain. However, this action would have a negligible effect on the flow of floodwater and is not likely to result in an alteration of flood water flow that could produce unacceptable upstream or downstream flooding. The general flow of floodwaters would not be significantly altered, as the 0.7 acres of 100-year floodplain affected represents approximately 0.3 percent of the 205.8 acres of 100-year floodplains present in the surrounding Proposed Project area. Therefore, floodwater flows would continue to follow the same courses, and any potential adverse impact related to the direction of floodwater flows would be a **less than significant impact**.

d) The Proposed Project would involve cut, fill, and grading within the RSA for Runway 12/30 which would raise some areas of existing floodplains. As the surface elevation of these areas would be raised out of the floodplain, any potential for inundation of the RSA would be decreased by the Proposed Project. Furthermore, the finished grade within the RSA would not accommodate use or storage of pollutants. During construction, all fuels or other potential pollutants would be stored and handled in accordance with best practices and all applicable regulations. Construction activities would temporarily halt in the event of precipitation which could result in site flooding. Therefore, inundation of the Proposed Project site during construction would be unlikely to result in a substantial release of pollutants. As such, any risk associated with release of pollutants due to project inundation would be a **less than significant impact**.

e) The Owens Valley Groundwater Authority (OVGA) completed a Groundwater Sustainability Plan (GSP) for the Owens Valley in December 2021. However, the Proposed Project would occur on LADWP-owned lands not subject to the Sustainable Groundwater Management Act (SGMA). The basin for the Owens Valley is considered a low-priority basin for the purposes of the SGMA, and the GSP's goal regarding sustainability is to monitor groundwater quality through implementation of a monitoring network and database. The Proposed Project would not interfere with any aquifers or groundwater monitoring wells. The Proposed Project elements would not occur on land subject to the GSP, nor would any Proposed Project element interfere generally with the sustainability goals of the GSP.

The land on which the Proposed Project elements would occur is owned by the LADWP and administrated according to the OVLMP. The OVLMP includes a River Management Plan, the goals include: 1) Continue to supply water to the City of Los Angeles; 2) implementation of sustainable land management agricultural and other resource practices; 3) continue providing recreational opportunities; 4) improvement of biodiversity and ecosystem health; and 5) and protection of endangered species habitat. The improvement of the Runway 12/30 RSA would achieve applicable FAA standards, and no significant impacts conflicting with the goals of the OVLMP River Management Plan would occur as a result of the Proposed Project.

As the Proposed Project would not substantially interfere with the implementation of the OVLMP River Management Plan or the GSP, any potential for conflict with or obstruction of implementation of a water quality control plan or sustainable groundwater management plan would be a **less than significant impact**.

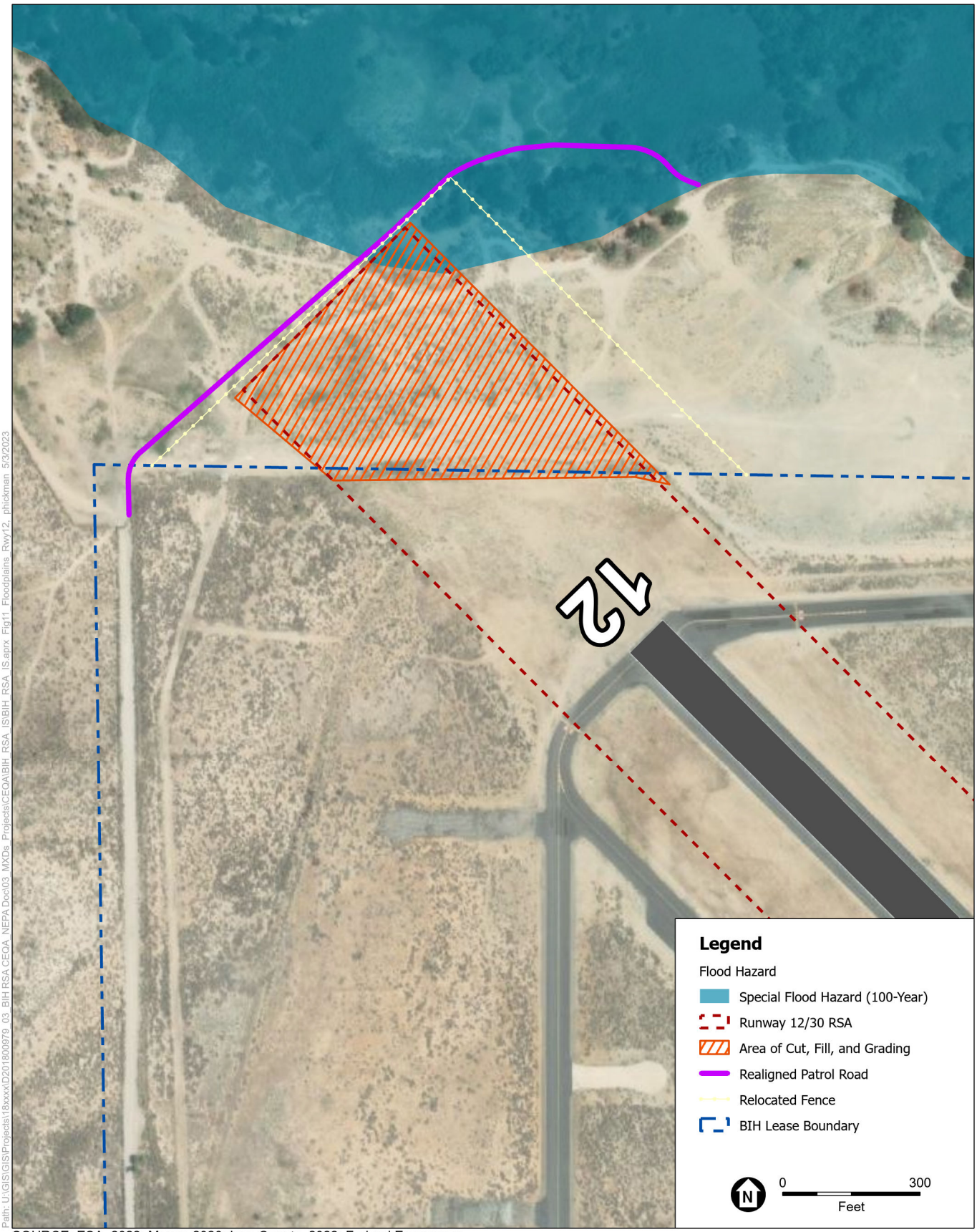
References

Environmental Science Associates, *Runway 12/30 Safety Area Improvement Project at Bishop Airport Aquatic Resources Delineation Report*, January 2023.

Los Angeles Department of Power and Water and Ecosystem Sciences, *Owens Valley Land Management Plan*, April 28, 2010. p. 2-1.

Owens Valley Groundwater Authority, *Owens Valley Groundwater Basin Final Groundwater Sustainability Plan*, December 9, 2021. p. 5.

Sustainable Groundwater Management Act, 2014.

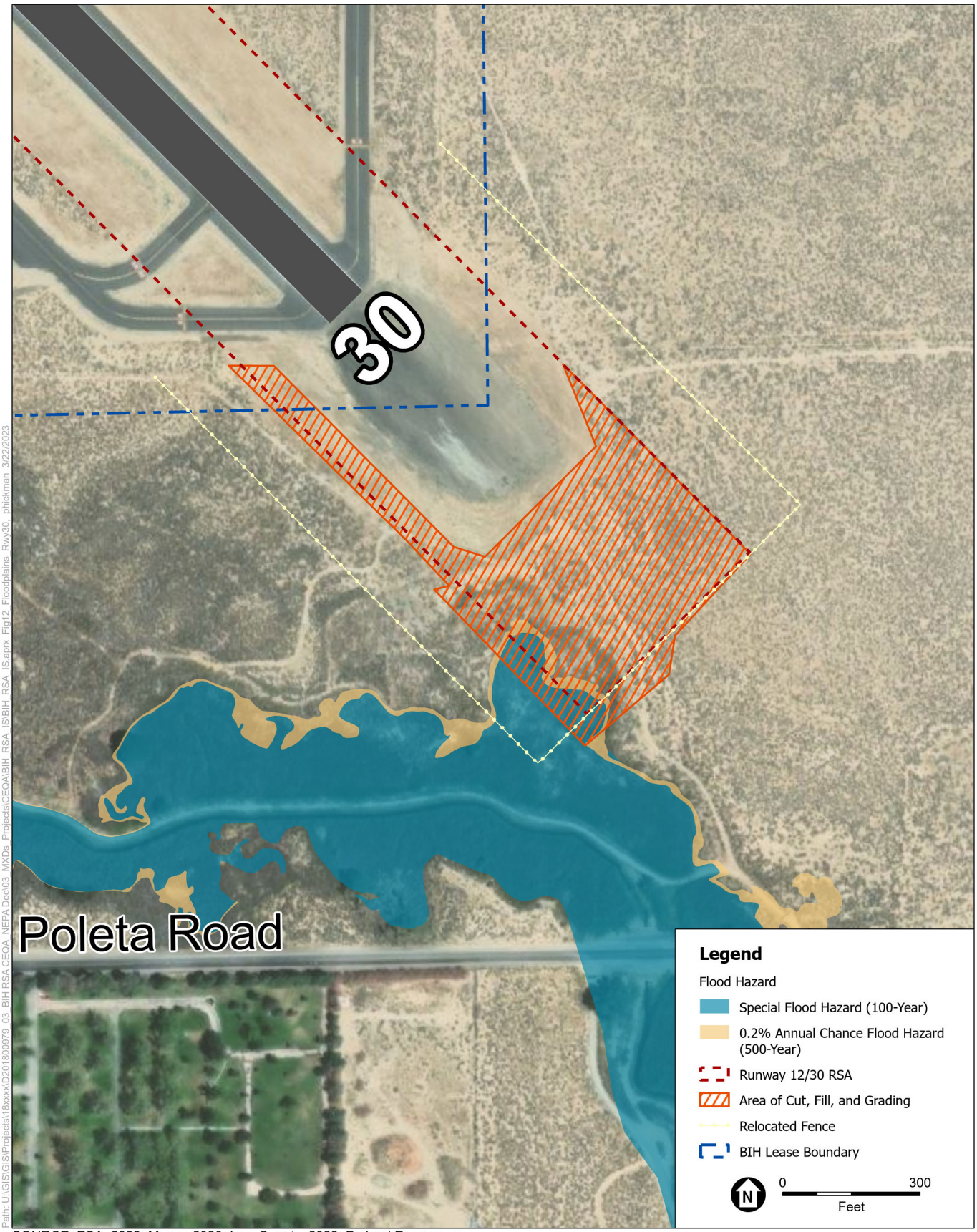


SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; Federal Emergency Management Agency, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 11
Floodplains
Runway 12 End

ESA



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; Federal Emergency Management Agency, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 12
Floodplains
Runway 30 End

ESA

Land Use and Planning

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion

a) The Proposed Project elements would occur on nonresidential parcels and be located more than one-quarter mile from the nearest existing residential development. While some Proposed Project Elements would extend beyond the BIH lease boundary, the affected lands are undeveloped and within an existing airport easement boundary. No established communities are proximate to the project site, and no inhabited areas would be physically divided. Therefore, the Proposed Project would have **no impact** concerning division of any established communities.

b) The Proposed Project would occur on areas identified as being part of an Area of Specific Concern by the Owens Valley Land Management Plan (OVLMP). However, the nature of the environmental concern in this area is related to recreational management and remediating damage due to recreational overuse of the land. Establishing a standard RSA would not induce recreational visits to the affected areas and there are no conflicts with the recreational management goals of the OVLMP.

The area of the RSA beyond the Runway 12 end extends into land designated for both Agriculture (A) and Natural Resources (NR) by the Inyo County General Plan and zoned as Open Space (OS-40). However, "[a]irports, landing fields and airstrips" are conditionally allowed per the Inyo County Zoning Ordinance, and the Proposed Project elements would occur within an existing airport easement boundary. The area of the RSA beyond the Runway 30 end extends into land designated for Agriculture (A) and, as at the Runway 12 end, is zoned as OS-40. While livestock grazing generally occurs in the general surroundings of the area to be cut, filled, and graded, this land is not identified as farmland of statewide importance, and airport uses are conditionally allowed per the OS-40 zoning designation. Therefore, any impact related to conflict with an existing land use plan would be a **less than significant impact**.

References

Los Angeles Department of Power and Water and Ecosystem Sciences, *Owens Valley Land Management Plan*, April 28, 2010. P. 4-11.

Inyo County General Plan, December 2001, p. 4-24.

Inyo County Code §18.12.040.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a) A portion of the Proposed Project area at the Runway 12 end would occur on land previously leased by Hiatt Sand and Gravel for operation of an open pit mine for extraction of material to be used as aggregate. Mining operations ceased in 2010, and the lease holder, 711 Materials Inc., closed the mine per the conditions of the associated reclamation plan. The reclamation was completed in 2022 and the area was removed from the 711 Materials Inc leasehold. No known mineral resources are currently present on the Proposed Project site, and no associated loss of availability of mineral resources would be anticipated to occur upon implementation. Therefore, any adverse effect on availability of known mineral resources would be a **less than significant impact**.

b) No mineral resource recovery sites are currently identified in areas which would be affected by or the Proposed Project elements. No local planning documents or maps designated any of the areas within the Proposed Project GSA as mineral resource recovery sites. Thus, there would be **no impact** concerning loss of availability of a locally-important mineral resource recovery site delineated on any local land use plan.

References

Inyo County, Planning Commission Staff Report, October 25, 2021. p. 2.

Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIII. NOISE — Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Discussion

a) The Proposed Project would improve the RSA for Runway 12/30 at BIH to meet design standards and safety requirements established by the FAA. In addition, an existing unpaved patrol road running through the RSA beyond the Runway 12 end would be relocated to outside the runway OFA and existing perimeter fencing would be removed from beyond both the Runway 12 and Runway 30 ends and new fencing would be installed beyond the OFA boundary. The Proposed Project would enhance safety around Runway 12/30 at the Airport. However, it is not intended to increase airfield operational capacity and would not induce any additional aviation activity.

BIH is located in unincorporated Inyo County. Policy NOI-1.1 in the Public Safety Element of the *Inyo County General Plan* establishes acceptable noise limits for evaluating project compatibility related to noise. Policy NOI-1.4 addresses transportation-related noise and requires a noise impact analysis in areas where current or future noise levels from transportation sources exceeds Day-Night Average Sound Level (Ldn) 65 dB.[7] The nearest residential uses are located approximately 1,400 feet from the project area, south of Poleta Road. A cemetery is located approximately 700 feet from the project area, adjacent to the residential use.

There would be no change in the number or type of aviation operations at BIH related to the Proposed Project. However, there would be a slight change in the shape of the noise exposure contours due to the cessation of declared distances use and the ability of aircraft to utilize the entire runway length. An analysis of the noise produced by the proposed elimination of declared distances included in the Proposed Project has been conducted using the FAA's Aviation Environmental Design Tool version 3e (AEDT 3e), the latest version of the model available. As part of the noise analysis community noise equivalent level (CNEL) contours have been

[7] Day-Night Average Sound Level (Ldn or DNL) is a noise metric that describes cumulative noise exposure from all events over a 24-hour period, with a 10 dB "penalty" applied to nighttime hours (between 10pm and 7am).

generated to depict potential aviation noise exposure resulting from the Proposed Project.[8] The existing CNEL contours for Bishop Airport are depicted on **Figure 13**, and the Proposed Project CNEL contours are depicted on **Figure 14**.

The Proposed Project CNEL 65 dB contour extends beyond the Airport lease boundary to encompass approximately 5,000 square feet of land designated for agricultural use and zoned for open space. However, this represents a small portion of the adjacent property and would not conflict with the applicable Inyo County General Plan policies, as this area is located several hundred feet from the nearest noise sensitive receptors.

The only other noise directly attributable to the Proposed Project would be temporary construction noise associated with the cutting, filling, and grading of the proposed RSA improvements. Inyo County has no construction noise ordinance; however, the general plan includes noise policies applicable to construction activities within 500 feet of existing noise sensitive uses. The Proposed Project area is located well beyond 500 feet from the nearest noise sensitive land use, and best practices such as adherence to established construction hours and operation of equipment compliant with all applicable regulations, would be employed during the construction period. Therefore, the Proposed Project would not produce a substantial temporary or permanent increase in ambient noise levels beyond the Airport in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and any impact would be **less than significant**.

b) The Proposed Project includes potential noise and vibration impacts from construction activity. Construction activities including site preparation, grading, and skimming associated with the Proposed Project would generate temporary and short-term noise and vibration and would be limited to the Airport property. The Proposed Project area is located well beyond 500 feet from the nearest noise sensitive land use, which is in accordance with the *Inyo County General Plan*. Furthermore, best practices such as adherence to established construction hours and operation of equipment compliant with all applicable regulations would be employed during the construction period to reduce the potential for noise-related impacts. Accordingly, the Proposed Project would not produce excessive construction-related groundborne vibration or groundborne noise. Therefore, any impact associated with the generation of groundborne vibration or groundborne noise would be **less than significant**.

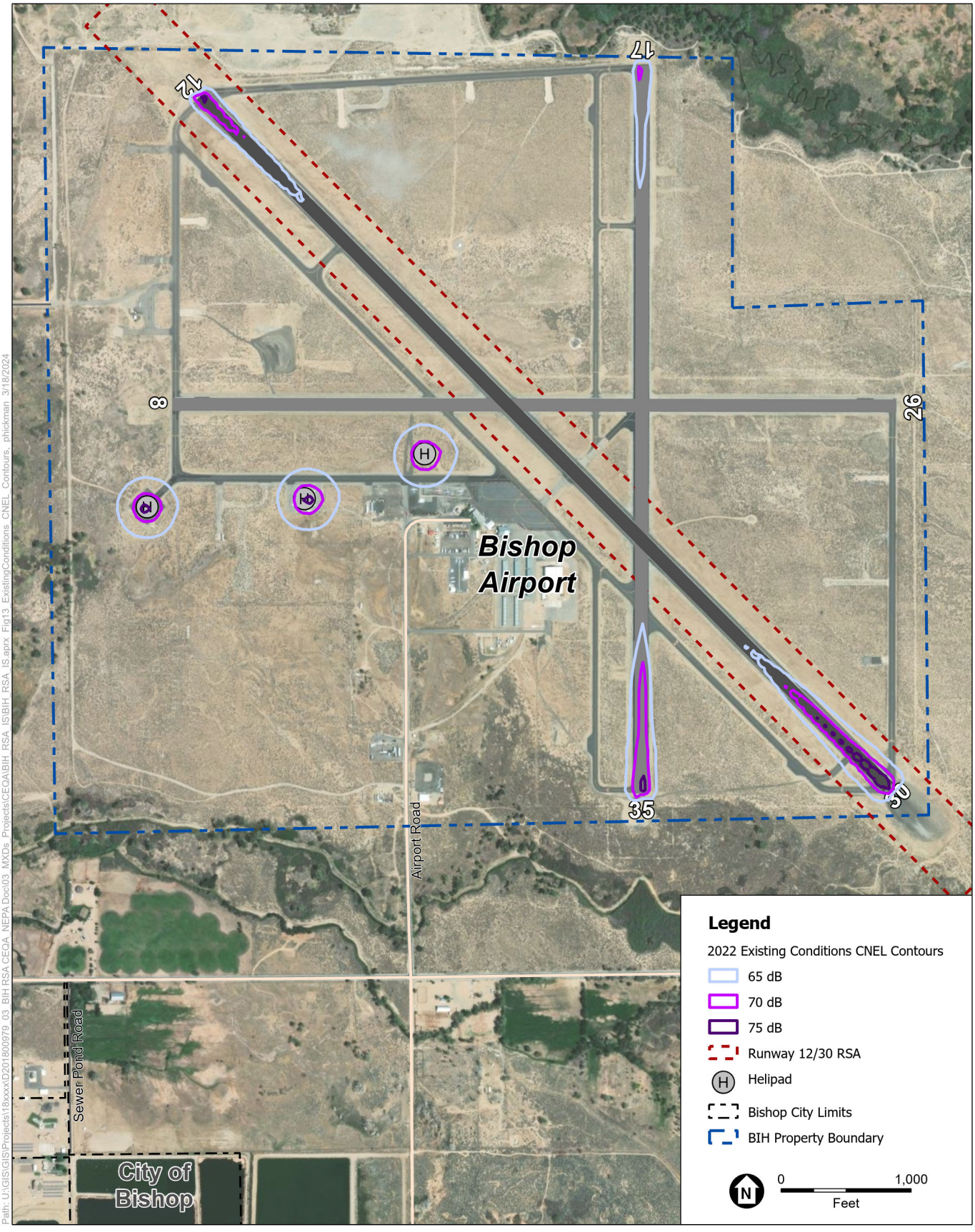
c) The area on and off the Airport lease area is devoid of uses such as homes or schools. The nearest residential uses are located approximately 1,400 feet from the project area, south of Poleta Road. Furthermore, construction activity will primarily be limited to the runway and runway environs, away from areas where people will be working at the Airport. Accordingly, the Proposed Project would not expose people residing or working in the project area to excessive noise levels and any impact would be **less than significant**.

[8] Community Noise Exposure Level (CNEL) is a noise metric that describes cumulative noise exposure from all events over a 24-hour period, with a 5-dB "penalty" applied to evening hours (between 7 PM and 10 PM), and a 10-dB "penalty" applied to nighttime hours (between 10 PM and 7 AM).

References

Inyo County, *Goals and Policies Report for the Inyo County General Plan*, December 2001. <https://www.inyocounty.us/sites/default/files/2020-02/GP%20Goals%20and%20Policy%20Report%2012.2001.pdf>. Accessed May 1, 2023.

Inyo County, *General Plan*, December 2001, <https://www.inyocounty.us/sites/default/files/2020-02/GP%20Goals%20and%20Policy%20Report%2012.2001.pdf>. Accessed May 1, 2023.

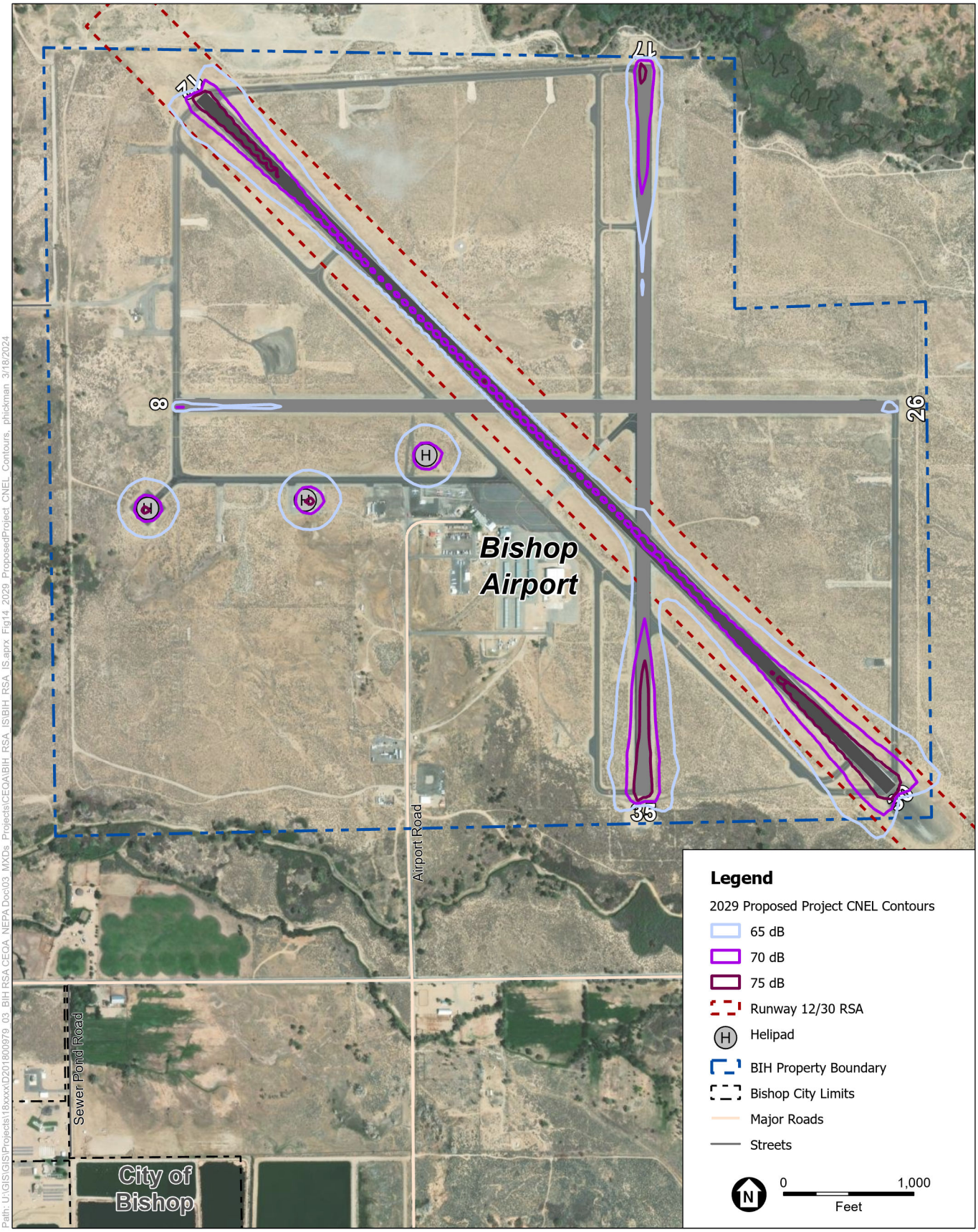


SOURCE: ESA, 2022; AEDT 3e, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 13
Existing Conditions
2022 CNEL Contours

ESA



SOURCE: ESA, 2022; AEDT 3e, 2022; Maxar, 2020; Inyo County, 2022.

Runway 12/30 Safety Area Improvement Project at Bishop Airport

Figure 14
Proposed Project
2029 CNEL Contours

ESA

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIV. POPULATION AND HOUSING — Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) The Proposed Project would include cut, fill, and grading as well as realignment of segments of existing fencing and a patrol road to achieve a standard RSA for Runway 12/30. No new public roads or utility infrastructure would be included with the Proposed Project. The completed RSA improvements would enhance the safety of Runway 12/30 but are not anticipated to have a growth inducing effect on aviation operations or any other airport activities with potential to influence population growth directly or indirectly. Therefore, there would be **no impact** due to substantial unplanned population growth.

b) The Proposed Project elements would occur in unpopulated areas. No people or housing would be displaced either directly or indirectly by the Proposed Project. Furthermore, no future housing has been planned in the Proposed Project areas of cut, fill, or grading due to safety considerations. Therefore, there would be **no impact** due to displacement of existing populations or housing.

References

Inyo County General Plan, December 2001, Diagram 8.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. PUBLIC SERVICES —				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i-v) The Proposed Project would include areas of cut, fill, and grading as well as relocated sections of fencing and patrol road. These enhancements would achieve a standard RSA for Runway 12/30 at BIH. No habitable structures or other facilities would be introduced as part of the Proposed Project, and no new or expanded governmental facilities would need to be constructed to meet any need for public services. Thus, there would be **no impact** associated with provision of new or physically altered governmental facilities.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVI. RECREATION —				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a) The Proposed Project would not introduce new population or activities that increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. This impact would be **less than significant**.

b) The Proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities. There would be **no impact** under this significance criterion.

Transportation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVII. TRANSPORTATION — Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Discussion

a) Vehicular traffic associated with the Proposed Project would be limited to construction activities, such as personnel traveling to and from the project site, transport of materials (e.g., fill dirt) and equipment, and operation of heavy equipment (i.e., nonroad vehicles). Vehicles would travel to and from the project site using roads in the City of Bishop and unincorporated Inyo County, as well as on a state highway (Highway 395) under the jurisdiction of Caltrans. The most direct route to and from the Airport and the surrounding road network is along East Line Street/Poleta Road. East Line Street connects to Highway 395, the main thoroughfare through the City of Bishop and the primary highway that runs the length of the Eastern Sierra region. While nonroad equipment would be used as a result of the Proposed Project, this equipment would be limited to the areas surrounding the project site and would not operate on major thoroughfares.

Typically, agencies with authority over transportation facilities will adopt a level of service (LOS) threshold in their policy documents for purposes of evaluating how well a road is operating. While the City of Bishop has not adopted a level of service (LOS) standard for its roadway network, the *Inyo County General Plan* Circulation Element identifies LOS "C" as its minimum acceptable LOS, as does Caltrans on right of way under its control, including Highway 395. Per the *Inyo County Regional Transportation Plan*, Highway 395 through Bishop and up to the Mono County line was operating at LOS A in 2010 and is anticipated to continue operating at LOS A through 2035. Further, in 2016 the annual average daily traffic volume at the intersections of Highway 395 and SR 168 (West Line Street) was 15,600 vehicles.

Given that vehicular traffic would be limited to construction activities, which are anticipated to be temporary and short-term, the contribution of traffic to/from the Airport associated with the Proposed Project would be minor. It is unlikely that the minimal traffic contributed by the Proposed Project would increase traffic volumes on East Line Street or Highway 395 to such a degree that a substantial reduction in LOS would result. Further, heavy construction equipment would not operate on major thoroughfares and would be limited to the areas surrounding the project site. Accordingly, while the Proposed Project would result in an increase in surface traffic, these activities would not conflict with a program plan, ordinance, or policy addressing the

circulation system, including transit, roadway, bicycle and pedestrian facilities, and this impact would be **less than significant**.

b) CEQA Guidelines section 15064.3, *Determining the Significance of Transportation Impacts*, describes specific considerations for evaluating a project's transportation impacts and states that, generally, vehicle miles traveled (VMT), which refers to the amount and distance of automobile travel attributable to a project, is the most appropriate measure of transportation impacts. Section 15064.3, subdivision (b) (2) states that transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant transportation impact. As discussed above, the Proposed Project would result in minor increases in traffic on local roadways and regional highways due to temporary and short-term construction activities. Consequently, the Proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). This impact would be **less than significant**.

c) The Proposed Project would not alter any existing facilities or roadway infrastructure. The realignment of a segment of existing patrol road would not involve any paving or substantial sitework. The use of this patrol road is limited to employees of the Los Angeles Department of Water and Power Watershed Protection Division who would be traveling at relatively low speeds, and the realignment would not introduce any acute curves or other geometric features. There would be **no impact** related to this significance criterion.

d) The Proposed Project would not introduce any physical elements on major transportation thoroughfares which could potentially degrade the adequacy of existing emergency access. All existing service roads would be maintained or realigned to preserve accessibility to the airfield. There would be **no impact** related to this significance criterion.

References

Inyo County, *Regional Transportation Plan*, September 9. 2019. <https://www.inyocounty.us/sites/default/files/2022-08/Final%20Inyo%202019%20RTPreduced.pdf>. Accessed May 3, 2023.

Tribal Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIII. TRIBAL CULTURAL RESOURCES —				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources. Code Section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Discussion

a.i-ii) A cultural resources survey conducted for the Proposed Project determined there are no listed or eligible state or local historic resources located in the Proposed Project's APE where physical development would occur. There is an existing archaeological site of tribal cultural significance listed on the NRHP situated within one-quarter mile of the Airport property. Due to the sensitivity of the site, the precise location relative to BIH is not disclosed in this document. However, the site is not within an area that would undergo any ground disturbance or accommodate any surface activity due to the Proposed Project. Ground disturbing activities would be limited to construction and include cutting, filling, and grading portions of the Runway 12/30 RSA which are currently in a non-standard condition. Much of these activities would be in locations where prior ground disturbance has occurred, and a cultural resources survey discovered no indication of sites or materials of tribal significance.

In accordance with California AB 52, the Airport has notified applicable California Tribal Historic Preservation Officers (THPOs), and consultation is currently ongoing. As of publication, the Bishop Paiute Tribe has responded with a request for a meeting with Inyo County personnel to informally discuss the Proposed Project. This meeting is still tentative pending a response regarding availability of the THPO. The Tribal Consultation process is discussed further in Appendix D.

Although there are no cultural resources in the APE that are eligible for listing in the California Register of Historical Resources or any local register of historic resources, there is a possibility previously unidentified cultural materials could be encountered during Proposed Project ground disturbing activities. Per state law, the establishment of protocols for unanticipated discoveries of

artifacts and human remains is required for ground disturbing activities to abate any potential adverse change in a historical resource. Adherence to those provisions would provide safeguards to address the already low potential for encountering cultural resources during construction.

Recommended best management practices would include cultural resources awareness training for all personnel involved in Proposed Project construction and adherence to a cultural resources monitoring plan. Additionally, monitoring by tribal representatives during construction is recommended and should be encouraged. Following construction there would be no further activity in the RSA with potential to disturb cultural resources. Thus, any potential impact to tribal cultural resources would be a **less than significant impact**.

References

Environmental Science Associates, *Bishop Airport Runway Safety Area Improvement Project Draft Cultural Resources Survey Report*, February 2023.

California Code of Regulations, Section 15064.5(d)-(f).

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIX. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a) The Proposed Project would cut, fill, and grade areas of uneven terrain and relocate an existing segment fencing as well as a segment of patrol road. However, no impervious surfaces would be introduced as the finished grade of the RSA and the patrol road would remain unpaved. Although the new finished grade would alter flows of stormwater drainage, the Proposed Project grading plans would direct stormwater flows in accordance with best management practices and all applicable regulations, and no significant impact associated with construction or relocation of expanded stormwater drainage would be anticipated.

No new or expanded water, wastewater, electric power, natural gas, or telecommunications facilities would be necessary to complete any Proposed Project elements. Therefore, any environmental effects associated with relocation or construction of utilities and service systems would be considered a **less than significant impact**.

b) Water needs at BIH are met by two on-Airport wells: a domestic well and a fire suppression well. The domestic well is currently planned for decommission in the next 10 years, but the fire suppression well is expected to continue meeting anticipated future water needs at the Airport. At present, the groundwater aquifer supplying water to BIH is regularly replenished by abundant runoff from the Sierra Nevada Mountains. This water supply currently meets potable water and fire suppression needs at BIH and would be sufficient to meet demands during the construction phase of the Proposed Project. The Proposed Project does not include any new habitable structures or other facilities which would require a supply of water. Therefore, the

Proposed Project's effect on water supply requirements would have a **less than significant impact**.

c) Wastewater treatment at BIH is handled via an on-site septic system. The Proposed Project does not include any habitable structures or other facilities and would not increase demand on existing wastewater treatment capacity beyond the construction phase. Any wastewater generated during the construction phase would be transported from the site in accordance with all applicable regulations by an appropriately qualified and credentialed sanitation services provider. The increase in wastewater treatment demand during Proposed Project construction would be temporary and is not anticipated to exceed the available capacity. Any increase of demand for wastewater treatment induced by the Proposed Project would be confined to the construction phase and represent a **less than significant impact**.

d) The Proposed Project would not involve any permanent structures or activities which would generate solid waste beyond the construction phases.

Proposed Project construction would entail cutting, filling, and grading portions of the RSA as well as realigning existing segments of fence line and patrol road. Areas where clearing and grubbing would occur are sparsely vegetated, and a minimal volume of vegetation waste would need to be transported from the site. Site grading would primarily involve filling areas of lower elevation to provide an even grade and is not expected to generate excess cut material for transport to any landfill or recycling facility. Other solid waste generated during construction would be collected and transported off site per the construction waste management plan and all applicable regulations.

Solid waste produced by Airport activities is transported to the closest disposal site at Bishop-Sunland Landfill located approximately four miles southwest of the Airport on Sunland Reservation Road. The local landfill is operated by Inyo County on land leased from LADWP. According to the CalRecycle Solid Waste Information System, the Bishop-Sunland Landfill has a maximum permitted capacity of 160 tons of solid waste per day and a cease operation date of 2064. The landfill has a capacity of 6 million cubic yards with a remaining capacity of 3.3 million cubic yards. The landfill also accepts recyclable materials such as wood, metal, cardboard, paper, electronic waste, universal waste, glass, plastic, aluminum, mattresses, carpet, and various electronics. Thus, the Proposed Project's potential to generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure would be a **less than significant impact**.

e) A construction waste management plan would be implemented by the contractor to handle the minimal volume of solid waste expected to be generated during construction. All solid waste generated during construction would be collected and transported off site to the local landfill or recycling facility, as appropriate, per the construction waste management plan and all applicable regulations. The Proposed Project would have **no impact** regarding any failure to comply with federal, state, or local management and reduction statutes or regulations related to solid waste.

References

CalRecycle, *SWIS Facility/Site Activity Details, Bishop Sunland Solid Waste Site* (14-AA-0005), <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4236?siteID=648>. Accessed November 29, 2022.

Wildfire

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XX. WILDFIRE — If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion

a-d) The entirety of the Proposed Project GSA is located in a fire hazard severity zone classified as "high" according to the Office of the State Fire Marshal's *Fire Hazard Severity Zones Map*. The nearest "very high" fire hazard severity zone is located more than 30 miles away from the GSA. Therefore, the Proposed Project would have **no impact** regarding adverse effects of development in a very high fire hazard severity zone.

References

California Office of the State Fire Marshal, *Fire Hazard Severity Zones Map*, <https://egis.fire.ca.gov/FHSZ/>. Accessed March 16, 2023.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XXI. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a) The Proposed Project would encompass cutting, filling, and grading portions of the Runway 12/30 RSA to achieve the even grades and obstacle-free terrain characteristic of a standard RSA. A segment of unpaved patrol road would also be realigned around the outer perimeter of the RSA. The area where these activities would primarily occur has largely been previously disturbed. Areas where previously undisturbed land would be filled and graded do not include any critical habitat or populations of rare or endangered plant or animal species. No delineated wetlands would be encroached upon by the construction activities associated with the Runway 12/30 RSA improvements. There would be some floodplain encroachment, as 0.7 acres of 100-year floodplain and 0.2 acres of 500-year floodplain would be filled and raised with embankments. However, no other physical structures or populations would be sited in areas of inundation, and any effects on flows of floodwaters would be minimal. No examples of major periods of California history or prehistory are known to exist within the areas that would undergo physical ground disturbance. Therefore, any impact would be **less than significant**.

b) The effects of the Proposed Project would primarily be associated with construction activities and be temporary and minimal in nature. The Proposed Project would result in a standard RSA for Runway 12/30 and would not induce any on-going activity at the Airport which could incrementally contribute to noise, traffic, or demand for public services or energy supplies. Areas which would be cleared of vegetation and graded are of limited value as habitat or wildlife corridors due to the proximity to the existing airfield infrastructure and activities. There are no physical alterations to the environment which would contribute the any cumulative impacts connected to other past, present, or probable future projects. The impact would be **less than significant**.

c) The Proposed Project would improve the Runway 12/30 RSA by clearing, cutting, filling, and grading the existing terrain to create an even grade free of obstacles around the runway in accordance with FAA standards. The Proposed Project would not introduce any elements which would pose hazards to humans. Neither would it induce any activity which could contribute to indirect negative effects on human populations. Rather, the Proposed Project would enhance the safety of aviation activity occurring on Runway 12/30 at the Airport. Thus, the impact would be **less than significant**.

Appendix A
Air Quality and Climate Analysis

ESA

Draft

RUNWAY 12/30 RUNWAY SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

Air Quality and Climate Analysis

Prepared for
Inyo County Department of Public Works

July 2023

ESA

Draft

RUNWAY 12/30 RUNWAY SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

Air Quality and Climate Analysis

Prepared for
Inyo County Department of Public Works

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Air Quality and Climate Analysis

1. Introduction and Overview

This report provides an analysis and overview of the air quality and climate modeling data preparation and resulting construction emissions for the Runway 12/30 Runway Safety Area (RSA) Improvement Project at Bishop Airport (BIH). The Proposed Project would involve clearing and grading around Runway 12/20 in order to achieve a standard RSA. The Proposed Project is not anticipated to have ramifications for operations at BIH, as the RSA improvements would not induce any new activity or change any existing arrival or departure routes. This air quality and climate analysis was prepared as a part of the environmental review for the construction of improvements for the RSA for Runway 12/30.

A detailed discussion of the model inputs used to develop air quality and greenhouse gas (GHG) emissions calculations is included in the following sections.

2. Regulatory Setting

This section provides information pertaining to regulatory conditions in the project area, which includes the Great Basin Valleys - Air Basin. For example, this includes information on attainment/nonattainment designations, and applicable regulatory criteria and/or thresholds that will be applied to the results of the air quality assessment.

2.1 Federal

The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3) and its precursors such as oxides of nitrogen (NO_x) and volatile organic compounds (VOCs), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide (SO_2). In complying with the National Environmental Policy Act (NEPA), the Federal Aviation Administration (FAA) must determine if a Federal Action would cause criteria pollutant concentrations to exceed the NAAQS.

FAA will evaluate if the emissions caused by the Proposed Project would result in a significant impact under the FAA's NEPA threshold (see the *Runway 12/30 Runway Safety Area*

Improvement Project at Bishop Airport Environmental Assessment). While there are four air quality plans in the Great Basin Unified Air Pollution Control District (GBUAPCD), none of them are applicable to the project area.

Exhibit 4-1 of the FAA's 1050.1F Desk Reference provides the FAA's significance thresholds for air quality:

> *"The action would cause pollutant concentrations to exceed one or more of the [NAAQS], as established by the [EPA] under the [CAA], for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations."*

2.2 State of California

The Clean Air Act (CAA) allows states to adopt air quality regulations and standards provided they are at least as stringent as the NAAQS. The California Air Resources Board (CARB) was tasked with establishing the California Ambient Air Quality Standards (CAAQS) via the California Clean Air Act of 1988 (CCAA). This motion established CAAQS for pollutants not covered in the NAAQS including sulfates, H_2S, vinyl chloride, and visibility-reducing particles.

Like NAAQS, geographic areas that do not meet the CAAQS are called "nonattainment areas." The CARB is responsible for enforcing regulations to achieve and maintain the NAAQS and CAAQS. The CARB is responsible for reviewing operations and programs in local air districts and requires each air district with jurisdiction over a nonattainment area to develop a strategy for achieving the NAAQS and CAAQS. The local air district, in this case the GBUAPCD, is responsible for the development, implementation, and enforcement of rules and regulations designed to attain the NAAQS and CAAQS in the Great Basin Valleys – Air Basin (Air Basin).

The California Air Toxics Program is an established two-step process of risk identification and risk management to address potential health effects from exposure to toxic substances in the air. In the risk identification step, CARB and the Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified, or "listed," as a toxic air contaminant (TAC) in California. In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce risk. Based on results of that review, CARB has promulgated a number of Airborne Toxic Control Measures (ATCMs), both for stationary and mobile sources, including On-Road and Off-Road Vehicle Rules. These ATCMs include measures such as limits on heavy-duty diesel motor vehicle idling and emission standards for off-road diesel construction equipment in order to reduce public exposure to diesel particulate matter (DPM) and other TACs. These actions are also supplemented by the Assembly Bill (AB) 2588 Air Toxics "Hot Spots" program and Senate Bill (SB) 1731, which require facilities to report their air toxics emissions, assess health risks, notify nearby residents and workers of significant risks if present, and reduce their risk through implementation of a risk management plan. The South Coast Air Quality Management District (SCAQMD) has further adopted two rules to limit cancer and non-cancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air

Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

2.2.1 Great Basin Unified Air Pollution Control District

GBUAPCD is the air pollution control agency with jurisdiction over Alpine, Mono, and Inyo County. The Air Basin covers the whole GBUAPCD jurisdiction. The purpose of the GBUAPCD is to enforce federal, state, and local air quality regulations and to ensure that the federal and state air quality standards are met.

There are four air quality plans that are currently adopted by the GBUAPCD: Owens Valley PM_{10} State Implementation Plan (SIP), Mono Basin PM_{10} SIP, Coso Junction PM_{10} SIP, and the Mammoth Lakes Air Quality Management Plan (AQMP). None of these air quality plans are applicable to the Proposed Project, as the Proposed Project would occur outside of each of the applicable planning areas.

For the purposes of California Environmental Quality Act (CEQA) analyses, GBUAPCD uses the Mojave Desert Air Quality Management District (MDAQMD) standards as their regional significance thresholds.

2.2.2 Greenhouse Gases

The climate change regulatory setting – international, federal, state, and local – is complex and rapidly evolving. The EPA is responsible for implementing federal policies to address GHGs. The federal government administers a wide array of public-private partnerships to reduce the quantity of GHGs generated in the United States. The EPA has published endangerment findings for greenhouse gases indicating that emissions of GHGs from new motor vehicles and certain aircraft contribute to air pollution that endangers the public health and welfare under the CAA, Section 202(a).

The Council on Environmental Quality (CEQ) affirmed that NEPA and its implementing regulations (40 CFR 1500 et. seq.) apply to GHGs and climate change. GHGs include carbon dioxide (CO_2), methane (CH_4), NO_2, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). Despite this guidance, there are no significance thresholds associated with GHGs. CEQ instructs federal agencies to disclose a project's contribution to GHGs in a study area although the need to disclose such emissions for General Conformity purposes does not exist.

Several California statutes, policies and regulations have been promulgated to reduce the growth in GHG emissions. The FAA has not established a significance threshold for climate and GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions.

2.3 Attainment Status

The Airport is located in Inyo County, within the GBUAPCD. The NAAQS and CAAQS attainment status for the GBUAPCD is presented in **Table 2-1.**

TABLE 2-1
CAAQS AND NAAQS IN THE GREAT BASIN VALLEYS - AIR BASIN

Criteria Air Pollutant	NAAQS Attainment Status	CAAQS Attainment Status
Ozone (1-Hour)	Unclassified/Attainment	Nonattainment
Ozone (2015 8-Hour)	Unclassified/Attainment	
CO (1-Hour and 8-Hour)	Unclassified/Attainment	Attainment
NO_2 (1-Hour)	Unclassified/Attainment	Attainment
NO_2 (Annual)	Unclassified/Attainment	
SO_2 (1-Hour)	Unclassified/Attainment	Attainment
SO_2 (24-Hour and Annual)	Unclassified/Attainment	
PM_{10} (24-Hour)	Unclassified/ Nonattainment (Owens Valley)	Nonattainment
$PM_{2.5}$ (2012 Annual)	Unclassified/Attainment	Attainment
$PM_{2.5}$ (2006 24-Hour)	Unclassified/Attainment	
Lead	Unclassified/Attainment	Attainment

SOURCE: EPA, 2022. CARB, 2020.

2.4 Existing Conditions

GBUAPCD monitors air quality at 14 locations throughout Inyo County. The closest air quality monitoring station is located at the White Mountain Research Center on East Line St., about 1.2 miles southeast of the Airport. The White Mountain Research Center monitors concentrations of ozone, CO, SO_2, $PM_{2.5}$ and PM_{10}. There are no monitoring stations that measure concentrations of NO_2 near the Airport. **Table 2-2** summarizes air quality data from the White Mountain Research Station for the most recent three years.

The climate of the GSA and Air Basin is determined by its terrain and geographical location. The Basin is situated in a valley with the Sierra Nevada Mountains to the west and the White-Inyo Mountains to the east. The Sierra Nevada Mountains to the west act as a barrier to precipitation creating a 'rain shadow' in the basin. For this reason, the region has an arid climate with an average annual rainfall of about five inches. The temperature typically varies between 22°F to 97°F throughout the year with the hottest months in June through August. The average wind speed ranges from around five miles per hour (mph) in the fall to seven mph in the spring.

TABLE 2-2
AIR QUALITY MONITORING DATA SUMMARY (2020-2022)

Pollutant	Monitoring Data by Year		
	2020	2021	2022
Ozone (O_3)			
Highest 1 Hour Average (ppm)	0.079	0.081	0.075
Days over National Standard	0	0	0
Highest 8 Hour Average (ppm)	0.073	0.075	0.068
Days over National Standard (0.070 ppm)	1	4	0
Sulfur Dioxide (SO_2)			
Highest 1 Hour Average (ppb)	0.9	0.6	0.6
Days over National Standard (75 ppb)	0	0	0
Highest 24 Hour Average (ppb)	0.3	0.3	0.4
Days over National Standard (140 ppb)	0	0	0
Carbon Monoxide (CO)			
Highest 1 Hour Average (ppm)	2.2	0.9	0.3
Days over Federal Standard (35 ppm)	0	0	0
Highest 8 Hour Average (ppm)	1.7	0.8	0.3
Days over National Standard (9.0 ppm)	0	0	0
Particulate Matter ≤ 10 Microns (PM_{10})			
Highest 24 Hour Average ($\mu g/m^3$) [a]	788	151	478
Estimated Days over National Standard (150 $\mu g/m^3$)	10	0	3
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)			
Highest 24 Hour Average ($\mu g/m^3$) [a]	196.9	89.7	42.2
Estimated Days over National Standard (35 $\mu g/m^3$)	--	--	–

NOTES:
ppm = parts per million
ppb = parts per billion
$\mu g/m^3$ = micrograms per cubic matter
-- There was insufficient data available to determine the value
[a] exceptional events excluded

SOURCES: EPA. Outdoor Air Quality Data; Monitor Values Report. 2023.

2.4.1 Existing Inventory

The sources of air emissions associated with the Airport are typical of a small commercial service facility used mainly by general aviation aircraft. Emission sources include aircraft during the landing/take-off cycle and airport-related motor vehicles (e.g., passenger vehicles, heavy trucks, shuttles). The Airport does not include any stationary sources such as diesel-powered generators. Emissions from aircraft auxiliary power unit (APU) and ground support equipment (GSE) were modeled for commercial service jet aircraft using FAA's Aviation Environmental Design Tool (AEDT) default GSE assignments. The bulk of air pollutants emissions generated from the Airport are produced by aircraft operations and off-airport vehicular travel.

The existing condition (2022) air pollutant emissions inventory for the Airport is presented in **Table 2-3**. The existing conditions air pollutant emissions inventory was developed using the most recent version of FAA's AEDT 3e[1] and the EMFAC2021 web database for motor vehicles.

TABLE 2-3
EXISTING CONDITIONS AIR POLLUTANT EMISSIONS INVENTORY (ANNUAL TONS)

Source	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Aircraft	92.13	5.17	5.52	0.96	0.17	0.17
GSE	5.36	0.19	0.45	0.00	0.02	0.02
Off-Airport Vehicular Travel	1.34	0.19	2.12	0.01	0.56	0.17
Total	**98.83**	**5.55**	**8.09**	**0.97**	**0.75**	**0.36**

NOTES:
CO = carbon monoxide
NO_x = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
SO_X = oxides of sulfur
VOC = volatile organic compound
Aircraft emissions inventory includes emissions from APU

SOURCE: Environmental Science Associates, 2023.

Similar to the existing calculations conducted for the criteria pollutants, existing GHG emissions were calculated for aircraft operations and off-airport vehicular travel. **Table 2-4** shows GHG emissions at the Airport for 2022. Using AEDT 3e, the amount of CO_2 was calculated for aircraft operations. CH_4 and nitrous oxide (N_2O) for aircraft were calculated using the methods found in the FAA *Aviation Emissions and Air Quality Handbook* (Version 3, Update 1). Emissions of GHGs from mobile sources, such as light-duty vehicles associated with passenger traffic and larger trucks, were calculated using the EMFAC2021 web database.

TABLE 2-4
EXISTING CONDITIONS (2022) GREENHOUSE GAS EMISSIONS
(ANNUAL METRIC TONS)

Source	Carbon Dioxide Equivalent (CO_2e) (metric tons)
Aircraft*	6,603.64
Off-Airport Vehicular Travel	1,411.92
2022 Total	**8,015.56**

*Includes emissions from GSE

SOURCE: Environmental Science Associates, 2023.

[1] The AEDT model replaced FAA's legacy modeling tools for emissions (the Emissions and Dispersion Modeling System (EDMS)) and noise (the Integrated Noise Model (INM)).

3. Air Quality

3.1 Methodology

3.1.1 Construction

The Project's construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) (Version 2020.4.0) software, which is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with the California air districts. CalEEMod is based on outputs from CARB OFFROAD model and the CARB on-road vehicle emissions factor (EMFAC) model, which are emissions estimation models developed by CARB and used to calculate emissions from construction and operational activities, heavy-duty off-road equipment, and on-road vehicles. Emissions from on-road vehicles were estimated outside of CalEEMod using EMFAC2021 emission factors for haul and material vendor trucks and worker vehicles.

Construction activities associated with the Proposed Project would generate temporary and short-term emissions of criteria pollutants. Construction related emissions are expected from site preparation, grading, and skimming activities. During the site preparation phase approximately 11,276 cy of soil would be exported. During the grading phase approximately 50,000 cy of soil would be exported. Proposed Project construction is expected to commence in late 2023 and would last approximately 3 months. Construction duration by phase is provided in **Table 3-1**. If project construction commences later than the anticipated start date, air quality impacts would be less than those analyzed herein, because a more energy-efficient and cleaner burning construction equipment fleet mix would be expected in the future, pursuant to state regulations that require construction equipment fleet operators to phase-in less polluting heavy-duty equipment. Therefore, air quality impacts would generally be less than those analyzed herein due to the likelihood of less emissions generated.

The specific construction fleet may vary due to specific needs at the time of construction. The duration of construction activity and associated construction equipment was estimated based on consultation with Inyo County Public Works and CalEEMod default assumptions.

The maximum daily regional emissions from these activities are estimated by construction phase. Maximum annual criteria pollutant emissions are shown in **Table 3-2**.

TABLE 3-1
ESTIMATED CONSTRUCTION SCHEDULE

Activity	Start Date	End Date	Duration (Workdays)
Site Preparation	12/1/2023	12/30/2023	30
Grading/Excavation	12/1/2023	3/1/2024	91
Skimming	12/1/2023	12/15/2023	15

SOURCE: Environmental Science Associates, 2023, in consultation with Inyo County Public Works.

The maximum daily regional emissions from these activities were then compared to the MDAQMD significance thresholds.

3.1.2 Operations

The Proposed Project would construct improvements to the RSA for Runway 12/30 but would not have ramifications for operations at BIH. The RSA improvements would not induce any new on-going activities or alter any existing approach or departure routes at BIH. Therefore, there would be no new emissions of criteria pollutants associated with the Proposed Project.

3.2 Construction Emissions

Maximum daily and annual criteria pollutant emissions are shown in **Table 3-2**. Project construction would not exceed any annual criteria pollutant thresholds established by the MDAQMD. However, Project construction emissions would exceed NO_X pollutant daily thresholds established by the MDAQMD. Therefore, impacts would be considered potentially significant.

TABLE 3-2
MAXIMUM REGIONAL CONSTRUCTION EMISSIONS – WITHOUT MITIGATION

	Emissions (pounds per day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	5.44	52.27	43.04	0.13	2.99	1.64
Grading	12.46	131.34	125.40	0.28	9.02	4.92
Skimming	1.93	17.03	11.34	0.04	1.18	0.63
Maximum Daily Regional Emissions	***19.82***	***200.64***	***179.77***	***0.45***	***13.20***	***7.18***
MDAQMD Regional Threshold	137.0	137.0	548.0	137.0	82.0	65.0
Threshold Exceeded?	No	**Yes**	No	No	No	No
	Emissions (tons per year)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	0.07	0.69	0.55	<0.01	0.04	0.02
Grading	0.42	3.94	3.53	0.01	0.39	0.22
Skimming	0.01	0.13	0.09	<0.01	0.01	<0.01
Maximum Annual Regional Emissions	***0.51***	***4.76***	***4.17***	***0.01***	***0.44***	***0.24***
MDAQMD Regional Threshold	25.0	25.0	100.0	25.0	15.0	12.0
Threshold Exceeded?	No	No	No	No	No	No

NOTES: Totals may not add up exactly due to rounding.
SOURCE: Environmental Science Associates, 2023.

3.3 Mitigation, Avoidance, or Minimization Measures

With implementation of **Mitigation Measure MM-AIR-1**, as described below, the regional daily NO_X emissions would be reduced to a level below the MDAQMD regional threshold as shown in **Table 3-3**.

Mitigation Measure

MM-AIR-1: Equipment Emission Standards. The construction contractor shall utilize off-road diesel-powered construction equipment that meet or exceed the CARB and EPA Tier 4 Interim off-road emissions standards for all equipment rated at 50 horsepower (hp) or greater and EPA Tier 4 Final off-road emissions standards for all equipment rated at 400 hp or greater during Project construction. Such equipment shall be outfitted with Best Available Control Technology (BACT) devices including a CARB-certified Level 3 Diesel Particulate Filter or equivalent. A copy of each unit's certified tier specification or model year specification and CARB or GBUAPCD operating permit (if applicable) shall be available upon request at the time of mobilization of each applicable unit of equipment.

The calculations in Table 3-3 incorporate compliance with dust control measures required to be implemented during each phase of construction by GBUAPCD Rule 401 (Fugitive Dust) where watering is assumed to occur three times per day.

TABLE 3-3
MAXIMUM REGIONAL CONSTRUCTION EMISSIONS – WITH MITIGATION

	Emissions (pounds per day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	2.38	25.76	63.86	0.13	1.68	0.44
Grading	6.74	91.35	151.27	0.28	6.08	2.22
Skimming	0.69	5.47	20.26	0.04	0.69	0.18
Maximum Daily Regional Emissions	***9.81***	***122.58***	***235.38***	***0.45***	***8.45***	***2.84***
MDAQMD Regional Threshold	137.0	137.0	548.0	137.0	82.0	65.0
Threshold Exceeded?	No	No	No	No	No	No
	Emissions (tons per year)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Phases						
Site Preparation	0.03	0.29	0.86	<0.01	0.02	0.01
Grading	0.16	2.13	4.71	0.01	0.26	0.09
Skimming	0.01	0.04	0.15	<0.01	0.01	<0.01
Maximum Annual Regional Emissions	***0.19***	***2.45***	***5.72***	***0.01***	***0.28***	***0.10***
MDAQMD Regional Threshold	25.0	25.0	100.0	25.0	15.0	12.0
Threshold Exceeded?	No	No	No	No	No	No

NOTES: Totals may not add up exactly due to rounding.
SOURCE: Environmental Science Associates , 2023.

4. Climate

This GHG assessment includes direct and indirect emissions inventories for construction activities including heavy-duty off-road equipment, and on-road vehicles. A GHG inventory was prepared for construction activities associated with the Proposed Project in year 2023. The analysis of GHG emissions generally follows the same methodology and modeling tools as the air quality criteria pollutant emissions analysis as discussed in Section 3.2.

In terms of analyzing GHG emissions from the Proposed Project, the analysis includes the area within the Airport's geographical boundary which is defined as the geographic boundary of the Airport plus the airspace around the Airport, as well as the roads and public transit routes that bring employees and suppliers to and from the Airport. The GHG inventory clearly distinguishes the Proposed Project's GHG emissions from other relevant indirect sources affiliated with airport operations.

GHGs include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Increasing concentrations of GHGs in the atmosphere affect global climate. Anthropogenic (i.e., man-made) sources of GHG emissions are primarily associated with the combustion of fossil fuels.

Mass emissions of GHGs are accounted for by converting emissions of specific pollutants to CO_2e emissions by applying the proper global warming potential (GWP) value for each specific pollutant. GWP represents the amount of heat captured by a mass of a specific GHG compared to a similar mass of CO_2. These GWP ratios are provided by the Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Report (AR5).[2] By applying the GWP ratios, project-related CO_2e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline.

4.1 Methodology

4.1.1 Construction

Construction activities associated with the Proposed Project would result in emissions of CO_2 and, to a lesser extent, CH_4 and N_2O. Construction-period GHG emissions were estimated with the same CalEEMod emissions software and EMFAC2021 emission factors based on the same construction schedule and activities as described above in Section 3.2 above.

4.1.2 Operations

The Proposed Project would not induce any new operations or alter any existing operations at BIH. No GHG emissions attributable to the Proposed Project would occur beyond the construction phases.

4.2 Construction Emissions

The Proposed Project's construction GHG emissions are shown in **Table 4-1**.

TABLE 4-1
ANNUAL PROPOSED PROJECT CONSTRUCTION GREENHOUSE GAS EMISSIONS

Emissions Sources	CO_2e (Metric Tons per Year)a
Off-Road Equipment	860
On-Road Sources	95
Water and Office	112
Project Total GHG Emissions	***1,067***

SOURCE: Environmental Science Associates, 2023

[2] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, p.87.

4.3 Mitigation, Avoidance, or Minimization Measures

As the FAA has not established a significance threshold for climate and GHG emissions, the Proposed Project does not exceed a significance threshold for GHG emissions. Therefore, no mitigation measures are required.

Appendix B

Biological Resources Technical Report

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CHAPTER 1
Introduction

1.1 Introduction

This report presents an evaluation of the special-status wildlife, plants, and other sensitive biological resources that potentially occur within the Runway 12/30 Safety Area Improvement Project (Proposed Project) at Bishop Airport Survey Area (Survey Area). The evaluation is based on background data review of biological resources in the Survey Area and vicinity as well as reconnaissance surveys conducted by ESA in November 2022, May 2020, and June 2019. The intent and scope of this document are to characterize these biological resources in the Survey Area and propose measures to protect sensitive biological resources during construction of Runway Safety Area (RSA) improvements.

1.2 Proposed Project

Bishop Airport (BIH) is a public-use airport located in Inyo County (County) in the Eastern Sierra region of California, as depicted in **Figure 1**. The Airport is owned and operated by Inyo County and is situated on land leased from the Los Angeles Department of Water and Power (LADWP). BIH is designated in the Federal Aviation Administration's (FAA's) National Plan of Integrated Airport Systems as a local, general aviation airport. The Airport currently serves general aviation activity and limited military activity, as well as charter and air cargo operations. Inyo County seeks to bring the RSA off both the Runway 12 and 30 ends at Bishop Airport into compliance with FAA requirements. The Proposed Project is subject to discretionary approval on the part of the County and is thus subject to the California Environmental Quality Act (CEQA).

1.3 Project Location

The Proposed Project location is approximately 2 miles east of the town of Bishop, California in Inyo County on the property of the Bishop Airport. The survey area is bordered by North Fork Bishop Creek to the north, Owens River to the east, Line Street to the south, and CA route 395 to the west (**Figure 2**). The survey location is on the Bishop, Poleta Canyon, Laws, and Fish Slough quadrangles 7.5-Minute series. The elevation of the survey location ranges from 4,080 feet to 4,130 feet above sea level.

Bishop Airport is located in unincorporated Inyo County, approximately 1.5 miles east of the City of Bishop and approximately 45 miles southeast of the town of Mammoth Lakes. The Airport has three runways: Runway 12/30, Runway 17/35, and Runway 8/26. Runway 8/26 is planned for eventual closure, with conversion of the Runway 8 end to a taxiway and the Runway 26 end to

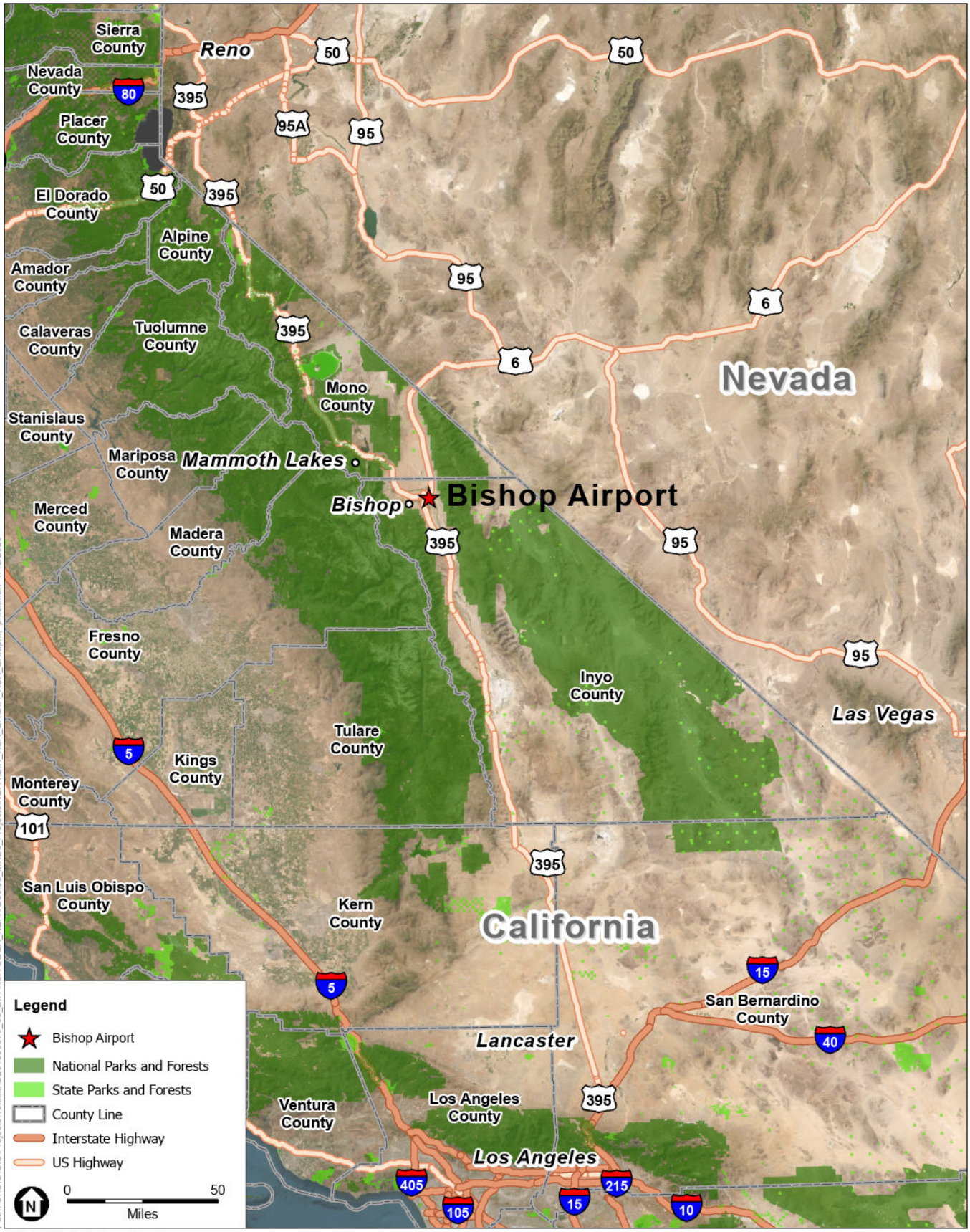
helicopter parking. Runway 12/30, the Airport's primary runway, is the only runway that accommodates commercial service.

1.4 Identification of Survey Area

A Survey Area was delineated to evaluate potential impacts to biological resources that could result from the implementation of the Proposed Project. The survey includes all areas to be directly affected by the Proposed Project as well as indirect impacts that could affect surrounding habitats.

The survey area includes a 500-foot buffer surrounding Runway 12/30, including the designated Runway Safety Area (RSA) that extends 800-feet beyond Runway 12/30 in both directions, to determine the presence of nesting birds (CDFW, 2013). In addition, the existing RSA unpaved access roads were also included within the survey area. The Survey Area is depicted on Figure 2.

The Proposed Project survey area encompasses approximately 403 acres. The survey area includes the area of the proposed runway expansion along with a 100-foot buffer to account for moving wildlife and hydrological resources. The survey area has an average annual precipitation of 4.84 inches. Temperatures range from an average annual maximum temperature of 99.7°F to an average annual minimum temperature of 54.5°F.

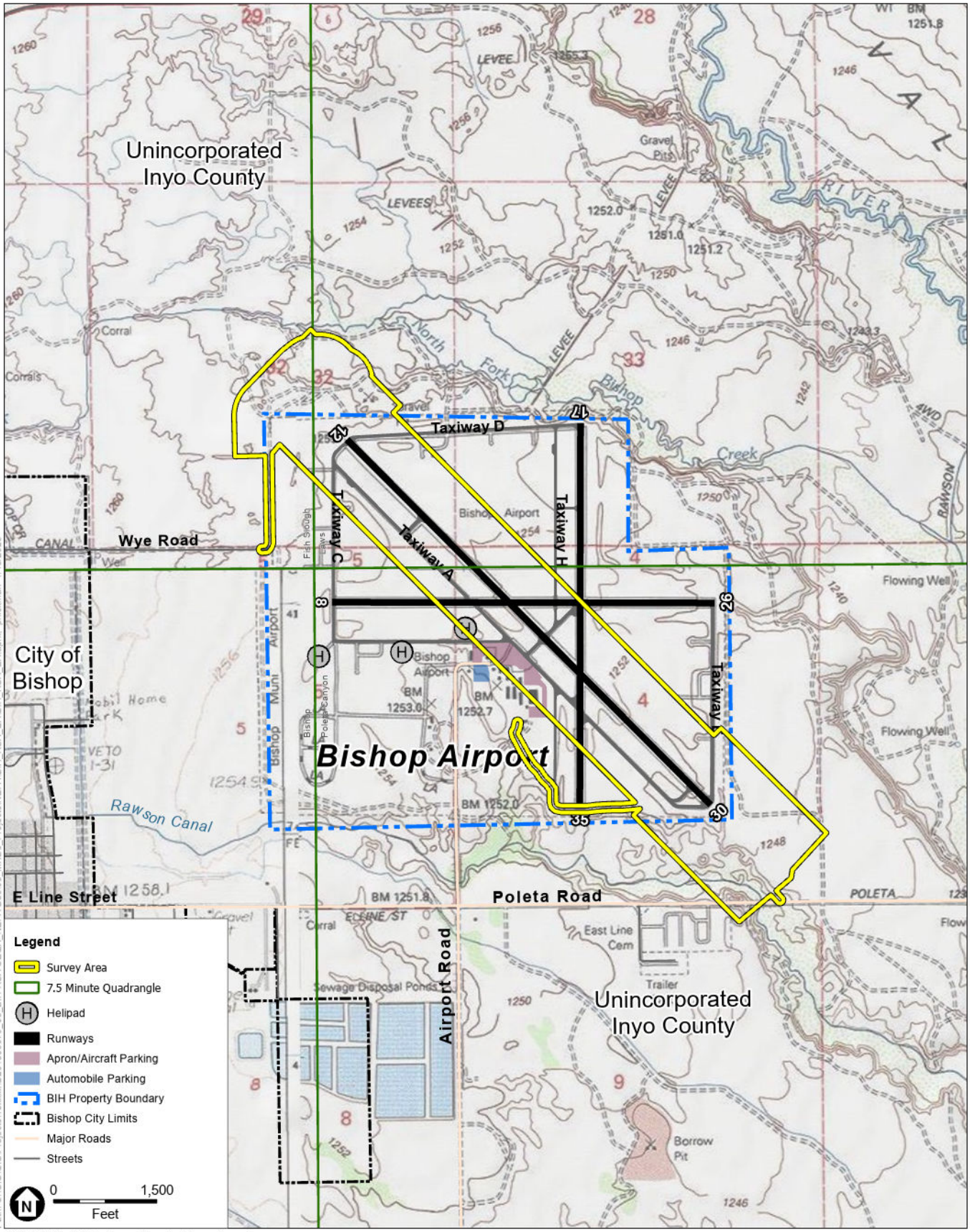


SOURCE: Esri; Inyo County Department of Public Works; ESA, 2020.

Biological Resources Technical Report

Figure 1
Bishop Airport Location

ESA



SOURCE: ESRI; Inyo County Department of Public Works; ESA, 2020; USGSTopo, 2021.

Biological Resources Technical Report

Figure 2
Bishop Airport Vicinity Map

ESA

CHAPTER 2
Methods

2.1 Review of Background Information

Prior to performing reconnaissance biological surveys, ESA reviewed publicly available data, subscription-based biological resource data, and survey area-specific information. Data sources that assisted in this analysis include:

- Topographic maps (USGS 2022a)
- Historic and current aerial imagery (Google, Inc. 2022)
- The CDFW California Natural Diversity Database (CNDDB) (CDFW 2022a-d)
- The National Wetlands Inventory (NWI) (USFWS 2022a)
- National Hydrography Dataset (NHD), (USGS 2022b)
- The California Native Plant Society (CNPS) Rare Plant Inventory online database (CNPS 2022a)
- Soil maps from the Natural Resources Conservation Service (NRCS) (NRCS 2022)
- iNaturalist (iNaturalist 2022)
- Information for Planning and Consultation (IPaC) (USFWS 2022b)

2.2 Survey Dates and Surveying Personnel

Biological reconnaissance surveys of the survey area were conducted by ESA Biologists Anna Schwyter and Natalie Lamas on November 1, 2022. Surveys were conducted to observe and characterize vegetation communities in the survey area and to assess habitat quality and potential for common and special-status wildlife species to occur within the survey area or the vicinity. Surveys were also conducted by ESA biologists in June 2019 and May 2020 to assess biological resources and potential for use by the southwestern willow flycatcher (*Empidonax traillii extimus*, SWFL), including habitat that might be impacted by aircraft operations.

2.3 Regulatory Context

Biological resources in the survey area may fall under the jurisdiction of various regulatory agencies and be subject to their regulations. In general, the greatest legal protections are provided for plant and wildlife species that are formally listed by the federal or state government under their respective Endangered Species Acts. The following regulations and agencies are commonly associated with projects that have the potential to affect biological resources:

- Federal Endangered Species Act
- Migratory Bird Treaty Act (MBTA)

- Bald and Golden Eagle Protection Act
- Clean Water Act, Section 404
- California Endangered Species Act
- Fish and Game Code Section 3503, 3503.5, and 3511
- Native Plant Protection Act
- Lake or Streambed Alteration Program
- Porter Cologne Water Quality Act
- CEQA Guidelines Section 15380

CHAPTER 3
Environmental Setting

This chapter provides the environmental baseline for soils, vegetation communities and habitats, and special-status plant and wildlife species in the survey area.

3.1 Hydrology

An Aquatic Resources Delineation report has been prepared for the Proposed Project and all relevant aspects of the survey area are addressed in that report.

3.2 Vegetation Communities and Wildlife Habitats

Wildlife habitats and vegetation communities within the survey area could provide potential habitat for special status species and are described in **Table 1** and below. Wildlife habitats were mapped for the survey area as shown in **Figure 3**.

TABLE 1
NATURAL COMMUNITIES AND HABITAT TYPES WITHIN THE SURVEY AREA

Vegetation Community/Habitat Type	Acreage
Open Water, Riparian, and Wetlands[a]	
Sandbar Willow Thicket	9.69
Fremont Cottonwood-Willow Riparian Forest	2.54
Willow Riparian Woodland	2.73
Saltgrass Meadow	4.60
Uplands	
Rubber rabbitbrush scrub	35.93
Developed/Disturbed Land Cover Types	
Disturbed/Developed	347.68

NOTE:

[a] U.S. Fish and Wildlife Service definition of wetland

SOURCE: CNPS 2022, ESA 2022

3.2.1 Upland Habitat

The survey area primarily consists of upland habitat. This includes areas with a mixture of low-intensity development, open space, and shrub/scrub habitat. The open areas surrounding the runway are routinely graded and maintained by the Airport Operations staff, which requires low-growing vegetation. The area to the northwest of the survey area was previously used for gravel mining, and is largely abandoned, except for occasional off-highway vehicle use. The LADWP regularly patrol this area to ensure that there are no illegal dumping activities that could compromise the integrity of local water resources. The shrub/scrub habitat consists of primarily low-growing ruderal grassland and common shrub species. The upland vegetation communities within the survey area are described below.

Disturbed/Developed

Airport infrastructure (buildings, runways, taxiways, etc.), gravel and paved roads, and actively managed areas are bare or have sparse vegetation. Within the maintained object-free areas adjacent to the runways, low-growing angle-stemmed buckwheat (*Eriogonum maculatum*), cryptantha (*Cryptanthum micrantha*), and short-podded mustard (*Hirschfeldia incana*) are present.

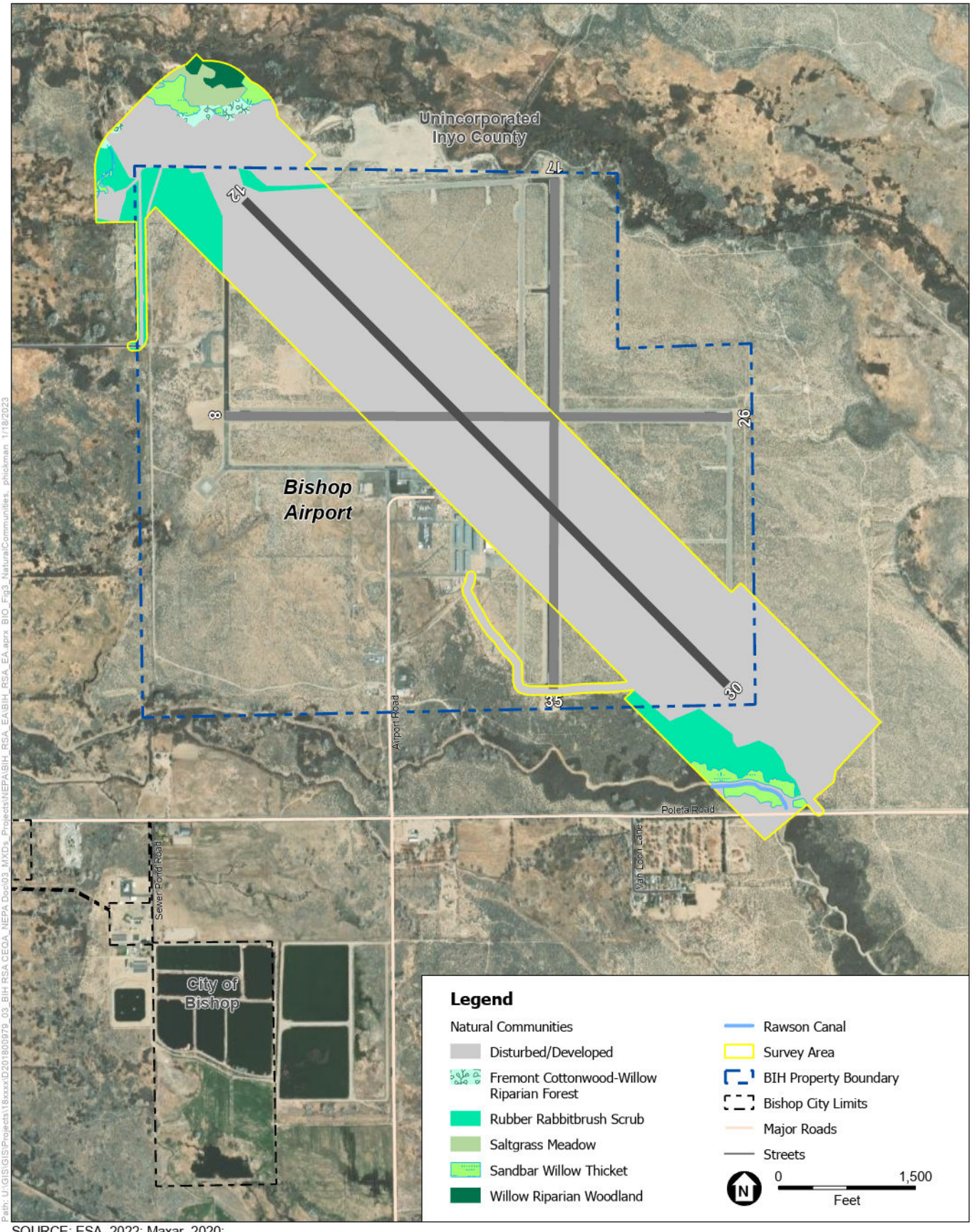
Rubber rabbitbrush scrub (*Ericameria nauseosa* Alliance)

Airport property and surrounding areas outside of the actively maintained runway and taxiway object free areas consist of rubber rabbitbrush (*Ericameria nauseosa*) as the primary shrub species, with interspersed greasewood (*Sarcobatus vermiculatus*), and saltbush (*Atriplex* spp.). Herbaceous cover is generally sparse, and includes buckwheat, cruptantha, and short-podded mustard.

3.2.2 Wetland Habitat

Wetland habitats at the far north and south ends of the survey area were identified through research using the U.S. Fish and Wildlife Service (USFWS) NWI database and field surveys conducted on November 1, 2022. Rawson Canal is a perennial stream located on the southeastern end of Runway 30 and could be potential habitat for wetland and stream species. Rawson Canal is located within the Crowley Lake Watershed and empties into the Owens River.

The USFWS NWI identifies the presence of freshwater forested/shrub riparian habitat slightly within and immediately surrounding the survey area. Field surveys confirm that these areas consist of perennial herbaceous vegetation, shrubby willow trees (*salix* sp.), and rose (*Rosa* sp.) bushes at the northern end of Runway 12. In addition, small areas of willow shrubs and rose thicket are located to the south along Rawson Canal. The wetland vegetation communities within the survey area are described below.



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; California Department of Water Resources, 2022.

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Figure 3
Natural Communities and Land Cover Types

ESA

Sandbar willow thicket (*Salix exigua* Alliance)

Dense thickets of sandbar willow (*Salix exigua*) are present within the northwestern and southeastern ends of the survey area. Stands are almost uniformly comprised of sandbar willow, with interspersed Wood's rose (*Rose woodsii*). Due to high density of sandbar willow, very little herbaceous cover is present. Breaks in this community contain small patches of cattail (*Typha* sp.). Along Rawson Canal, small clusters of common reed (*Phragmites australis*) are also present within this community.

Fremont cottonwood-willow riparian forest (*Populus fremontii-Salix gooddingii-S. lasiolepis S laevigata* Alliance)

Patches of Fremont cottonwood (*Populus fremontii*) are scattered along the north edge of the survey area, primarily near the transition from upland to riparian areas. Cooccurring species include black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*). The herbaceous cover associated with this community is variable and includes stands of perennial pepperweed (*Lepidium latifolium*), saltgrass (*Distichlis spicata*), and reeds (*Juncus* sp.).

Willow riparian woodland (*Salix gooddingii-S. lasiolepis Salix laevigata* Alliance)

Small areas of willow riparian woodland are present in the northern portion of the survey area, at its closest proximity to North Fork Bishop Creek. Black willow, red willow, and arroyo willow are dominant or co-dominant in this vegetation alliance. Areas of sandbar willow and Wood's rose occur in the shrub layer, with an herbaceous layer including Indian hemp dogbane (*Apocynum cannabium*), saltgrass, and reeds. This vegetation alliance is considered a sensitive natural community with an S3 ranking.

Saltgrass meadow (*Distichlis spicata* Alliance)

An open saltgrass meadow is located in the survey area northwest of Runway 12. Additional component species of this community include common spike rush (*Eleocharis macrostachya*), scratchgrass (*Muhlenbergia asperifolia*), and reeds. The driest portion of this meadow includes small areas of rabbitbrush, while the wettest include cattail and alkali bulrush (*Bolboschoenus maritimus*) (Sawyer et al. 2009).

3.3 Soils

The NRCS is a branch of the U.S. Department of Agriculture whose National Cooperative Soil Survey program produces soil data and provides information to the public. NRCS has soil maps and data for approximately 95 percent of the nation's counties, including Inyo County. Their reference materials include soil surveys, maps, reports and inventories, scientific and research reports and data, forestry, range, and wildlife inventories and studies, and official soil series and soil interpretations.

According to the NRCS soils report, seven soil units occur within the survey area, as shown in **Table 2** and **Figure 4**.

TABLE 2
MAP SOIL UNIT NAMES

Map Unit Symbol	Map Unit Name	Acres in Survey Area	Percent of Survey Area
189	Dehy-Dehy calcareous complex, 0 to 2 percent slopes	3.8	0.9
221	Inyo sand, 0 to 9 percent slopes	2.0	0.5
224	Inyo-Poleta complex, 0 to 2 percent slopes	346.2	85.9
281	Pits-Dumps complex, 0 to 50 percent slopes	13.6	3.4
312	Shabbell-Shondow-Xerofluvents association, 0 to 2 percent slopes	11.4	2.8
328	Torrifluvents-Fluvaquentic Endoaquolls complex, 0 to 2 percent slopes	11.3	2.8
370	Xerofluvents, 0 to 5 percent slopes	14.9	3.7
Total for Survey Area		**403.2**	**100.0%**

SOURCE: NRCS, 2022

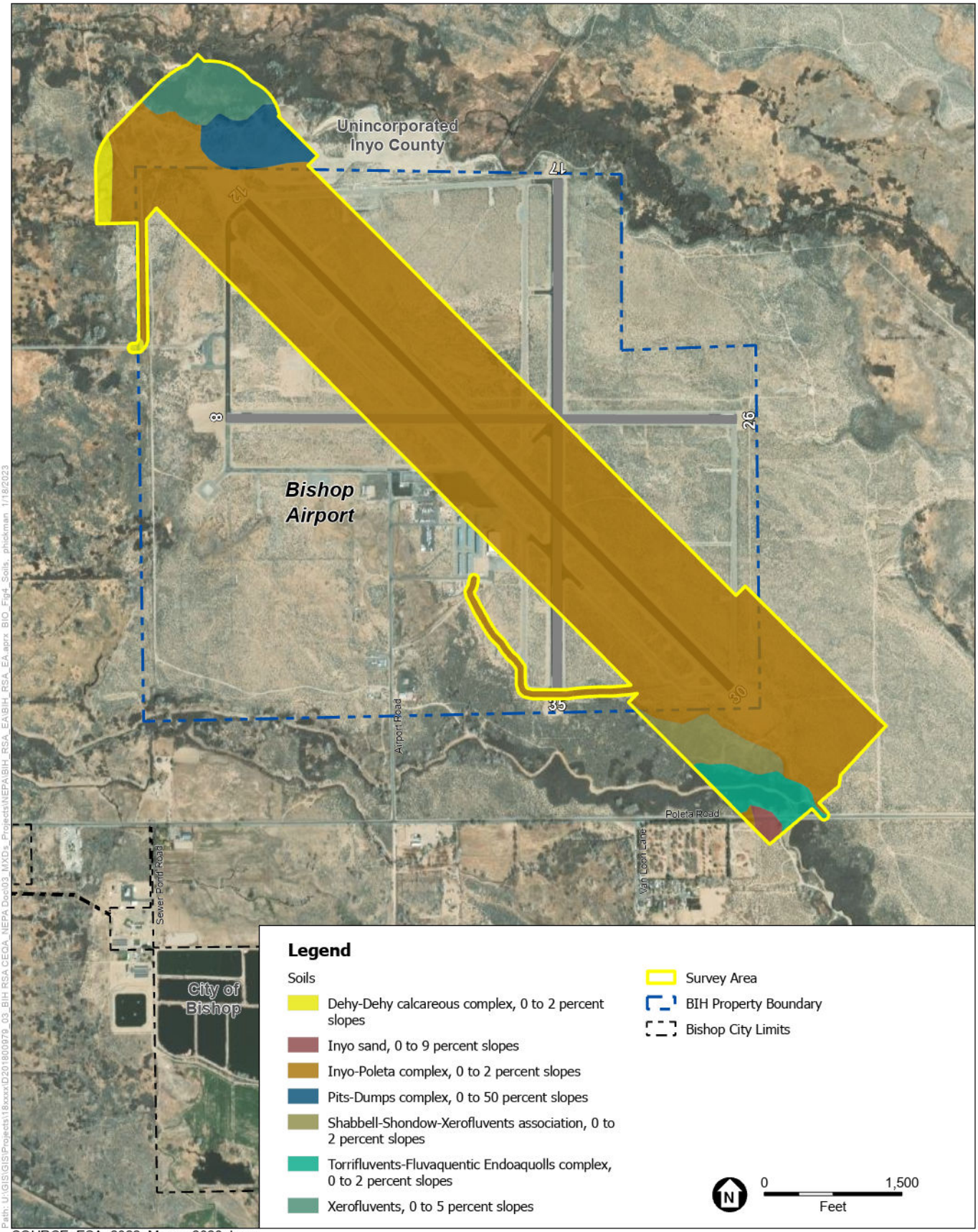
The surface geology of the survey area consists predominantly of loamy sands. The majority of the soils within the survey area are formed in alluvium derived from mixed sources. The soils that make up much of the survey area are primarily well to excessively drained with slow runoff and rapid permeability.

3.4 Special-Status Species

Several species known to occur on or in the vicinity of the survey area are protected pursuant to federal and/or state endangered species laws or have been designated as Species of Special Concern by CDFW. In addition, Section 15380(b) of the *CEQA Guidelines* provides a definition of rare, endangered, or threatened species that are not included in any listing.[1] Species recognized under these terms are collectively referred to as "special-status species."

A list of special-status species with potential to occur on or in the vicinity of the survey area was compiled from a nine-quad search of the California Natural Diversity Database (CNDDB) (CDFW 2022d), a nine-quad search on the CNPS Rare Plant Inventory (CNPS 2022a), a survey area search of the USFWS endangered species database (USFWS 2022), and biological literature on the region for the surrounding 7.5-minute USGS topographic quadrangles. The quadrangles for the survey area were Bishop, Poleta Canyon, Laws, and Fish Slough. **Figures 5-1** and **5-2** are maps of CNDDB special-status wildlife and plant species occurrences within 5 miles of the survey area.

[1] For example, vascular plants listed as rare or endangered or as List 1 or 2 by the California Native Plant Society (CNPS) are considered to meet Section 15380(b) criteria.



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; NRCS, 2022.

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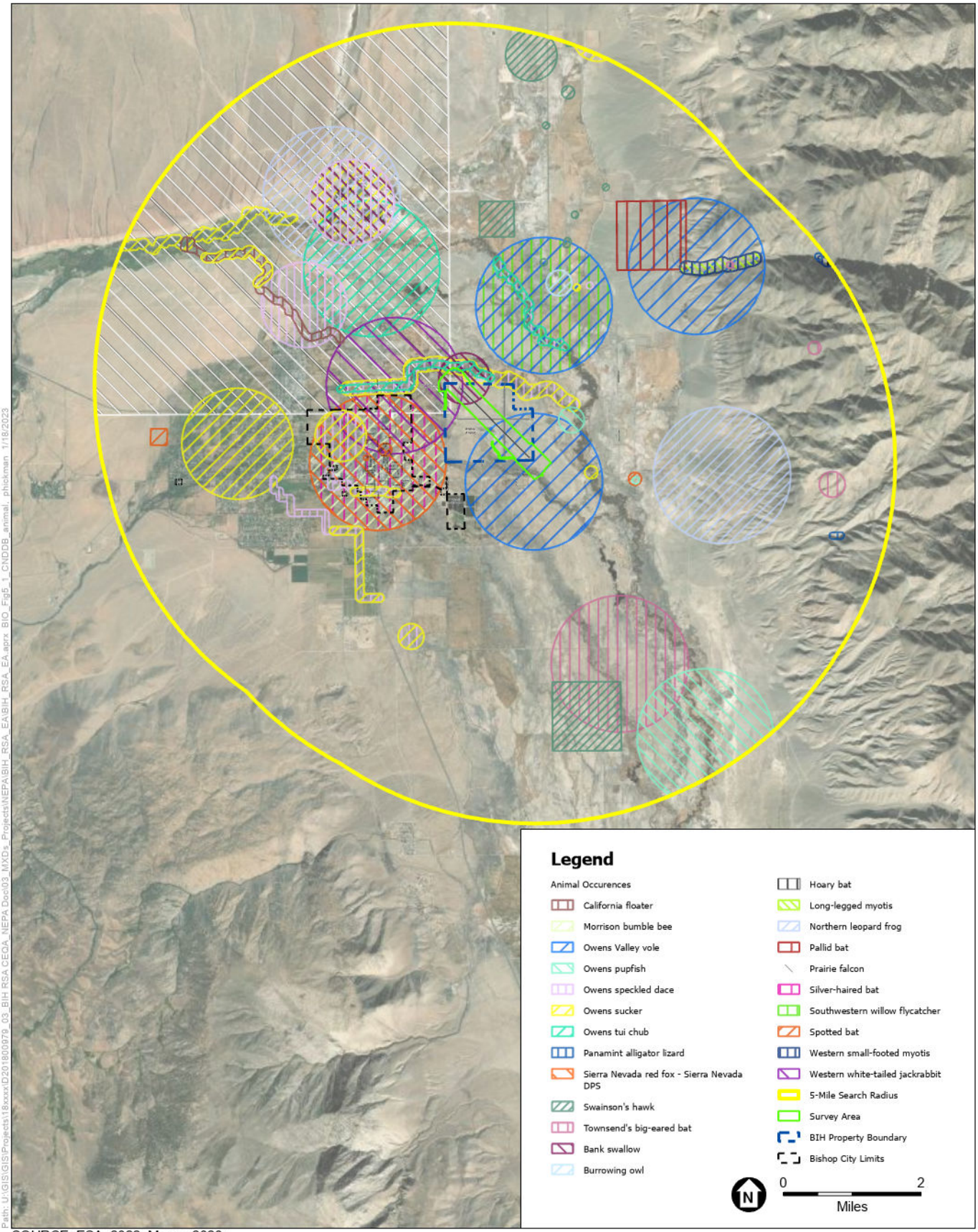
Figure 4
Soil Map

ESA



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SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; California Department of Fish and Wildlife, 2022.

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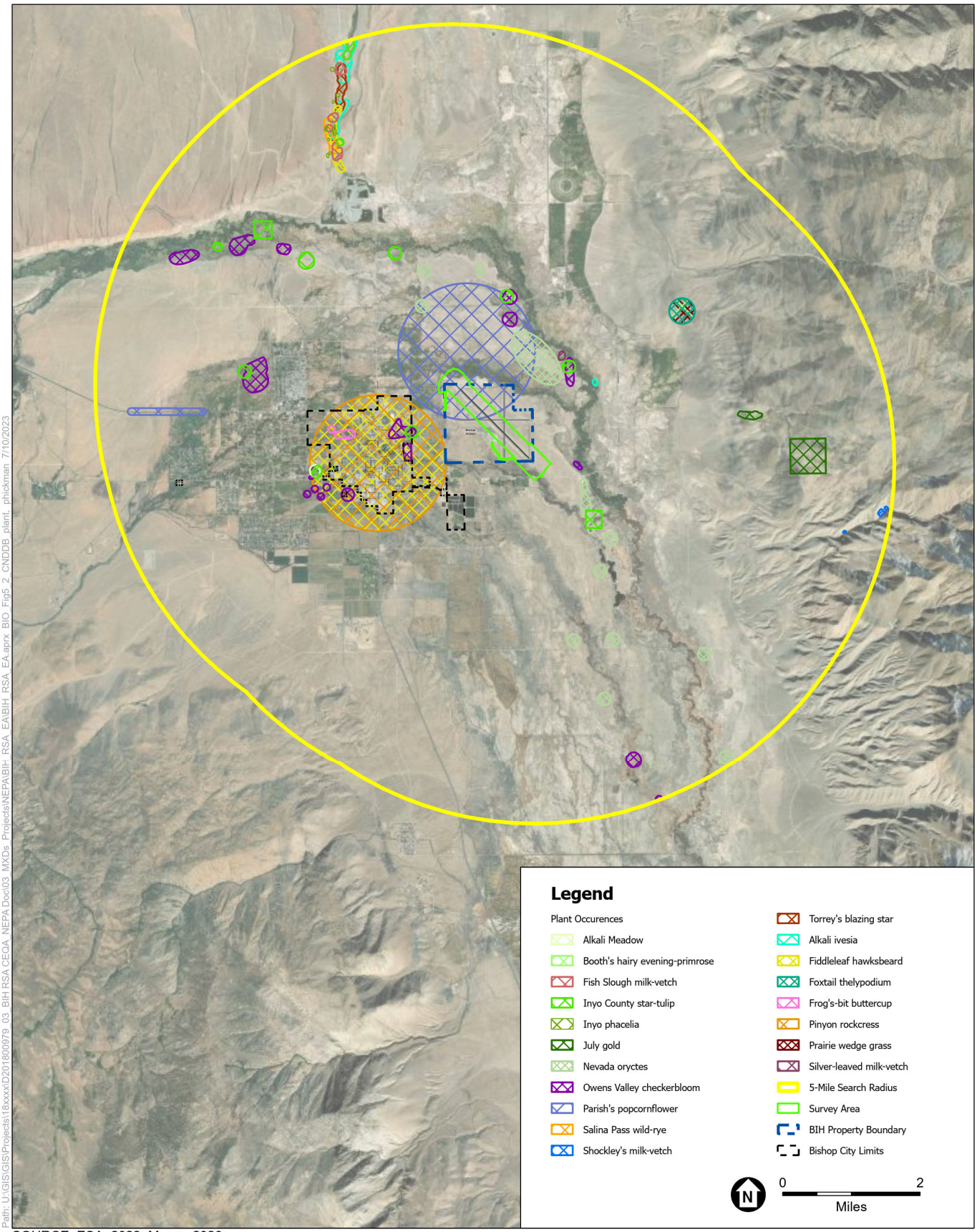
Figure 5-1
CNDDB Occurrences within 5 miles of the Survey Area
Wildlife

ESA



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SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; California Department of Fish and Wildlife, 2022.

Biological Resources Technical Report

Figure 5-2
CNDDB Occurrences within 5 miles of the Survey Area Plants

ESA

From the full list of species, each was then individually assessed based on habitat requirements and distribution relative to vegetation communities and habitat features that occur in and around the survey area. A comprehensive list of special-status species that were considered in the analysis is provided in **Appendix B-1** of this Technical Report, *Special-Status Species with Potential to Occur within the Survey Area*.

3.4.1 Special-Status Plants

No special-status plants were identified during the November 1, 2022 biological reconnaissance surveys of the survey area. Based on the habitat types and conditions within the survey area, along with review of background information and database searches, a variety of special-status plant species have potential to occur in the survey area and are listed in Appendix B-1.

3.4.2 Special-Status Wildlife Species

No federal or state-listed wildlife species were observed during the November 1, 2022, reconnaissance surveys within the survey area. Based on the habitat types and conditions within the survey area, along with review of background information and database searches a variety of special-status wildlife species have potential to occur in the survey area and are listed in Appendix B-1. No work is planned in-water, so no impacts to aquatic species are expected to occur.

Federal Listed Species with Potential to Occur within the Survey Area

Monarch Butterfly

The monarch butterfly is a federal candidate species and not yet listed or proposed for listing under the Endangered Species Act. In the western U.S., monarch butterflies migrate in the fall and overwinter at sites along the Pacific coast and Central Valley. Monarch's host plant, milkweed (*Asclepias* spp.), and other flowering plants are necessary for monarch butterfly habitat-adult monarchs feed on the nectar of many flowering plants during breeding and migration, but they can only lay eggs on milkweed plants (USFWS 2022d). The study area lies in the migration route of monarch butterflies, and if nectar sources and milkweed are present, individuals may occur. No milkweed plants were observed during field surveys; however, one adult monarch butterfly was observed in the survey area during the November 2022 survey.

Lahontan Cutthroat Trout

The Lahontan Cutthroat Trout inhabits a wide range of habitats including cold, high-elevation mountain streams in California to lower-elevation desert lakes with high alkalinity. Their range extends from the Sierra Nevada Mountains northeast into Nevada and Oregon. Although the trout once occupied a vast range, it has since been extirpated from nearly 95% of its native habitat in California. Furthermore, the historic range of the Lahontan Cutthroat Trout includes Lake Tahoe and the Carson, Truckee, and Walker River basins that occur well north of the airport (CDFW 2022a). The Cutthroat Trout species is not likely to occur in the Crowley Lake watershed—where the Airport is located. Therefore, the Proposed Project will have "*no effect*" on the Lahontan Cutthroat Trout or its habitat.

Owens Pupfish

Habitat for the Owens Pupfish consists of spring pools, sloughs, irrigation ditches, swamps, and flooded pastures in the Owens Valley, including Inyo County. However, this fish is confined to five relatively isolated populations, which includes the Fish Slough Area of Critical Environmental Concern (ACEC). The Fish Slough ACEC is a system of springs and marshes cooperatively managed by state and federal departments to maintain the populations of Owens Pupfish. The Fish Slough ACEC is located approximately six miles north of the City of Bishop and the survey area. It spans across the Inyo and Mono County border and consists of rare habitat in the Mojave Desert and Great Basin biomes (CDFW 2022b). The ACEC also provides habitat for rare endemic plants, such as the Fish Slough Milk-vetch. Although Fish Slough ACEC is hydrologically connected to the Owens River, its unique biome and distance make it a relatively unlikely path of migration to the North Fork Bishop Creek or Rawson Canal. Therefore, the Proposed Project will have "*no effect*" on the Owens Pupfish or its habitat.

Owens Tui Chub

Critical Habitat for Owens Tui Chub does not exist on or adjacent to the survey area. The distribution of the Owens Tui Chub extends throughout the Owens River and its larger tributaries extending from its source springs to Owens Lake. However, there are three existing natural populations that are present. They are located at the Owens River Gorge, source springs of the Department's Hot Creek Hatchery, and at Cabin Bar Ranch near Owens Dry Lake (CDFW 2002, CDFW 2022c). The Owens River Gorge is located about seven miles northwest of the survey area and represents the closest population of this fish species. Additional populations have been established in cooperation with landowners at the Bureau of Land Management's Mule Spring, Little Hot Creek in Inyo National Forest, and at the University of California White Mountain Research Station owned by the LADWP. Given the distance of North Fork Bishop Creek and Rawson Canal to the Owens River Gorge, combined with its populations' isolation, it is unlikely that the Owens Tui Chub would be found in the survey area. Therefore, the Proposed Project will have "*no effect*" on the Owens Tui Chub or its habitat.

Fish Slough Milk-vetch

The Fish Slough Milk-vetch is largely dependent on desert spring-fed wetland ecosystems that consist of highly alkali soils and is listed by the USFWS as a species of concern that could be present in the survey area. After reviewing the CNPS Calflora, the Fish Slough Milk-vetch has been positively identified in Inyo County (CNPS 2022b). However, the closest population is approximately five miles from the survey area and there are no historical records of its presence on Airport property. Furthermore, it has not been detected from field surveys conducted at the Airport. Therefore, the Proposed Project will have "*no effect*" on the Fish Slough Milk-vetch or its habitat.

Southwestern Willow Flycatcher

The SWFL (*Empidonax traillii extimus*) is a subspecies of Willow Flycatcher found in the Southwestern United States, and the only subspecies of Willow Flycatcher known to breed in the Owens River Valley (Paxton 2000). Several other subspecies of Willow Flycatcher that breed further north pass through the area during spring and fall migration (*E. t. brewsteri*, *E. t. adastus*).

Multiple databases were queried for records of Willow Flycatchers observed in the Proposed Project vicinity, with a focus on records between the days of June 15 and July 20 of each year, the "non-migrant period," where individuals observed are presumed to be *E. t. extimus* (Willow Flycatchers are not reliably separated in the field to subspecies by other means). Records of Willow Flycatchers in the Bishop area were found during 2022 on eBird (eBird 2022b); however, these observations were not during the non-migrant period. The most recent observation during the non-migrant period was in 2003 (CNDDB 2022), approximately six miles northwest of BIH along Horton Creek. A separate search on USFWS ECOS database indicates that there is no SWFL critical habitat within or in close proximity to the survey area.

The SWFL occurs in riparian woodlands in Southern California. It prefers riparian areas dominated by willow trees along streams or the margins of a pond or lake, and at wet mountain meadows. Based on the recent field survey, there is potential suitable habitat to support the SWFL at riparian locations along the North Fork Bishop Creek and Rawson Canal by providing opportunities to forage within or near the survey area on occasion. However, on-site species-specific surveys, conducted by ESA in 2019 and 2020, did not confirm the presence of SWFL within or near the survey area and described the habitat as low-quality. Habitat quality has not changed since these surveys were conducted, and the potential suitable habitat is cut back for maintenance by LAPWD intermittently, therefore potential to occur is low.

State Listed Species with Potential to Occur within the Survey Area

State listed special-status species were identified with the potential to occur in the survey area or in its immediate surroundings. A full list of the special species of concern listed by the CDFW is included in Appendix B-1 of this Technical Report. A discussion of state listed species of concern with potential to occur (not already discussed in sections above) is included below.

Owens Valley Vole

The Owens Valley Vole makes its home in groundwater-dependent meadows or near streams and riverbanks where soils are moist. During the previous field reviews, soils located within BIH's property limits were identified as dry, and unlikely to support the Owens Valley Vole, due to a lack of suitable habitat for the species. While CNDDB records for this species indicate its presence near the southeast corner of the Airport, all records are historical, with no present records of its occurrence at BIH (CNDBB 2022). It is not expected that this species will occur within the Proposed Project site.

Yellow-breasted Chat

The Yellow-breasted Chat breeds in areas of dense shrubbery, including abandoned farm fields, clearcuts, powerline corridors, fencerows, forest edges and openings, swamps, and edges of streams and ponds. Its habitat often includes blackberry bushes and other thickets. In arid regions of the West, it can be found in shrubby habitats along rivers. During migration, it usually stays in low, dense vegetation along rivers (eBird 2022a).

The Yellow-breasted Chat is considered by the CDFW as a Bird Species of Special Concern with a low risk of global extinction but a moderate risk of extirpation in the state due to a restricted

range, relatively few populations or occurrences, recent and widespread declines, and threats to its population. The Yellow-breasted Chat was observed daily within the survey during field surveys conducted by ESA in May 2020 and June 2019. The bird species was identified in the northwestern portion of the survey along North Fork Bishop Creek. In Inyo County, chats historically breed along the Owens River (north to Birchim Canyon), chats were only present at 1 of 18 of its tributaries (Hogback Creek), surveyed 1998-2000 (Shuford et al., 2008b). Birchim Canyon is about 16 miles north-east of the study area, while Hogback Creek is approximately 60 miles south of the study area.

Burrowing Owl

The search on CNDDB showed recent observations of burrowing owls within the vicinity of the Airport. However, there were no burrows observed within the survey area during the surveys conducted in November 2022, May 2020, and June 7, 2019. The unpaved portions of the Airport property are generally suitable for burrowing owls, although areas of rabbitbrush may cause a visible obstruction of their surroundings, creating a less suitable condition for the owls. Additionally, no ground squirrels or burrows were observed in the area, and the most suitable areas for burrowing owls are frequently graded as part of BIH's ongoing operations and maintenance activities. It is not expected that this species will occur within the Proposed Project site.

Yellow Warbler

The Yellow Warbler spends the breeding season in thickets and other disturbed habitats, particularly along streams and wetlands. They are often found among willows, but also live in small birch stands in high alpine environments. In the Mountain West they can occur at high elevations and among aspen groves. Yellow Warblers occur in low densities on the Owens Valley floor, in Inyo County (Shuford et al., 2008a). Extensive surveys from 2001-2004 done along 70 miles of the lower Owens River found no breeding Yellow Warblers downstream of the Los Angeles Aqueduct (Shuford et al., 2008a). The Yellow Warbler is considered a California Bird Species of Special Concern. However, the CDFW designates the species as secure from global extinction and vulnerable/apparently secure from state extirpation. The species was observed daily within the survey area during field surveys conducted in May 2020 and June 2019. The bird species was identified in the shrubby wetland habitat in the northwestern portion of the survey along North Fork Bishop Creek.

Northern Harrier

The Northern Harrier prefers undisturbed wetlands and grasslands with low but thick vegetation. Breeding habitat includes freshwaters and saline marshes, meadows, old fields, upland prairies, high-desert shrub-steppe, and riverside woodlands. Populations in the western U.S. tend to be found in dry upland habitats. The Northern Harrier is listed as a California Bird Species of Special Concern; however, the CDFW designates the species as secure from global extinction and vulnerable from state extirpation. The species was observed foraging over the Airport grounds during surveys conducted in May 2020 and June 2019 and may roost near the eastern boundary of the Airport. As this species was only seen during visits early in the field season, and not during subsequent visits, this species is unlikely to nest in the survey area.

3.5 Migratory Bird Treaty Act Bird Species in the Survey Area

The Migratory Bird Treaty Act (MBTA) of 1918 makes it illegal for anyone to take any migratory bird, nest, or eggs except under the terms of a valid permit. The migratory bird species in the area include hawks and other raptors, among many others. The birds listed in USFWS IPaC Report (**Appendix B-2** of this Technical Report) are considered birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the survey area (USFWS 2021). This list is included in this assessment for information purposes—species specific surveys were not conducted except for the SWFL.

3.6 Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization can fragment or separate large open-space areas. The fragmentation of natural habitat can create isolated "islands" of vegetation and habitat that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. The retention of wildlife movement corridors ameliorates the effects of such fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished. Such movement may also promote genetic exchange between separated populations.

The survey area is somewhat of an isolated habitat range for current species that utilize the area. There are two mountain ranges on either side of Bishop and Owen's Valley that can pose as barriers to current wildlife populations in the area. The survey area is currently used for the Bishop Airport runways and some off-road vehicle use. Wildlife can pass through or over fencing and can move through the survey area from surrounding grasslands/agriculture/mountains. Surrounding non-disturbed areas provide access and movement for wildlife to move north/south throughout the region. There is no woody plant cover and little forage available for wildlife to reside in the area long term.

3.7 Critical Habitat for Listed Fish and Wildlife Species

The USFWS defines the term "critical habitat" in the Federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The USFWS has designated Critical Habitat for Owens Tui Chub and Fish Slough Milk-vetch, but this Critical Habitat does not exist on or adjacent to the survey area. Critical Habitat for the Western Yellow-billed Cuckoo is proposed and under review, but the closest proposed location is over 100 miles south of the survey area.

3.8 Heritage and Protected Trees

The survey area does not support any trees protected by local tree ordinances, and no trees would be removed, trimmed, or damaged during project related work.

3.9 Wetlands, Waters, and Riparian Habitat

The survey area includes wetlands and waters, as documented in the Aquatic Resource Delineation Report (ESA 2023). The forested wetlands and scrub-shrub wetlands are also considered to be riparian habitat. Rawson Canal is both a Water of the U.S. and State. Any actions that result in filling the waters and wetlands would require authorization under Section 404/401 of the federal Clean Water Act and the state Porter-Cologne Water Quality Control Act. Work in, above, or near the riparian areas or channels could require a Streambed Alteration Agreement with CDFW pursuant to §1600 of State Fish and Game Code.

CHAPTER 4
Conclusions

The Proposed Project does not include any ground disturbance within or immediately surrounding the survey area that may affect habitat or threatened or endangered species and there is no designated critical habitat present. The Proposed Project is expected to produce "*no effect*" on federally listed fish, plant, and avian species within or immediately surrounding the survey area. Furthermore, the Proposed Project will have no effect on state species of special concern identified during site surveys, including the Northern Harrier, Yellow Warbler, and Yellow-breasted Chat.

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CHAPTER 5
References

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B-1 Special-Status Species with Potential to Occur within the Survey Area

SPECIAL ANIMALS LIST

January 2023

State of California

Natural Resources Agency

Department of Fish and Wildlife

Biogeographic Data Branch

California Natural Diversity Database (CNDDB)

Recommended Citation:

California Natural Diversity Database (CNDDB). January 2023. Special Animals List. California Department of Fish and Wildlife. Sacramento, CA.

Table of Contents

Special Animals

"Special Animals" is a broad term used to refer to all the animal taxa tracked by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The Special Animals List includes species, subspecies, Distinct Population Segments (DPS), or Evolutionarily Significant Units (ESU) where at least one of the following conditions applies:

- Officially listed or proposed for listing under state and/or federal endangered species acts
- Taxa considered by the Department of Fish and Wildlife to be a Species of Special Concern (SSC)
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range, but not currently threatened with extirpation
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California
- Taxa closely associated with a habitat that is declining in California at a significant rate (e.g., wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats, etc.)
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or a non-governmental organization (NGO), and determined by the CNDDB to be rare, restricted, declining, or threatened across their range in California

The Special Animals List contains taxa that are actively inventoried, tracked, and mapped by the CNDDB, as well as taxa for which mapped data may not yet be incorporated into CNDDB user products. For the latter taxa, information at the county

and 7.5-minute USGS quadrangle level can be accessed via the CNDDB QuickView Tool.

Taxa with a "Yes" in the "End Notes?" column have additional information in the End Notes section at the back of the list.

Additional information about the California Natural Diversity Database is available on the CNDDB website.

Information on other CDFW resource management programs is available on the Department's Conservation and Management of Wildlife and Habitat website.

The CDFW Wildlife Diversity Program provides additional information on wildlife habitat, threats, and survey guidelines.

NatureServe Element Ranking

The California Natural Diversity Database program is a member of the NatureServe Network of natural heritage programs, and uses the same conservation status methodology as other network programs. The ranking system was originally developed by The Nature Conservancy and is now maintained and recently revised by NatureServe. It includes a **Global rank** (G-rank), describing the status for a given taxon over its entire distribution, and a **State rank** (S-rank), describing the status for the taxon over its state distribution. For subspecies and varieties, there is also a "T" rank describing the global rank for the infraspecific taxon. The next page of this document details the criteria used to assign element ranks, from G1 to G5 for the Global rank and from S1 to S5 for the State rank. Procedurally, state programs such as the CNDDB develop the State ranks. The Global ranks are determined collaboratively among the Heritage Programs for the states/provinces containing the species. NatureServe then checks for consistency and logical errors at the national level. Because the units of conservation may include non-taxonomic biological entities such as populations or ecological communities, NatureServe refers to the targets of biological conservation as "elements" rather than taxa.

An element rank is assigned using standard criteria and rank definitions. This standardization makes the ranks comparable between organisms and across political boundaries. NatureServe has developed a "rank calculator" to help increase repeatability and transparency of the ranking process. The three main categories that are taken into consideration when assigning an element rank are rarity, threats, and trends. Within these three categories, various factors are considered, including:

- Range extent, area of occupancy, population size, total number of occurrences, and number of good occurrences (ranked A or B). Environmental specificity can also be used if other information is lacking.
- Overall threat impact as well as intrinsic vulnerability (if threats are unknown).
- Long-term and short-term trends.

Detailed information on this element ranking methodology can be found on the NatureServe Conservation Status Assessment website.

Listed below are definitions for interpreting global and state conservation status ranks. An element's ranking status may be adjusted up or down depending upon the considerations above.

Global Ranking

The global rank (G-rank) is a reflection of the overall status of an element throughout its global range.

- **GX: Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
- **GH: Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct throughout its range.
- **G1: Critically Imperiled** – At very high risk of extinction due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
- **G2: Imperiled** – At high risk of extinction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
- **G3: Vulnerable** – At moderate risk of extinction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
- **G4: Apparently Secure** – At fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

- **G5: Secure** – At very low risk of extinction due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
- **GNR: Unranked** – Global rank not yet assessed.

State Ranking

The state rank (S-rank) is assigned in much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries.

- **SX: Presumed Extirpated** – Species is believed to be extirpated from the state Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered
- **SH: Possibly Extirpated** – Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the state, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
- **S1: Critically Imperiled** – At very high risk of extirpation in the state due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
- **S2: Imperiled** – At high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
- **S3: Vulnerable** – At moderate risk of extirpation in the state due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
- **S4: Apparently Secure** – At a fairly low risk of extirpation in the state due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

- **S5: Secure** – At very low or no risk of extirpation in the state due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
- **SNR: Unranked** – State rank not yet assessed.

Additional Notes on NatureServe Ranks

- Rank Qualifiers
    - Taxa which are subspecies receive a taxon rank (**T-rank**) in addition to the G-rank. Whereas the G-rank reflects the condition of the entire species, the T-rank reflects the global status of just the subspecies. For example, the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea*, is ranked G5T2. The G-rank refers to the whole species, i.e., *Aplodontia rufa*; the T-rank refers only to the global condition of ssp. *phaea*.
    - **C = Captive or Cultivated Only** — taxon at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population not yet established. The “C” modifier is only used at a global level and not at a state level. Possible ranks are GXC or GHC.
    - **Q = Questionable taxonomy** that may reduce conservation priority — Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. The “Q” modifier is only used at the global level, not at the state level.
- Uncertainty about the status of an element is expressed in two major ways:
    - By expressing the ranks as a **range** of values: e.g., S2S3 indicates the rank is somewhere between S2 and S3.
    - By adding a “**?**” to the rank: e.g., S2?; this represents more certainty than S2S3, but less certainty than S2.

- Other considerations used when ranking a species include the pattern of distribution of the element on the landscape, fragmentation of the population, and historical extent as compared to its modern range. It is important to take an overall view when ranking sensitive elements rather than simply counting element occurrences.

Animal Element Occurrences and Mapping

What is an Element Occurrence?

An Element Occurrence (EO) is a location where a given element has been documented to occur. It is a concept developed and applied within the NatureServe natural heritage network. An EO is not a population, but may indicate that a population is present in that area; likewise, a single population may be represented by more than one EO. An EO is based upon the source documents available at the time of mapping. Both the mapped feature and the text portion of EOs are updated as new information becomes available.

Element Occurrence Definitions Vary by Taxa

The EO definition refers to the types of information mapped. For most animal taxa, the CNDDB is interested in information that indicates the presence of a resident population. However, for many migratory birds, the CNDDB only tracks detections of nest sites or behaviors indicating reproduction is occurring at the site. Details about avian detections are available in the Submitting Avian Detections document. For other taxa where CNDDB tracks only a certain part of the range or life history, the area or life stage is indicated on the list under the “Comment” column.

Mapping Conventions

Information in CNDDB is mapped to balance precision and uncertainty, based upon the source materials used to determine the location of the Element Occurrence. Data with precise location information are mapped with 80m-radius circles or specific polygons. Data with vague location information are mapped with non-specific circular features or non-specific polygons. Non-specific features indicate that the species was found somewhere within the mapped area, but the exact location was unknown. Generally, observations/collections within ¼ mile and/or within continuous habitat are combined into a single EO.

Taxonomic Standards

Taxonomic References and Sources of Additional Information

The CNDDB follows current published taxonomy for animals as recognized by the scientific organizations listed below. The CNDDB reviews publications that propose new taxonomy and nomenclature for CNDDB-tracked species and evaluates whether these proposals are recognized by the larger scientific community. The CNDDB makes every effort to use the best available science in the taxonomy used, but different experts may recognize different names for some time after a taxonomic change is proposed. In these cases, the CNDDB will generally use the preexisting nomenclature until a change is formally recognized beyond the initial publication. In addition, the CNDDB recognizes some taxa identified by experts on the California fauna where these taxa may not be recognized by national biological societies. Generally, the taxonomy used by NatureServe is followed, with additional evaluation of taxonomy from the following sources:

- Reptiles and amphibians:
    - The Center for North American Herpetology
    - The Society for the Study of Amphibians and Reptiles
- Fishes:
    - Fricke, R., Eschmeyer, W. N. & R. van der Laan (eds) 2022. Eschmeyer's catalog of fishes: genera, species, references. Electronic version.
    - Jelks, H.L., S.J. Walsh, N.M. Burkhead, S. Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J.J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33(8):372-407.
    - Lawrence M. Page, Héctor Espinosa-Pérez, Lloyd T. Findley, Carter R. Gilbert, Robert N. Lea, Nicholas E. Mandrak, Richard L. Mayden, and Joseph S. Nelson. 2013. Common and scientific names of fishes from the

United States, Canada, and Mexico, 7th edition. American Fisheries Society, Special Publication 34. 243 pp.

    - Moyle, P. B. 2002. Inland fishes of California. University of California Press.

- Birds:
    - The checklist of the American Ornithologists' Union
- Mammals:
    - The American Society of Mammalogists
    - Bradley, R.D., L.K. Ammerman, R.J. Baker, L.C. Bradley, J.A. Cook, R.C. Dowler, C. Jones, D.J. Schimdly, F.B. Stangl Jr., R.A. Van Den Bussche, and B. Wursig. 2014. Revised checklist of North American mammals north of Mexico, 2014. Museum of Texas Tech University Occasional Papers 327:1-28.

Listing and Special Status Information

CALIFORNIA ENDANGERED SPECIES ACT (CESA) LISTING CODES: The listing status of each species is current as of the date of this list. The most current changes in listing status will be found in the "Endangered and Threatened Animals List," which the CNDDB updates and issues quarterly. Additional information can be found on the California Fish and Game Commission CESA web page.

- SE State listed as endangered
- ST State listed as threatened
- SCE State candidate for listing as endangered
- SCT State candidate for listing as threatened
- SCD State candidate for delisting

FEDERAL ENDANGERED SPECIES ACT (ESA) LISTING CODES: The listing status is current as of the date of this list. The most current changes in listing status will be found in the "Endangered and Threatened Animals List," which the CNDDB updates and issues quarterly. Federal listing actions are published in the Federal Register.

- FE Federally listed as endangered
- FT Federally listed as threatened
- FPE Federally proposed for listing as endangered
- FPT Federally proposed for listing as threatened
- FPD Federally proposed for delisting
- FC Federal candidate species (former Category 1 candidates)

Section 4(c)(2)(A) of the Act requires the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to conduct a review of listed species at least once every five years. Five year reviews are made available by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.

OTHER STATUS CODES: The status of species on the Special Animals List according to other conservation organizations is provided below. Taxa on these lists are reviewed for inclusion in the CNDDB Special Animals List, but are not automatically included. For

example, taxa that are regionally rare within a portion of California may not be included, because they may be of lesser conservation concern across their full range in California.

- **American Fisheries Society (AFS):**
    - Designations for freshwater and diadromous species were taken from the paper:
        - Jelks, H.L., S.J. Walsh, N.M. Burkhead, S. Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J.J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33(8):372-407.
    - Designations for marine and estuarine species were taken from the paper:
        - Musick, J.A. et al. 2000. Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids). Fisheries 25(11):6-30.
- **Bureau of Land Management (BLM) Sensitive:** Bureau of Land Management Manual §6840 states that "BLM sensitive species are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s). All Federal candidate species, proposed species, and delisted species in the 5 years following delisting will be conserved as Bureau sensitive species." Downloadable copies of the California-BLM Special Status Animals and Sensitive Species Lists are available.
- **California Department of Forestry and Fire Protection (CDF) Sensitive:** California Department of Forestry and Fire Protection classifies "sensitive species" as those species that warrant special protection during timber operations. The list of "sensitive species" is given in §895.1 (Definitions) of the California Forest Practice Rules.

- **CDFW Fully Protected:** The classification of Fully Protected was the State's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under the California and/or federal endangered species acts; the exceptions are white-tailed kite, golden eagle, trumpeter swan, northern elephant seal, and ringtail cat. The white-tailed kite and the golden eagle are tracked in the CNDDB. Three subspecies of ringtail are tracked (*Bassariscus astutus octavus*, *B. a. willetti*, *B. a. yumanensis*), two are not (*B. a. raptor* and *B. a. nevadensis*). The trumpeter swan and northern elephant seal are also not tracked. The Fish and Game Code sections dealing with Fully Protected species state that these species "...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research. This language arguably makes the "Fully Protected" designation the strongest and most restrictive regarding the "take" of these species. In 2003, code sections dealing with Fully Protected species were amended to allow the Department to authorize take resulting from recovery activities for state-listed species. More information on Fully Protected species and the take provisions can be found in the Fish and Game Code: birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Additional information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 2, Article 4, §5.93. The category of Protected Amphibians and Reptiles in Title 14 has been repealed.
- **CDFW Species of Special Concern (SSC):** It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as “Species of Special Concern” because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating SSCs is to halt or reverse their decline by calling attention to

their plight and addressing the issues of concern early enough to secure their long-term viability. Not all SSCs have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a threatened or endangered under state and/or federal endangered species acts.

- **CDFW Watch List Species:** Watch list species are taxa that were previously SSCs but do not currently meet SSC criteria, and for which there is concern and a need for additional information to clarify status.
- **International Union for Conservation of Nature (IUCN) Red List of Threatened Species:** The IUCN assesses, on a global scale, the conservation status of species, subspecies, varieties, and even selected subpopulations in order to highlight taxa threatened with extinction, and therefore promote their conservation. Detailed information is available from the IUCN Red List Online.
- **Marine Mammal Commission (MMC) Marine Mammal Species of Special Concern:** Section 202 of the Marine Mammal Protection Act (MMPA) directs the MMC, in consultation with its Committee of Scientific Advisors, to make recommendations to the Department of Commerce, the Department of the Interior, and other federal agencies on research and management actions needed to conserve species of marine mammals. To meet this charge, the Commission devotes special attention to particular species and populations that are vulnerable to various types of human-related activities, impacts, and contaminants. Such species may include marine mammals listed as endangered or threatened under the federal ESA or as depleted under the MMPA. In addition, the Commission often directs special attention to other species or populations of marine mammals not so listed whenever special conservation challenges arise that may affect them. More information on the MMPA and the list of species is available from the MMC Marine Mammal Species and Populations of Concern website.
- **North American Bird Conservation Initiative (NABCI):** The North American Bird Conservation Initiative is a coalition of government agencies and private organizations that works to ensure the long-term health of North America's native

bird populations. They publish an annual State of the Birds report which includes a watch list of bird species in need of conservation help. Species on the list are assigned to either the Red Watch List for species with extremely high vulnerability, or Yellow Watch List for species that may be range restricted or may be more widespread but with declines and high threats.

- **United States Forest Service (USFS) Sensitive:** The USDA Forest Service defines sensitive species as plant and animal species identified by a regional forester that are not listed or proposed for listing under the federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Regional Foresters shall identify sensitive species occurring within the region. More information on California species can be found on the Pacific Southwest Region (Region 5) Plants and Animals site, including links to download the Regional Forester's Sensitive Animal Species List.
- **U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern:** The goal of the Birds of Conservation Concern 2021 report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities and draw attention to species in need of conservation action.

Table of Special Status Code Abbreviations

Organization	Abbreviation
American Fisheries Society - Endangered	AFS_EN
American Fisheries Society - Threatened	AFS_TH
American Fisheries Society - Vulnerable	AFS_VU
Bureau of Land Management - Sensitive	BLM_S
Calif Dept of Forestry & Fire Protection - Sensitive	CDF_S
Calif Dept of Fish & Wildlife - Fully Protected	CDFW_FP
Calif Dept of Fish & Wildlife - Species of Special Concern	CDFW_SSC
Calif Dept of Fish & Wildlife - Watch List	CDFW_WL
IUCN - Critically Endangered	IUCN_CR
IUCN - Endangered	IUCN_EN
IUCN - Vulnerable	IUCN_VU
IUCN - Near Threatened	IUCN_NT
IUCN - Least Concern	IUCN_LC
IUCN - Data Deficient	IUCN_DD
Marine Mammal Commission - Species of Special Concern	MMC_SSC
North American Bird Conservation Initiative - Red Watch List	NABCI_RWL
North American Bird Conservation Initiative - Yellow Watch List	NABCI_YWL
U.S. Forest Service - Sensitive	USFS_S
U.S. Fish & Wildlife Service Birds of Conservation Concern	USFWS_BCC

Special Animals List

(935 taxa)

Last updated January 5, 2023

The remainder of this document contains the CNDDB's Special Animals List, current as of the date on the title page of this document.

Invertebrates

PELECYPODA (clams and mussels)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anodonta californiensis	California floater		G3Q	S2?	None	None	USFS:S	Yes	
Anodonta oregonensis	Oregon floater		G5Q	S2?	None	None	IUCN:LC	Yes	
Gonidea angulata	western ridged mussel		G3	S1S2	None	None	IUCN:VU	Yes	
Margaritifera falcata	western pearlshell		G4G5	S1S2	None	None	IUCN:NT	Yes	
Pisidium ultramontanum	montane peaclam		G1	S1	None	None	IUCN:VU USFS:S	Yes	

GASTROPODA (snails, slugs, and abalones)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ammonitella yatesii	tight coin (=Yates' snail)		G1	S1	None	None	IUCN:VU	Yes	
Ancotrema voyanum	hooded lancetooth		G1G2	S1S2	None	None		Yes	
Assiminea infima	Badwater snail		G1	S1	None	None	IUCN:VU	Yes	
Binneya notabilis	Santa Barbara shelled slug		G1	S1	None	None	IUCN:DD	Yes	
Colligyrus convexus	canary duskysnail		G1G2	S2	None	None		Yes	
Eremarionta immaculata	white desertsnail		G1	S1	None	None	IUCN:VU	Yes	
Eremarionta millepalmarum	Thousand Palms desertsnail		G1	S1	None	None	IUCN:VU	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eremarionta morongoana	Morongo (=Colorado) desertsnail		G1G3	S1	None	None	IUCN:NT	Yes	
Eremarionta rowelli bakerensis	Baker's desertsnail		G3G4T1	S1	None	None	IUCN:DD	Yes	
Eremarionta rowelli mccoiana	California Mccoy snail		G3G4T1	S1	None	None	IUCN:DD	Yes	
Fluminicola seminalis	nugget pebblesnail		G2	S2	None	None	IUCN:DD USFS:S	Yes	
Glyptostoma gabrielense	San Gabriel chestnut		G2	S2	None	None		Yes	
Haliotis corrugata	pink abalone		G3?	S2?	None	None	IUCN:CR	No	
Haliotis cracherodii	black abalone		G3	S2	Endangered	None	IUCN:CR	Yes	
Haliotis fulgens	green abalone		G3G4	S2	None	None	IUCN:CR	No	
Haliotis kamtschatkana	pinto abalone		G3G4	S2	None	None	IUCN:EN	No	
Haliotis sorenseni	white abalone		G1	S2	Endangered	None	IUCN:CR	No	
Haplotrema catalinense	Santa Catalina lancetooth		G1	S1	None	None		Yes	
Haplotrema duranti	ribbed lancetooth		G1G2	S1S2	None	None		Yes	
Helisoma newberryi	Great Basin rams-horn		G1	S1S2	None	None	USFS:S	Yes	
Helminthoglypta allynsmithi	Merced Canyon shoulderband		G1	S1	None	None	IUCN:VU	Yes	
Helminthoglypta arrosa monticola	mountain shoulderband		G2G3T1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Helminthoglypta arrosa pomoensis	Pomo bronze shoulderband		G2G3T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta ayresiana sanctaecrucis	Ayer's snail		G1G2T1T2	S1S2	None	None		Yes	
Helminthoglypta callistoderma	Kern shoulderband		G1	S1	None	None	IUCN:EN	Yes	
Helminthoglypta coelata	mesa shoulderband		G1	S1	None	None	IUCN:VU	Yes	
Helminthoglypta concolor	whitefir shoulderband		G1G2	S1S2	None	None		Yes	
Helminthoglypta fontiphila	Soledad shoulderband		G1	S1	None	None		Yes	
Helminthoglypta greggi	Mohave shoulderband		G2	S2	None	None		Yes	
Helminthoglypta hertleini	Oregon shoulderband		G3Q	S1S2	None	None		Yes	
Helminthoglypta milleri	peak shoulderband		G1	S1	None	None		Yes	
Helminthoglypta mohaveana	Victorville shoulderband		G1	S1	None	None	IUCN:NT	Yes	
Helminthoglypta nickliniana awania	Peninsula coast range shoulderband		G3T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta nickliniana bridgesi	Bridges' coast range shoulderband		G3T1	S1S2	None	None	IUCN:DD	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Helminthoglypta sequoicola consors	redwood shoulderband		G2T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta stiversiana williamsi	Williams' bronze shoulderband		G1G2T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta talmadgei	Trinity shoulderband		G2	S2	None	None		Yes	
Helminthoglypta taylori	westfork shoulderband		G1	S1	None	None		Yes	
Helminthoglypta traskii pacoimensis	Pacoima shoulderband		G1G2T1	S1	None	None		Yes	
Helminthoglypta traskii traskii	Trask shoulderband		G1G2T1	S1	None	None		Yes	
Helminthoglypta uvasana	Grapevine shoulderband		G1	S1	None	None		Yes	
Helminthoglypta vasquezi	Vasquez shoulderband		G1	S1	None	None		Yes	
Helminthoglypta walkeriana	Morro shoulderband		G1	S2	Threatened	None	IUCN:CR	Yes	
Herpeteros angelus	Soledad desertsnail		G1	S1	None	None		No	
Hesperarion plumbeus	leaden slug		G1	S1	None	None		Yes	
Ipnobius robustus	robust tryonia		G1G2	S1	None	None		Yes	
Juga acutifilosa	topaz juga		G2	S2	None	None	IUCN:NT USFS:S	Yes	
Juga chacei	Chace juga		G1	S1	None	None	USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Juga occata	scalloped juga		G1Q	S1	None	None	IUCN:EN USFS:S	Yes	
Juga orickensis	redwood juga		G2	S1S2	None	None		Yes	
Lanx alta	highcap lanx		G2G3	S3	None	None		Yes	
Lanx patelloides	kneecap lanx		G2?	S2	None	None	USFS:S	Yes	
Littorina subrotundata	Newcomb's littorine snail		G5	S1S2	None	None		No	
Megomphix californicus	Natural Bridge megomphix		G1G2	S1S2	None	None		Yes	
Micrarionta facta	Santa Barbara islandsnail		G1G2	S1S2	None	None	IUCN:VU	Yes	
Micrarionta feralis	San Nicolas islandsnail		G1	S1	None	None	IUCN:CR	Yes	
Micrarionta gabbii	San Clemente islandsnail		G1	S1	None	None	IUCN:VU	Yes	
Micrarionta opuntia	pricklypear islandsnail		G1	S1	None	None	IUCN:VU	Yes	
Monadenia callipeplus	downy sideband		G1?	S1S2	None	None		Yes	
Monadenia chaceana	Siskiyou shoulderband		G2G3	S2	None	None		Yes	
Monadenia churchi	Klamath sideband		G2G3	S2	None	None		Yes	
Monadenia circumcarinata	keeled sideband		G3	S3	None	None	BLM:S IUCN:VU	Yes	
Monadenia cristulata	crested sideband		G1?	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Monadenia fidelis leonina	A terrestrial snail		G4G5T1T2	S1S2	None	None		Yes	
Monadenia fidelis pronotis	rocky coast Pacific sideband		G4G5T1	S1	None	None	IUCN:DD	Yes	
Monadenia infumata ochromphalus	yellow-based sideband		G2T1	S1	None	None		Yes	
Monadenia infumata setosa	Trinity bristle snail		G2T2	S2	None	Threatened	IUCN:VU	Yes	
Monadenia marmarotis	marble sideband		G1	S1	None	None		Yes	
Monadenia mormonum buttoni	Button's Sierra sideband		G2T1	S1S2	None	None	IUCN:DD	Yes	
Monadenia mormonum hirsuta	hirsute Sierra sideband		G2T1	S1	None	None	BLM:S IUCN:DD	Yes	
Monadenia troglodytes troglodytes	Shasta sideband		G1G2T1T2	S1S2	None	None	USFS:S	Yes	
Monadenia troglodytes wintu	Wintu sideband		G1G2T1T2	S1S2	None	None	USFS:S	Yes	
Monadenia tuolumneana	Tuolumne sideband		G1	S1	None	None	BLM:S	Yes	
Monadenia yosemitensis	Yosemite sideband		G1	S1S2	None	None		Yes	
Noyo intersessa	Ten Mile shoulderband		G2	S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pomatiopsis binneyi	robust walker		G1	S1	None	None		Yes	
Pomatiopsis californica	Pacific walker		G1	S1	None	None	IUCN:DD	Yes	
Pomatiopsis chacei	marsh walker		G1	S2	None	None		Yes	
Pristiloma shepardae	Shepard's snail		G1	S1	None	None		Yes	
Pristinicola hemphilli	pristine pyrg		G3	S1	None	None	IUCN:DD USFS:S	Yes	
Prophysaon sp. 1	Klamath taildropper		G2	S3	None	None		Yes	Yes
Punctum hannai	Trinity Spot		G1G2	S1S2	None	None		Yes	
Pyrgulopsis aardahli	Benton Valley (=Aahrdahl's) springsnail		G1	S1	None	None		Yes	
Pyrgulopsis archimedis	Archimedes pyrg		G1G2	S1S2	None	None		Yes	
Pyrgulopsis cinerana	Ash Valley pyrg		G1G2	S1S2	None	None		Yes	
Pyrgulopsis diablensis	Diablo Range pyrg		G1	S1	None	None	IUCN:VU	Yes	
Pyrgulopsis eremica	Smoke Creek pyrg		G2	S2	None	None		Yes	
Pyrgulopsis falciglans	Likely pyrg		G1	S1	None	None		Yes	
Pyrgulopsis gibba	Surprise Valley pyrg		G3	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pyrgulopsis greggi	Kern River pyrg		G1	S1	None	None	IUCN:VU	Yes	
Pyrgulopsis lasseni	Willow Creek pyrg		G1G2	S1S2	None	None	USFS:S	Yes	
Pyrgulopsis longae	Long Valley pyrg		G1	S1	None	None		Yes	
Pyrgulopsis owensensis	Owens Valley springsnail		G1G2	S1S2	None	None	USFS:S	Yes	
Pyrgulopsis perturbata	Fish Slough springsnail		G1	S1	None	None		Yes	
Pyrgulopsis rupinicola	Sucker Springs pyrg		G1	S1	None	None		Yes	
Pyrgulopsis taylori	San Luis Obispo pyrg		G1	S1	None	None		Yes	
Pyrgulopsis ventricosa	Clear Lake pyrg		G1	S1	None	None	IUCN:CR	Yes	
Pyrgulopsis wongi	Wong's springsnail		G2	S2	None	None	IUCN:LC USFS:S	Yes	
Radiocentrum avalonense	Catalina mountainsnail		G1	S1	None	None	IUCN:CR	Yes	
Rothelix warnerfontis	Warner Springs shoulderband		G1	S1	None	None	USFS:S	Yes	
Sterkia clementina	San Clemente Island blunt-top snail		G1	S1S2	None	None	IUCN:NT	Yes	
Trilobopsis roperi	Shasta chaparral		G2	S1	None	None	USFS:S	Yes	
Trilobopsis tehamana	Tehama chaparral		G2	S1	None	None	USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Tryonia imitator	mimic tryonia (=California brackishwater snail)		G2	S2	None	None	IUCN:DD	Yes	
Tryonia margae	Grapevine Springs elongate tryonia		G1	S1	None	None		Yes	
Tryonia rowlandsi	Grapevine Springs squat tryonia		G1	S1	None	None		Yes	
Vespericola karokorum	Karok hesperian		G2	S2	None	None	IUCN:DD	Yes	
Vespericola marinensis	Marin hesperian		G2	S2	None	None		Yes	
Vespericola pressleyi	Big Bar hesperian		G1	S1	None	None	USFS:S	Yes	
Vespericola scotti	Benson Gulch hesperian		G1	S1	None	None		Yes	
Vespericola shasta	Shasta hesperian		G3	S3	None	None	USFS:S	Yes	
Vespericola sierranus	Siskiyou hesperian		G3	S1S2	None	None		Yes	
Xerarionta intercisa	horseshoe snail		G1	S1	None	None	IUCN:VU	Yes	
Xerarionta redimita	wreathed cactussnail		G1G2	S1	None	None	IUCN:VU	Yes	
Xerarionta tryoni	Bicolor cactussnail		G1	S1	None	None	IUCN:VU	Yes	

ARACHNIDA (spiders and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aphrastochthonius grubbsi	Grubbs' Cave pseudoscorpion		G1G2	S1	None	None		Yes	
Aphrastochthonius similis	Carlow's Cave pseudoscorpion		G1G2	S1S2	None	None		Yes	
Archeolarca aalbui	Aalbu's Cave pseudoscorpion		G1G2	S1	None	None		Yes	
Banksula californica	Alabaster Cave harvestman		GH	SH	None	None		Yes	
Banksula galilei	Galile's cave harvestman		G1	S1	None	None		Yes	
Banksula grubbsi	Grubbs' cave harvestman		G1	S1	None	None		Yes	
Banksula incredula	incredible harvestman		G1	S1	None	None		Yes	
Banksula martinorum	Martins' cave harvestman		G1	S1	None	None		Yes	
Banksula melones	Melones Cave harvestman		G1	S1	None	None	IUCN:VU	Yes	
Banksula rudolphi	Rudolph's cave harvestman		G1	S1	None	None		Yes	
Banksula tuolumne	Tuolumne cave harvestman		G1	S1	None	None		Yes	
Banksula tutankhamen	King Tut Cave harvestman		G1	S1	None	None		Yes	
Calicina arida	San Benito harvestman		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Calicina breva	Stanislaus harvestman		G1	S1	None	None		Yes	
Calicina cloughensis	Clough Cave harvestman		G1	S1	None	None		Yes	
Calicina conifera	Crane Flat harvestman		G1	S1	None	None		Yes	
Calicina diminua	Marin blind harvestman		G1	S1	None	None		Yes	
Calicina dimorphica	Watts Valley harvestman		G1	S1	None	None		Yes	
Calicina macula	marbled harvestman		G1	S1	None	None		Yes	
Calicina mesaensis	Table Mountain harvestman		G1	S1	None	None		Yes	
Calicina minor	Edgewood blind harvestman		G1	S1	None	None		Yes	
Calicina piedra	Piedra harvestman		G1	S1	None	None		Yes	
Calileptoneta briggsi	Briggs' leptonetid spider		G1	S1	None	None		Yes	
Calileptoneta oasa	Andreas Canyon leptonetid spider		G1	S1	None	None		Yes	
Calileptoneta ubicki	Ubick's leptonetid spider		G1	S1	None	None		Yes	
Calileptoneta wapiti	Mendocino leptonetid spider		G1	S1	None	None		Yes	
Fissilicreagris imperialis	Empire Cave pseudoscorpion		G1	S1	None	None	IUCN:VU	Yes	
Hubbardia idria	Idria short-tailed whipscorpion		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hubbardia secoensis	Arroyo Seco short-tailed whipscorpion		G1	S1	None	None		Yes	
Hubbardia shoshonensis	Shoshone Cave whip-scorpion		G1	S1	None	None	BLM:S	Yes	Yes
Larca laceyi	Lacey's Cave pseudoscorpion		G1G2	S1	None	None		Yes	
Meta dolloff	Dolloff Cave spider		G3	S3	None	None	IUCN:VU	Yes	
Microcina edgewoodensis	Edgewood Park micro-blind harvestman		G1	S1	None	None		Yes	
Microcina homi	Hom's micro-blind harvestman		G1	S2	None	None		Yes	
Microcina jungi	Jung's micro-blind harvestman		G1	S1	None	None		Yes	
Microcina leei	Lee's micro-blind harvestman		G1	S1	None	None		Yes	
Microcina lumi	Lum's micro-blind harvestman		G1	S1	None	None		Yes	
Microcina tiburona	Tiburon micro-blind harvestman		G2	S2	None	None		Yes	
Neochthonius imperialis	Empire Cave pseudoscorpion		G1	S1	None	None		Yes	
Pseudogarypus orpheus	Music Hall Cave pseudoscorpion		G1G2	S1	None	None		Yes	
Socalchemmis gertschi	Gertsch's socalchemmis spider		G1	S1	None	None		Yes	
Socalchemmis icenoglei	Icenogle's socalchemmis spider		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Socalchemmis monterey	Monterey socalchemmis spider		G1	S1	None	None		Yes	
Talanites moodyae	Moody's gnaphosid spider		G1G2	S1S2	None	None		Yes	
Talanites ubicki	Ubick's gnaphosid spider		G1	S1	None	None		Yes	
Telema sp.	Santa Cruz telemid spider		G1G2	S1S2	None	None		No	
Texella deserticola	Whitewater Canyon harvestman		G1	S1	None	None		Yes	
Texella kokoweef	Kokoweef Crystal Cave harvestman		G1	S1	None	None		Yes	
Texella shoshone	Shoshone Cave harvestman		G1	S1	None	None		Yes	

CRUSTACEA, Order Anostraca (fairy shrimp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Artemia monica	Mono Lake brine shrimp		G3	S3	None	None		Yes	
Branchinecta campestris	pocket pouch fairy shrimp		G2	S1	None	None		Yes	
Branchinecta conservatio	Conservancy fairy shrimp		G2	S2	Endangered	None	IUCN:EN	Yes	
Branchinecta longiantenna	longhorn fairy shrimp		G1	S2	Endangered	None	IUCN:EN	Yes	
Branchinecta lynchi	vernal pool fairy shrimp		G3	S3	Threatened	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Branchinecta mesovallensis	midvalley fairy shrimp		G2	S2S3	None	None		Yes	
Branchinecta sandiegonensis	San Diego fairy shrimp		G2	S2	Endangered	None	IUCN:EN	Yes	
Linderiella occidentalis	California linderiella		G2G3	S2S3	None	None	IUCN:NT	Yes	
Linderiella santarosae	Santa Rosa Plateau fairy shrimp		G1G2	S1	None	None		Yes	
Streptocephalus woottoni	Riverside fairy shrimp		G1G2	S2	Endangered	None	IUCN:EN	Yes	

CRUSTACEA, Order Notostraca (tadpole shrimp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lepidurus packardi	vernal pool tadpole shrimp		G4	S3	Endangered	None	IUCN:EN	Yes	

CRUSTACEA, Order Diplostraca (water fleas)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dumontia oregonensis	hairy water flea		G1G3	S1	None	None		Yes	

CRUSTACEA, Order Isopoda (isopods)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bowmanasellus sequoiae	Sequoia cave isopod		G2	S2	None	None		Yes	
Caecidotea tomalensis	Tomales isopod		G2	S2S3	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Calasellus californicus	An isopod		G2	S2	None	None		Yes	
Calasellus longus	An isopod		G1	S1	None	None		Yes	

CRUSTACEA, Order Amphipoda (amphipods)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hyalella muerta	Texas Spring amphipod		G1	S1	None	None		Yes	Yes
Hyalella sandra	Death Valley amphipod		G1	S1	None	None		Yes	Yes
Stygobromus cherylae	Barr's amphipod		G1	S1	None	None		Yes	
Stygobromus cowani	Cowan's amphipod		G1	S1	None	None		Yes	
Stygobromus gallawayae	Gallaway's amphipod		G1	S1	None	None		Yes	
Stygobromus gradyi	Grady's Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	
Stygobromus grahami	Graham's Cave amphipod		G2	S2	None	None		Yes	
Stygobromus harai	Hara's Cave amphipod		G1G2	S1	None	None	IUCN:VU	Yes	
Stygobromus hyporheicus	hyporheic amphipod		G1	SX	None	None		Yes	
Stygobromus imperialis	Empire Cave amphipod		G1	S1	None	None		Yes	
Stygobromus lacicolus	Lake Tahoe amphipod		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Stygobromus mackenziei	Mackenzie's Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	
Stygobromus myersae	Myer's amphipod		G1G2	S1S2	None	None		Yes	
Stygobromus mysticus	Secret Cave amphipod		G1	S1	None	None		Yes	
Stygobromus rudolphi	Rudolph's amphipod		G1	S1	None	None		Yes	
Stygobromus sheldoni	Sheldon's amphipod		G1	S1	None	None		Yes	
Stygobromus sierrensis	Sierra amphipod		G1	S1	None	None		Yes	
Stygobromus tahoensis	Lake Tahoe stygobromid		G1	S1	None	None		Yes	
Stygobromus trinus	Trinity County amphipod		G1	S1	None	None		Yes	
Stygobromus wengerorum	Wengerors' Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	

CRUSTACEA, Order Decapoda (crayfish and shrimp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pacifastacus fortis	Shasta crayfish		G1	S1	Endangered	Endangered	IUCN:CR	Yes	
Pacifastacus leniusculus klamathensis	Klamath crayfish		G5T5	S3	None	None		No	
Syncaris pacifica	California freshwater shrimp		G2	S2	Endangered	Endangered	IUCN:EN	Yes	

INSECTA, Order Odonata (dragonflies and damselflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ischnura gemina	San Francisco forktail damselfly		G2	S2	None	None	IUCN:EN	Yes	

INSECTA, Order Plecoptera (stoneflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Capnia lacustra	Lake Tahoe benthic stonefly		G1	S1	None	None		Yes	
Cosumnoperla hypocrena	Cosumnes stripetail		G2	S2	None	None		Yes	

INSECTA, Order Orthoptera (grasshoppers, katydids, and crickets)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aglaothorax longipennis	Santa Monica shieldback katydid		G1G2	S1S2	None	None	IUCN:CR	Yes	
Ammopelmatus kelsoensis	Kelso jerusalem cricket		G1G2	S1S2	None	None	IUCN:VU	Yes	
Ammopelmatus muwu	Point Conception jerusalem cricket		G1	S1	None	None	IUCN:VU	Yes	
Idiostatus kathleenae	Pinnacles shieldback katydid		G1G2	S1S2	None	None		Yes	
Idiostatus middlekauffi	Middlekauff's shieldback katydid		G1G2	S1	None	None	IUCN:CR	Yes	
Macrobaenetes algodonensis	Algodones sand treader cricket		G1G2	S1S2	None	None		No	
Macrobaenetes kelsoensis	Kelso giant sand treader cricket		G2	S2	None	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Macrobaenetes valgum	Coachella giant sand treader cricket		G1G2	S2	None	None	IUCN:VU	Yes	
Pristoceuthophilus sp. 1	Samwell Cave cricket		G1G3	S1S3	None	None	IUCN:VU	Yes	
Psychomastax deserticola	desert monkey grasshopper		G1G2	S1	None	None	IUCN:VU	Yes	
Stenopelmatus cahuilaensis	Coachella Valley jerusalem cricket		G1G2	S2	None	None	IUCN:VU	Yes	
Tetrix sierrana	Sierra pygmy grasshopper		G1G2	S1	None	None	IUCN:VU	Yes	
Trimerotropis infantilis	Zayante band-winged grasshopper		G1	S1	Endangered	None	IUCN:EN	Yes	
Trimerotropis occidentiloides	Santa Monica grasshopper		G1G2	S2	None	None	IUCN:EN	Yes	
Trimerotropis occulens	Lompoc grasshopper		G1G2	S1S2	None	None	IUCN:EN	Yes	

INSECTA, Order Hemiptera (true bugs)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ambrysus funebris	Nevares Spring naucorid bug		G1	S1	None	None		Yes	
Belostoma saratogae	Saratoga Springs belostoman bug		G1	S1	None	None		Yes	
Oravelia pege	Dry Creek cliff strider bug		G1	S1	None	None		Yes	
Pelocoris biimpressus	Amargosa naucorid bug		G1G3	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Saldula usingeri	Wilbur Springs shorebug		G1	S2	None	None		Yes	

INSECTA, Order Neuroptera (lacewings)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oliarces clara	cheeseweed owlfly (cheeseweed moth lacewing)		G1G3	S2	None	None		Yes	

INSECTA, Order Coleoptera (beetles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aegialia concinna	Ciervo aegilian scarab beetle		G1	S1	None	None	BLM:S IUCN:VU	Yes	
Agabus rumppi	Death Valley agabus diving beetle		G1G3	S1	None	None		Yes	
Agrilus harenus	Harenus jewel beetle		G1G2	S1S2	None	None		Yes	
Anomala carlsoni	Carlson's dune beetle		G1	S1	None	None		Yes	
Anomala hardyorum	Hardy's dune beetle		G1	S1	None	None		Yes	
Anthicus antiochensis	Antioch Dunes anthicid beetle		G1	S3	None	None		Yes	
Anthicus sacramento	Sacramento anthicid beetle		G1	S4	None	None	IUCN:EN	Yes	
Atractelmis wawona	Wawona riffle beetle		G3	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chaetarthria leechi	Leech's chaetarthrian water scavenger beetle		G1?	S1	None	None		Yes	
Cicindela hirticollis abrupta	Sacramento Valley tiger beetle		G5TH	SH	None	None		Yes	
Cicindela hirticollis gravida	sandy beach tiger beetle		G5T2	S2	None	None		Yes	
Cicindela latesignata	western beach tiger beetle		G2G3	S1	None	None		Yes	
Cicindela ohlone	Ohlone tiger beetle		G1	S1	Endangered	None		Yes	
Cicindela senilis frosti	senile tiger beetle		G2G3T1T3	S1	None	None		Yes	
Cicindela tranquebarica joaquinensis	San Joaquin tiger beetle		G5T1	S1	None	None		Yes	
Cicindela tranquebarica viridissima	greenest tiger beetle		G5T1	S1	None	None		Yes	
Coelus globosus	globose dune beetle		G1G2	S1S2	None	None	IUCN:VU	Yes	
Coelus gracilis	San Joaquin dune beetle		G1	S1	None	None	BLM:S IUCN:VU	Yes	
Coenonycha clementina	San Clemente Island coenonycha beetle		G1G2	S1S2	None	None		Yes	
Cyclocephala wandae	Wandae dune beetle		G1G2	S1S2	None	None		Yes	
Deltaspis ivae	marsh-elder long-horned beetle		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Desmocerus californicus dimorphus	valley elderberry longhorn beetle		G3T2T3	S3	Threatened	None		Yes	
Dinacoma caseyi	Casey's June beetle		G1	S1	Endangered	None		Yes	
Dubiraphia brunnescens	brownish dubiraphian riffle beetle		G1	S1	None	None		Yes	
Dubiraphia giulianii	Giuliani's dubiraphian riffle beetle		G1G3	S1S3	None	None		Yes	
Elaphrus viridis	Delta green ground beetle		G1	S1	Threatened	None	IUCN:CR	Yes	
Glaresis arenata	Kelso Dunes scarab glaresis beetle		G2	S2	None	None		Yes	
Habroscelimorpha gabbii	western tidal-flat tiger beetle		G2G4	S1	None	None		Yes	
*Hydrochara ricksecker*i	Ricksecker's water scavenger beetle		G2?	S2?	None	None		Yes	
Hydroporus leechi	Leech's skyline diving beetle		G1?	S2S3	None	None		Yes	
Hydroporus simplex	simple hydroporus diving beetle		G1?	S1S3	None	None		Yes	
Hygrotus curvipes	curved-foot hygrotus diving beetle		G1	S2	None	None		Yes	
Hygrotus fontinalis	travertine band-thigh diving beetle		G1	S1	None	None		Yes	
Juniperella mirabilis	juniper metallic wood-boring beetle		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lepismadora algodones	Algodones sand jewel beetle		G1	S1	None	None		Yes	
Lichnanthe albipilosa	white sand bear scarab beetle		G1	S1	None	None		Yes	
Lichnanthe ursina	bumblebee scarab beetle		G2	S2	None	None		Yes	
Lytta hoppingi	Hopping's blister beetle		G1G2	S2	None	None		Yes	
Lytta insperata	Mojave Desert blister beetle		G1G2	S1S2	None	None		No	
Lytta moesta	moestan blister beetle		G2	S2	None	None		Yes	
Lytta molesta	molestan blister beetle		G2	S2	None	None		Yes	
Lytta morrisoni	Morrison's blister beetle		G1G2	S2	None	None		Yes	
Microcylloepus formicoideus	Furnace Creek riffle beetle		G1	S1	None	None		Yes	
Miloderes nelsoni	Nelson's miloderes weevil		G2	S2	None	None		Yes	
Nebria darlingtoni	South Forks ground beetle		G1	S1	None	None		Yes	
Nebria gebleri siskiyouensis	Siskiyou ground beetle		G4G5T4	S1S2	None	None		Yes	
Nebria sahlbergii triad	Trinity Alps ground beetle		G5T1	S1	None	None		Yes	
Ochthebius crassalus	wing shoulder minute moss beetle		G1G3	S1S3	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ochthebius recticulus	Wilbur Springs minute moss beetle		G1	S1	None	None		Yes	
Onychobaris langei	Lange's El Segundo Dune weevil		G1	S1	None	None		Yes	
Optioservus canus	Pinnacles optioservus riffle beetle		G2	S1	None	None		Yes	
Palaeoxenus dohrni	Dohrn's elegant eucnemid beetle		G3?	S3?	None	None		Yes	
Polyphylla anteronivea	Saline Valley snow-front June beetle		G1	S2	None	None		Yes	
Polyphylla barbata	Mount Hermon (=barbate) June beetle		G1	S2	Endangered	None		Yes	
Polyphylla erratica	Death Valley June beetle		G1G2	S1S2	None	None		Yes	
Polyphylla morroensis	Morro Bay June beetle		G1	S1	None	None		Yes	
Polyphylla nubila	Atascadero June beetle		G1	S1	None	None		Yes	
Prasinalia imperialis	Algodones white wax jewel beetle		G1G2	S1S2	None	None		No	
Pseudocotalpa andrewsi	Andrew's dune scarab beetle		G1	S1	None	None		Yes	
Scaphinotus behrensi	Behrens' snail-eating beetle		G2G4	S2S4	None	None		Yes	
Trachykele hartmani	serpentine cypress wood-boring beetle		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Trichinorhipis knulli	Knull's metallic wood-boring beetle		G1	S1	None	None		Yes	
Trigonoscuta brunnotesselata	brown tassel trigonoscuta weevil		G1G2	S1	None	None		Yes	
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune weevil		G1T1	S1	None	None		Yes	
Trigonoscuta rothi algodones	Algodones dune weevil		G1G2T1T2	S1S2	None	None		No	
Trigonoscuta rothi imperialis	Imperial dune weevil		G1G2T1T2	S1S2	None	None		No	
Trigonoscuta rothi punctata	Punctate dune weevil		G1G2T1T2	S1S2	None	None		No	
Trigonoscuta rothi rothi	Roth's dune weevil		G1G2T1T2	S1S2	None	None		No	
Trigonoscuta sp.	Doyen's trigonoscuta dune weevil		G1Q	S1	None	None		Yes	Yes
Trigonoscuta stantoni	Santa Cruz Island shore weevil		G1	S1	None	None		Yes	
Vandykea tuberculata	serpentine cypress long-horned beetle		G1	S2	None	None		Yes	

INSECTA, Order Mecoptera (scorpionflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Orobittacus obscurus	gold rush hanging scorpionfly		G1	S1	None	None		Yes	

INSECTA, Order Diptera (flies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ablautus schlingeri	Oso Flaco robber fly		G1	S2	None	None		Yes	
Apiocera warneri	Glamis sand fly		G1G2	S1S2	None	None		Yes	
Brennania belkini	Belkin's dune tabanid fly		G1G2	S1S2	None	None	IUCN:VU	Yes	
Cophura hurdi	Antioch cophuran robberfly		GX	SX	None	None		No	
Efferia antiochi	Antioch efferian robberfly		G1G2	S1S2	None	None		Yes	
Efferia macroxipha	Glamis robberfly		G1G2	S1S2	None	None		Yes	
Metapogon hurdi	Hurd's metapogon robberfly		G1G2	S1S2	None	None		Yes	
Paracoenia calida	Wilbur Springs shore fly		G1	S1	None	None		Yes	
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly		G1T1	S1	Endangered	None		Yes	
Rhaphiomidas terminatus terminatus	El Segundo flower-loving fly		G1T1	S1	None	None		Yes	
Rhaphiomidas trochilus	San Joaquin Valley giant flower-loving fly		G1	S1	None	None		Yes	

INSECTA, Order Lepidoptera (butterflies and moths)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Adela oplerella	Opler's longhorn moth		G2	S2	None	None		Yes	
Apodemia mormo langei	Lange's metalmark butterfly		G5T1	S1	Endangered	None		Yes	
Areniscythris brachypteris	Oso Flaco flightless moth		G1	S2	None	None		Yes	
Callophrys mossii bayensis	San Bruno elfin butterfly		G4T1	S2	Endangered	None		Yes	
Callophrys mossii hidakupa	San Gabriel Mountains elfin butterfly		G4T1T2	S1S2	None	None	USFS:S	Yes	
Callophrys mossii marinensis	Marin elfin butterfly		G4T1	S1	None	None		Yes	
Callophrys sheridanii comstocki	desert green hairstreak		G3G4	S1S2	None	None		No	
Callophrys thornei	Thorne's hairstreak		G3G4T2	S2	None	None	BLM:S	Yes	Yes
Carterocephalus palaemon magnus	Sonoma arctic skipper		G5T5	S1	None	None		Yes	
Cercyonis pegala carsonensis	Carson Valley wood nymph		G5T1T2	S1S2	None	None		No	
Chlosyne leanira elegans	Oso Flaco patch butterfly		G4G5T1T2	S1S2	None	None		Yes	
Coenonympha tullia yontockett	Yontocket satyr		G5T1T2	S1	None	None		Yes	
Danaus plexippus plexippus pop. 1	monarch - California overwintering population		G4T1T2	S2	Candidate	None	IUCN:EN USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Euchloe hyantis andrewsi	Andrew's marble butterfly		G4G5T1	S1	None	None		Yes	
Eucosma hennei	Henne's eucosman moth		G1	S1	None	None		Yes	
Eugnosta busckana	Busck's gallmoth		G1G3	SH	None	None		Yes	
Euphilotes battoides allyni	El Segundo blue butterfly		G5T1	S1	Endangered	None		Yes	
Euphilotes baueri	Bauer's dotted-blue		G2	S1S2	None	None	USFS:S	No	
Euphilotes enoptes smithi	Smith's blue butterfly		G5T1T2	S2	Endangered	None		Yes	
Euphilotes glaucon comstocki	Comstock's blue butterfly		G5T2	S2	None	None		Yes	
Euphilotes mojave	Mojave dotted-blue		G2G3	S1S2	None	None		No	
Euphydryas editha bayensis	Bay checkerspot butterfly		G5T1	S1	Threatened	None		Yes	
Euphydryas editha monoensis	Mono checkerspot butterfly		G5T2	S1S2	None	None	USFS:S	Yes	
Euphydryas editha quino	quino checkerspot butterfly		G5T1T2	S1S2	Endangered	None		Yes	
Euphyes vestris harbisoni	dun skipper		G5T1	S1S2	None	None		No	
Euproserpinus euterpe	Kern primrose sphinx moth		G1G2	S1	Threatened	None		Yes	Yes
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly		G5T1	S1	Endangered	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hesperia miriamae longaevicola	White Mountains skipper		G2G3T1	S1	None	None		Yes	
Hesperopsis gracielae	MacNeill's sootywing		G2G3	S1S2	None	None		No	
Icaricia icarioides albihalos	White Mountains icarioides blue butterfly		G5T2T3	S2?	None	None		Yes	
Icaricia icarioides missionensis	Mission blue butterfly		G5T1	S2	Endangered	None		Yes	
Icaricia icarioides moroensis	Morro Bay blue butterfly		G5T2	S2	None	None		Yes	
Icaricia icarioides parapheres	Point Reyes blue butterfly		G5T1T2	S1S2	None	None		Yes	
Icaricia icarioides pheres	Pheres blue butterfly		G5TX	SX	None	None		Yes	
Icaricia saepiolus albomontanus	White Mountains saepiolus blue butterfly		G5T2	S1S2	None	None		Yes	
Icaricia saepiolus aureolus	San Gabriel Mountains blue butterfly		G5T1	S1	None	None	USFS:S	Yes	
Lycaena hermes	Hermes copper butterfly		G1	S1	Threatened	None	IUCN:VU USFS:S	Yes	
Lycaena rubidus incana	White Mountains copper		G5T2T3	S1	None	None		No	
Panoquina errans	wandering (=saltmarsh) skipper		G4G5	S2	None	None	IUCN:NT	Yes	
Philotiella speciosa bohartorum	Boharts' blue butterfly		G3T1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Plebejus anna lotis	lotis blue butterfly		G4TH	SH	Endangered	None		Yes	
Plebulina emigdionis	San Emigdio blue butterfly		G1G2	S1S2	None	None	USFS:S	Yes	
Polites mardon	mardon skipper		G2	S1	None	None	USFS:S	Yes	
Polites sabuleti albamontana	White Mountains sandhill skipper		G5T2	S2	None	None		No	
Pseudocopaeodes eunus eunus	alkali skipper		G3T2	S2	None	None		No	
Pseudocopaeodes eunus obscurus	Carson wandering skipper		G3T1	S2	Endangered	None		Yes	
Pyrgus ruralis lagunae	Laguna Mountains skipper		G5T1	S1	Endangered	None		Yes	
Speyeria adiaste adiaste	unsilvered fritillary		G1G2T1	S1	None	None		Yes	
Speyeria callippe callippe	callippe silverspot butterfly		G5T1	S1	Endangered	None		Yes	
Speyeria egleis tehachapina	Tehachapi Mountain silverspot butterfly		G5T2	S2	None	None	USFS:S	Yes	
Speyeria nokomis carsonensis	Carson Valley silverspot		G3T1T2	S1	None	None		Yes	
Speyeria zerene behrensii	Behren's silverspot butterfly		G5T1	S1	Endangered	None		Yes	
Speyeria zerene hippolyta	Oregon silverspot butterfly		G5T1	S1	Threatened	None		Yes	
Speyeria zerene myrtleae	Myrtle's silverspot butterfly		G5T1	S1	Endangered	None		Yes	Yes
Speyeria zerene sonomensis	Sonoma zerene fritillary		G5T1	S1	None	None		Yes	

INSECTA, Order Trichoptera (caddisflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cryptochia denningi	Denning's cryptic caddisfly		G1G2	S1S2	None	None		Yes	
Cryptochia excella	Kings Canyon cryptochian caddisfly		G1G2	S1S2	None	None		Yes	
Cryptochia shasta	confusion caddisfly		G1G2	S1S2	None	None		Yes	
Desmona bethula	amphibious caddisfly		G2G3	S2S3	None	None		Yes	
Diplectrona californica	California diplectronan caddisfly		G1G2	S1S2	None	None		Yes	
Ecclisomyia bilera	Kings Creek ecclysomyian caddisfly		G1G2	S1S2	None	None		Yes	
Farula praelonga	long-tailed caddisfly		G1G2	S1S2	None	None		Yes	
Goeracea oregona	Sagehen Creek goeracean caddisfly		G3	S1S2	None	None		Yes	
Lepidostoma ermanae	Cold Spring caddisfly		G1G2	S1S2	None	None		Yes	
Limnephilus atercus	Fort Dick limnephilus caddisfly		G3G4	S1	None	None		Yes	
Neothremma genella	golden-horned caddisfly		G1G2	S1S2	None	None		Yes	
Neothremma siskiyou	Siskiyou caddisfly		G1G2	S1S2	None	None		No	
Parapsyche extensa	King's Creek parapsyche caddisfly		GH	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Rhyacophila lineata	Castle Crags rhyacophilan caddisfly		G1G3	S1S2	None	None		Yes	
Rhyacophila mosana	bilobed rhyacophilan caddisfly		G1G2Q	S1S2	None	None		Yes	
Rhyacophila spinata	spiny rhyacophilan caddisfly		G1G2	S3	None	None		Yes	

INSECTA, Order Hymenoptera (ants, bees, and wasps)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Andrena blennospermatis	Blennosperma vernal pool andrenid bee		G2	S2	None	None		Yes	
Andrena macswaini	An andrenid bee		G2	S2	None	None		Yes	
Andrena subapasta	An andrenid bee		G1G2	S1S2	None	None		Yes	
Argochrysis lassenae	Lassen cuckoo wasp		G1	S2	None	None		Yes	
Ashmeadiella chumashae	Channel Islands leaf-cutter bee		G2?	S2?	None	None		Yes	
Bombus caliginosus	obscure bumble bee		G2G3	S1S2	None	None	IUCN:VU	Yes	
Bombus crotchii	Crotch bumble bee		G2	S2	None	Candidate Endangered	IUCN:EN	Yes	Yes
Bombus franklini	Franklin's bumble bee		G1	SH	Endangered	Candidate Endangered	IUCN:CR	Yes	Yes
Bombus morrisoni	Morrison bumble bee		G3	S1S2	None	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bombus occidentalis	western bumble bee		G3	S1	None	Candidate Endangered	IUCN:VU USFS:S	Yes	Yes
Bombus pensylvanicus	American bumble bee		G3G4	S2	None	None	IUCN:VU	No	
Bombus suckleyi	Suckley's cuckoo bumble bee		G2G3	S1	None	Candidate Endangered	IUCN:CR	Yes	Yes
Ceratochrysis bradleyi	Bradley's cuckoo wasp		G1	S1	None	None		Yes	
Ceratochrysis gracilis	Piute Mountains cuckoo wasp		G1	S1	None	None		Yes	
Ceratochrysis longimala	Desert cuckoo wasp		G1	S1	None	None		Yes	
Ceratochrysis menkei	Menke's cuckoo wasp		G1	S2	None	None		Yes	
Chrysis tularensis	Tulare cuckoo wasp		G1G2	S1S2	None	None		Yes	
Cleptes humboldti	Humboldt cuckoo wasp		G1G2	S1S2	None	None		Yes	
Dufourea stagei	Stage's dufourine bee		G1G2	S1	None	None		Yes	
Eucerceris ruficeps	redheaded sphecid wasp		G1G3	S1S2	None	None		Yes	
Euparagia unidentata	Algodones euparagia		G1G2	S1S2	None	None		Yes	
Habropoda pallida	white faced bee		G1G2	S1S2	None	None		No	
Halictus harmonius	haromonius halictid bee		G1	S3	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hedychridium argenteum	Riverside cuckoo wasp		G1G2	S1S2	None	None		Yes	
Hedychridium milleri	Borax Lake cuckoo wasp		G1	S1	None	None		Yes	
Lasioglossum channelense	Channel Island sweat bee		G1	S3	None	None		Yes	
Melitta californica	California mellitid bee		G4?	S2?	None	None		Yes	
Microbembex elegans	Algodones elegant sand wasp		G1G2	S1S2	None	None		Yes	
Minymischa ventura	Ventura cuckoo wasp		GU	SU	None	None		Yes	
Myrmosula pacifica	Antioch multilid wasp		GH	SH	None	None		Yes	
Neolarra alba	white cuckoo bee		GH	SH	None	None		Yes	
Paranomada californica	California cuckoo bee		G1	S1	None	None		Yes	
Parnopes borregoensis	Borrego parnopes cuckoo wasp		G1G2	S1S2	None	None		Yes	
Perdita algodones	Algodones perdita		G1G2	S1S2	None	None		Yes	
Perdita frontalis	Imperial Perdita		G1G2	S1S2	None	None		Yes	
Perdita hirticeps luteocincta	yellow-banded andrenid bee		GNRTX	SX	None	None		No	
Perdita scitula antiochensis	Antioch andrenid bee		G1T1	S1	None	None		Yes	
Perdita stephanomeriae	a miner bee		GNR	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Philanthus nasalis	Antioch specid wasp		G1	S2	None	None		Yes	
Protodufourea wasbaueri	Wasbauer's protodufourea bee		G1	S1	None	None		Yes	
Protodufourea zavortinki	Zavortink's protodufourea bee		G1	S1	None	None		Yes	
Rhopalolemma robertsi	Roberts' rhopalolemma bee		G1	S1	None	None		Yes	
Sedomaya glamisensis	Glamis night tiphiid		G1G2	S1S2	None	None		No	
Sphaeropthalma ecarinata	Glamis night mutillid		G1G2	S1S2	None	None		No	
Sphecodogastra antiochensis	Antioch Dunes halcitid bee		G1	S1	None	None		Yes	
Stictiella villegasi	Algodones sand wasp		G1G2	S1S2	None	None		No	
Trachusa gummifera	San Francisco Bay Area leaf-cutter bee		G1	S1	None	None		Yes	

Fishes

PETROMYZONTIDAE (lampreys)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Entosphenus folletti	northern California brook lamprey		G1G2	S1S2	None	None	CDFW:SSC	Yes	
Entosphenus lethophagus	Pit-Klamath brook lamprey		G3G4	S3	None	None	AFS:VU CDFW:SSC IUCN:LC	Yes	
Entosphenus similis	Klamath River lamprey		G3G4Q	S3	None	None	AFS:TH CDFW:SSC IUCN:NT USFS:S	Yes	
Entosphenus tridentatus	Pacific lamprey		G4	S3	None	None	AFS:VU BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Entosphenus tridentatus ssp. 1	Goose Lake lamprey		G4T1	S1	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Lampetra ayresii	western river lamprey		G5	S3	None	None	AFS:VU CDFW:SSC IUCN:LC	No	
Lampetra hubbsi	Kern brook lamprey		G1G2	S1S2	None	None	AFS:TH CDFW:SSC IUCN:VU USFS:S	Yes	
Lampetra richardsoni	western brook lamprey		G4G5	S3S4	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	

ACIPENSERIDAE (sturgeon)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Acipenser medirostris pop. 1	green sturgeon - southern DPS		G2T1	S1	Threatened	None	AFS:VU IUCN:EN	Yes	
Acipenser medirostris pop. 2	green sturgeon - northern DPS		G2T1	S1	None	None	AFS:VU CDFW:SSC IUCN:VU	Yes	
Acipenser transmontanus	white sturgeon		G4	S2	None	None	AFS:EN CDFW:SSC IUCN:VU	No	

SALMONIDAE (trout and salmon)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus clarkii clarkii	coast cutthroat trout		G5T4	S3	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Oncorhynchus clarkii henshawi	Lahontan cutthroat trout		G5T3	S2	Threatened	None	AFS:TH	Yes	
Oncorhynchus clarkii seleniris	Paiute cutthroat trout		G5T1	S1	Threatened	None	AFS:EN	Yes	
Oncorhynchus gorbuscha	pink salmon		G5	S1	None	None		Yes	
Oncorhynchus keta	chum salmon		G5	S1	None	None		No	
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU		G5T2Q	S2	Threatened	Threatened	AFS:TH	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU		G5T2Q	S2	Endangered	Endangered	AFS:EN	Yes	Yes
Oncorhynchus mykiss aguabonita	California golden trout		G5T1	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss aquilarum	Eagle Lake rainbow trout		G5T1	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss gilberti	Kern River rainbow trout		G5T1Q	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss irideus pop. 1	steelhead - Klamath Mountains Province DPS		G5T3Q	S2	None	None	CDFW:SSC USFS:S	No	Yes
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS		G5T1Q	S1	Endangered	Candidate Endangered	AFS:EN	Yes	Yes
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS		G5T2Q	S2	Threatened	None	AFS:TH	Yes	Yes
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS		G5T2T3Q	S1	Threatened	None	AFS:TH	Yes	Yes
Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run		G5TNRQ	S2	Threatened	Endangered	AFS:TH	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run		G5TNRQ	S3	Threatened	None	AFS:TH	No	
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS		G5T2T3Q	S3	Threatened	None	AFS:TH	Yes	Yes
Oncorhynchus mykiss irideus pop. 9	steelhead - south-central California coast DPS		G5T2Q	S2	Threatened	None	AFS:TH	Yes	Yes
Oncorhynchus mykiss ssp. 1	Goose Lake redband trout		G5T2Q	S2	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss ssp. 2	McCloud River redband trout		G5T1T2	S1S2	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss ssp. 3	Warner Valley redband trout		G5T2Q	S1?	None	None	AFS:VU USFS:S	No	
Oncorhynchus mykiss whitei	Little Kern golden trout		G5T2	S3	Threatened	None	AFS:EN	Yes	
Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU		G5T2Q	S2	Threatened	Threatened	AFS:TH	Yes	Yes
Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU		G5T3Q	S3	None	None	AFS:VU CDFW:SSC USFS:S	No	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus tshawytscha pop. 14	chinook salmon - southern Oregon/northern California coastal		G5T3Q	SNR	None	None	CDFW:SSC	No	
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU		G5T2Q	S2	Threatened	None	AFS:TH	Yes	Yes
Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU		G5T2Q	S2	Candidate	Threatened	CDFW:SSC USFS:S	Yes	
Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU		G5T1Q	S2	Endangered	Endangered	AFS:EN	Yes	
Prosopium williamsoni	mountain whitefish		G5	S3	None	None	CDFW:SSC	Yes	
Salvelinus confluentus	bull trout		G5	SX	Threatened	Endangered	IUCN:VU	Yes	

OSMERIDAE (smelt)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hypomesus transpacificus	Delta smelt		G1	S1	Threatened	Endangered	AFS:TH IUCN:CR	Yes	
Spirinchus thaleichthys	longfin smelt		G5	S1	Candidate	Threatened	IUCN:LC	Yes	Yes
Thaleichthys pacificus	eulachon		G5	S1	Threatened	None	IUCN:LC	Yes	Yes

CYPRINIDAE (minnows and carp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gila coerulea	blue chub		G3G4	S2S3	None	None	CDFW:SSC IUCN:LC	Yes	
Gila elegans	bonytail		G1	SH	Endangered	Endangered	AFS:EN IUCN:CR	Yes	
Gila orcuttii	arroyo chub		G2	S2	None	None	AFS:VU CDFW:SSC IUCN:VU USFS:S	Yes	
Hesperoleucus mitrulus	northern roach		G2	S2	None	None	AFS:VU CDFW:SSC	Yes	
Hesperoleucus parvipinnis	Gualala roach		G3	S3	None	None	CDFW:SSC	Yes	
Hesperoleucus symmetricus serpentinus	Red Hills roach		GNRT1	S1	None	None	AFS:VU BLM:S CDFW:SSC	Yes	
Hesperoleucus symmetricus symmetricus	central California roach		GNRT3	S3	None	None	CDFW:SSC	Yes	
Hesperoleucus venustus navarroensis	northern coastal roach		GNRT3	S3	None	None	CDFW:SSC	Yes	
Hesperoleucus venustus subditus	southern coastal roach		GNRT2	S2	None	None	CDFW:SSC	Yes	
Hesperoleucus venustus x H. symmetricus	Clear Lake roach		G3	S3	None	None	CDFW:SSC	No	
Lavinia exilicauda chi	Clear Lake hitch		G4T1	S1	None	Threatened	AFS:VU USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lavinia exilicauda exilicauda	Sacramento hitch		G4T3	S3	None	None	CDFW:SSC	No	
Lavinia exilicauda harengus	Monterey hitch		G4T3	S3	None	None	CDFW:SSC	Yes	
Mylopharodon conocephalus	hardhead		G3	S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	
Pogonichthys macrolepidotus	Sacramento splittail		G3	S3	None	None	AFS:VU CDFW:SSC IUCN:LC	Yes	
Ptychocheilus lucius	Colorado pikeminnow		G1	SX	Endangered	Endangered	CDFW:FP IUCN:VU	Yes	
Rhinichthys osculus ssp. 1	Amargosa Canyon speckled dace		G5T3Q	S3	None	None	AFS:TH BLM:S CDFW:SSC	Yes	Yes
Rhinichthys osculus ssp. 12	Long Valley speckled dace		G5T1	S1	None	None	AFS:EN CDFW:SSC	Yes	Yes
Rhinichthys osculus ssp. 2	Owens speckled dace		G5T2Q	S2	None	None	AFS:TH BLM:S CDFW:SSC	Yes	Yes
Rhinichthys osculus ssp. 8	Santa Ana speckled dace		G5T1	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	Yes
Siphateles bicolor mohavensis	Mohave tui chub		G4T1	S1	Endangered	Endangered	AFS:EN CDFW:FP	Yes	
Siphateles bicolor pectinifer	Lahontan Lake tui chub		G4T3	S1S2	None	None	CDFW:SSC	Yes	
Siphateles bicolor snyderi	Owens tui chub		G4T1	S1	Endangered	Endangered	AFS:EN	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Siphateles bicolor ssp. 11	High Rock Springs tui chub		G4TX	SX	None	None		Yes	Yes
Siphateles bicolor ssp. 12	Eagle Lake tui chub		G4T1T2	S1S2	None	None	CDFW:SSC	Yes	Yes
Siphateles bicolor ssp. 14	Pit River tui chub		G4T1T3	S1S3	None	None		No	Yes
Siphateles bicolor thalassinus	Goose Lake tui chub		G4T2T3	S2	None	None	AFS:TH CDFW:SSC	Yes	
Siphateles bicolor vaccaceps	Cow Head tui chub		G4T1	S1	None	None	AFS:EN BLM:S CDFW:SSC	Yes	

CATOSTOMIDAE (suckers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Catostomus fumeiventris	Owens sucker		G3	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Catostomus lahontan	Lahontan mountain sucker		GNR	S2	None	None	CDFW:SSC	Yes	
Catostomus latipinnis	flannelmouth sucker		G3G4	S1	None	None	IUCN:LC	Yes	
Catostomus microps	Modoc sucker		G2	S2	Delisted	Endangered	AFS:EN CDFW:FP IUCN:NT	Yes	
Catostomus occidentalis lacusanserinus	Goose Lake sucker		G5T2Q	S1	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Catostomus rimiculus ssp. 1	Jenny Creek sucker		G5T2Q	S1	None	None	AFS:VU	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Catostomus santaanae	Santa Ana sucker		G1	S1	Threatened	None	AFS:TH IUCN:EN	Yes	
Catostomus snyderi	Klamath largescale sucker		G3	S3	None	None	AFS:TH CDFW:SSC IUCN:NT	Yes	
Chasmistes brevirostris	shortnose sucker		G1	S1	Endangered	Endangered	AFS:EN CDFW:FP IUCN:EN	Yes	
Deltistes luxatus	Lost River sucker		G1	S1	Endangered	Endangered	AFS:EN CDFW:FP IUCN:EN	Yes	
Xyrauchen texanus	razorback sucker		G1	S1S2	Endangered	Endangered	AFS:EN CDFW:FP IUCN:CR	Yes	

CYPRINODONTIDAE (killifishes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cyprinodon macularius	desert pupfish		G1	S1	Endangered	Endangered	AFS:EN IUCN:VU	Yes	
Cyprinodon nevadensis amargosae	Amargosa pupfish		G2T1T2	S1S2	None	None	AFS:VU BLM:S CDFW:SSC IUCN:VU	Yes	
Cyprinodon nevadensis nevadensis	Saratoga Springs pupfish		G2T1	S1	None	None	AFS:TH CDFW:SSC IUCN:VU	Yes	
Cyprinodon nevadensis shoshone	Shoshone pupfish		G2T1	S1	None	None	AFS:EN CDFW:SSC IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cyprinodon radiosus	Owens pupfish		G1	S1	Endangered	Endangered	AFS:EN CDFW:FP IUCN:EN	Yes	
Cyprinodon salinus milleri	Cottonball Marsh pupfish		G1T1Q	S1	None	Threatened	AFS:TH IUCN:EN	Yes	
Cyprinodon salinus salinus	Salt Creek pupfish		G1T1	S1	None	None	AFS:VU CDFW:SSC IUCN:EN	Yes	

GASTEROSTEIDAE (sticklebacks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gasterosteus aculeatus microcephalus	resident threespine stickleback	South of Pt. Conception only	G5T2T3	S2S3	None	None		No	Yes
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback		G5T1	S1	Endangered	Endangered	AFS:EN CDFW:FP	Yes	Yes

CENTRARCHIDAE (sunfishes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Archoplites interruptus	Sacramento perch	Within native range only	G1	S1	None	None	AFS:TH CDFW:SSC IUCN:EN	Yes	

EMBIOTOCIDAE (surfperches)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hysterocarpus traskii lagunae	Clear Lake tule perch		G5T3	S3	None	None	CDFW:SSC	Yes	
Hysterocarpus traskii pomo	Russian River tule perch		G5T4	S4	None	None	AFS:VU CDFW:SSC	Yes	
Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch		G5T2T3	S2S3	None	None		No	

GOBIIDAE (gobies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eucyclogobius newberryi	tidewater goby		G3	S3	Endangered	None	AFS:EN IUCN:NT	Yes	

COTTIDAE (sculpins)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cottus asper ssp.	Clear Lake prickly sculpin		G5T1	SNR	None	None	CDFW:SSC	No	
Cottus asperrimus	rough sculpin		G2	S2	None	Threatened	AFS:VU BLM:S CDFW:FP IUCN:NT	Yes	
Cottus gulosus	riffle sculpin		G5	S4	None	None	CDFW:SSC IUCN:LC	No	
Cottus klamathensis klamathensis	Upper Klamath marbled sculpin		G4T1T2	S1S2	None	None	CDFW:SSC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cottus klamathensis macrops	bigeye marbled sculpin		G4T2T3	S2S3	None	None	AFS:VU CDFW:SSC	Yes	
Cottus klamathensis polyporus	Lower Klamath marbled sculpin		G4T2T4	S2S4	None	None	CDFW:SSC	Yes	
Cottus perplexus	reticulate sculpin		G4	S2S3	None	None	IUCN:LC	No	

Amphibians

AMBYSTOMATIDAE (mole salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ambystoma californiense pop. 1	California tiger salamander - central California DPS		G2G3T3	S3	Threatened	Threatened	CDFW:WL IUCN:VU	Yes	
Ambystoma californiense pop. 2	California tiger salamander - Santa Barbara County DPS		G2G3T2	S2	Endangered	Threatened	CDFW:WL IUCN:VU	Yes	
Ambystoma californiense pop. 3	California tiger salamander - Sonoma County DPS		G2G3T2	S2	Endangered	Threatened	CDFW:WL IUCN:VU	Yes	
Ambystoma macrodactylum croceum	Santa Cruz long-toed salamander		G5T1T2	S1S2	Endangered	Endangered	CDFW:FP	Yes	
Ambystoma macrodactylum sigillatum	southern long-toed salamander		G5T4	S3	None	None	CDFW:SSC	Yes	

DICAMPTODONTIDAE (giant salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dicamptodon ensatus	California giant salamander		G2G3	S2S3	None	None	CDFW:SSC IUCN:NT	Yes	

RHYACOTRITONIDAE (Olympic salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Rhyacotriton variegatus	southern torrent salamander		G3G4	S2S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	

SALAMANDRIDAE (newts)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Taricha rivularis	red-bellied newt		G2	S2	None	None	CDFW:SSC IUCN:LC	Yes	
Taricha torosa	Coast Range newt	Monterey Co. & south only	G4	S4	None	None	CDFW:SSC	Yes	

PLETHODONTIDAE (lungless salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aneides niger	Santa Cruz black salamander		G3	S3	None	None	CDFW:SSC	Yes	Yes
Batrachoseps altasierrae	Greenhorn Mountains slender salamander		G2	S2	None	None		Yes	
Batrachoseps bramei	Fairview slender salamander		G3	S3	None	None	USFS:S	Yes	
Batrachoseps campi	Inyo Mountains slender salamander		G3	S3	None	None	BLM:S CDFW:SSC IUCN:EN USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Batrachoseps diabolicus	Hell Hollow slender salamander		G3	S3	None	None	IUCN:DD	No	
Batrachoseps gabrieli	San Gabriel slender salamander		G2G3	S2S3	None	None	IUCN:DD USFS:S	Yes	
Batrachoseps incognitus	San Simeon slender salamander		G2	S2	None	None	IUCN:DD USFS:S	No	
Batrachoseps kawia	Sequoia slender salamander		G2	S2	None	None	IUCN:DD	No	
Batrachoseps luciae	Santa Lucia slender salamander		G3	S3	None	None	IUCN:LC	No	
Batrachoseps major aridus	desert slender salamander		G4T1	S1	Endangered	Endangered		Yes	
Batrachoseps minor	lesser slender salamander		G1	S1	None	None	CDFW:SSC IUCN:DD USFS:S	Yes	
Batrachoseps pacificus	Channel Islands slender salamander		G3G4	S3S4	None	None	IUCN:LC	Yes	
Batrachoseps regius	Kings River slender salamander		G2G3	S2S3	None	None	IUCN:VU USFS:S	Yes	
Batrachoseps relictus	relictual slender salamander		G1	S1	Proposed Endangered	None	CDFW:SSC IUCN:DD USFS:S	Yes	Yes
Batrachoseps robustus	Kern Plateau salamander		G3	S3	None	None	IUCN:NT	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Batrachoseps simatus	Kern Canyon slender salamander		G2G3	S2S3	Proposed Threatened	Threatened	IUCN:VU USFS:S	Yes	
Batrachoseps stebbinsi	Tehachapi slender salamander		G2G3	S2S3	None	Threatened	BLM:S IUCN:VU	Yes	
Batrachoseps wakei	Arguello slender salamander		GNR	S1	None	None		Yes	
Ensatina eschscholtzii croceater	yellow-blotched salamander		G5T3	S3	None	None	BLM:S CDFW:WL USFS:S	Yes	
Ensatina eschscholtzii klauberi	large-blotched salamander		G5T2?	S3	None	None	CDFW:WL USFS:S	Yes	
Hydromantes brunus	limestone salamander		G2G3	S2S3	None	Threatened	BLM:S CDFW:FP IUCN:VU USFS:S	Yes	
Hydromantes platycephalus	Mount Lyell salamander		G4	S4	None	None	CDFW:WL IUCN:LC	Yes	
Hydromantes shastae	Shasta salamander		G3	S3	None	Threatened	BLM:S IUCN:VU USFS:S	Yes	Yes
Plethodon asupak	Scott Bar salamander		G1G2	S1S2	None	Threatened	IUCN:VU	Yes	Yes
Plethodon elongatus	Del Norte salamander		G4	S3	None	None	CDFW:WL IUCN:NT	Yes	
Plethodon stormi	Siskiyou Mountains salamander		G3?	S1S2	None	Threatened	IUCN:EN USFS:S	Yes	

ASCAPHIDAE (tailed frogs)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ascaphus truei	Pacific tailed frog		G4	S3S4	None	None	CDFW:SSC IUCN:LC	Yes	

SCAPHIOPODIDAE (spadefoot toads)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Scaphiopus couchii	Couch's spadefoot		G5	S2	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Spea hammondii	western spadefoot		G2G3	S3S4	None	None	BLM:S CDFW:SSC IUCN:NT	Yes	

BUFONIDAE (true toads)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anaxyrus californicus	arroyo toad		G2G3	S2	Endangered	None	CDFW:SSC IUCN:EN	Yes	Yes
Anaxyrus canorus	Yosemite toad		G2G3	S2	Threatened	None	CDFW:SSC IUCN:EN USFS:S	Yes	Yes
Anaxyrus exsul	black toad		G1	S1	None	Threatened	BLM:S CDFW:FP IUCN:VU USFS:S	Yes	Yes
Incilius alvarius	Sonoran Desert toad		G5	SH	None	None	CDFW:SSC IUCN:LC	Yes	Yes

RANIDAE (true frogs)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lithobates pipiens	northern leopard frog	Native populations only	G5	S2	None	None	CDFW:SSC IUCN:LC	Yes	Yes
Lithobates yavapaiensis	lowland leopard frog		G4	SX	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	Yes
Rana aurora	northern red-legged frog		G4	S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	Yes
Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS		G3TNRQ	S4	None	None	BLM:S CDFW:SSC USFS:S	Yes	
Rana boylii pop. 2	foothill yellow-legged frog - Feather River DPS		G3T2	S2	Proposed Threatened	Threatened	BLM:S USFS:S	Yes	
Rana boylii pop. 3	foothill yellow-legged frog - north Sierra DPS		G3T2	S2	None	Threatened	BLM:S USFS:S	Yes	
Rana boylii pop. 4	foothill yellow-legged frog - central coast DPS		G3T2	S2	Proposed Threatened	Endangered	BLM:S USFS:S	Yes	
Rana boylii pop. 5	foothill yellow-legged frog - south Sierra DPS		G3T2	S2	Proposed Endangered	Endangered	BLM:S USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Rana boylii pop. 6	foothill yellow-legged frog - south coast DPS		G3T1	S1	Proposed Endangered	Endangered	BLM:S USFS:S	Yes	
Rana cascadae	Cascades frog		G3G4	S3	None	Candidate Endangered	CDFW:SSC IUCN:NT USFS:S	Yes	
Rana draytonii	California red-legged frog		G2G3	S2S3	Threatened	None	CDFW:SSC IUCN:VU	Yes	Yes
Rana muscosa	southern mountain yellow-legged frog		G1	S1	Endangered	Endangered	CDFW:WL IUCN:EN USFS:S	Yes	Yes
Rana pretiosa	Oregon spotted frog		G2	SH	Threatened	None	BLM:S CDFW:SSC IUCN:VU	Yes	
Rana sierrae	Sierra Nevada yellow-legged frog		G1	S1	Endangered	Threatened	CDFW:WL IUCN:EN USFS:S	Yes	Yes

Reptiles

CHELONIIDAE (sea turtles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chelonia mydas	green turtle		G3	S1	Threatened	None	IUCN:EN	Yes	

KINOSTERNIDAE (musk and mud turtles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Kinosternon sonoriense	Sonoran mud turtle		G4	SH	None	None	CDFW:SSC IUCN:NT	Yes	

EMYDIDAE (box and water turtles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Emys marmorata	western pond turtle		G3G4	S3	None	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	Yes

TESTUDINIDAE (land tortoises)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gopherus agassizii	desert tortoise		G3	S2S3	Threatened	Threatened	IUCN:CR	Yes	

GEKKONIDAE (geckos)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Coleonyx switaki	barefoot banded gecko		G4	S1	None	Threatened	BLM:S IUCN:LC	Yes	
Coleonyx variegatus abbotti	San Diego banded gecko		G5T5	S1S2	None	None	CDFW:SSC	Yes	

CROTAPHYTIDAE (collared and leopard lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gambelia copeii	Cope's leopard lizard		G5	S1S2	None	None	CDFW:SSC IUCN:LC	Yes	
Gambelia sila	blunt-nosed leopard lizard		G1	S1	Endangered	Endangered	CDFW:FP IUCN:EN	Yes	

PHRYNOSOMATIDAE (spiny lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Phrynosoma blainvillii	coast horned lizard		G3G4	S4	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Phrynosoma mcallii	flat-tailed horned lizard		G3	S3	None	None	BLM:S CDFW:SSC IUCN:NT	Yes	
Sceloporus graciosus graciosus	northern sagebrush lizard		G5T5	S3	None	None	BLM:S	Yes	
Uma inornata	Coachella Valley fringe-toed lizard		G1Q	S1	Threatened	Endangered	IUCN:EN	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Uma notata	Colorado Desert fringe-toed lizard		G3	S2	None	None	BLM:S CDFW:SSC IUCN:NT	Yes	
Uma scoparia	Mojave fringe-toed lizard		G3G4	S3S4	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	

XANTUSIIDAE (night lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Xantusia gracilis	sandstone night lizard		G1	S1	None	None	CDFW:SSC IUCN:VU	Yes	
Xantusia riversiana	island night lizard		G3	S3	Delisted	None	IUCN:LC	Yes	
Xantusia vigilis sierrae	Sierra night lizard		G5T1	S1	None	None	CDFW:SSC USFS:S	Yes	Yes

SCINCIDAE (skinks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Plestiodon skiltonianus interparietalis	Coronado skink		G5T5	S2S3	None	None	BLM:S CDFW:WL	Yes	

TEIIDAE (whiptails and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aspidoscelis hyperythra	orange-throated whiptail		G5	S2S3	None	None	CDFW:WL IUCN:LC USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aspidoscelis tigris stejnegeri	coastal whiptail		G5T5	S3	None	None	CDFW:SSC	Yes	

ANGUIDAE (alligator lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Elgaria panamintina	Panamint alligator lizard		G3	S3	None	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	

ANNIELLIDAE (legless lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anniella alexanderae	Temblor legless lizard		G1	S1	None	Candidate Endangered	CDFW:SSC	Yes	Yes
Anniella campi	Southern Sierra legless lizard		G1G2	S2	None	None	CDFW:SSC USFS:S	Yes	Yes
Anniella grinnelli	Bakersfield legless lizard		G2G3	S2S3	None	None	CDFW:SSC	Yes	Yes
Anniella pulchra	Northern California legless lizard		G3	S2S3	None	None	CDFW:SSC USFS:S	Yes	Yes
Anniella spp.	California legless lizard		G3G4	S3S4	None	None	CDFW:SSC	Yes	Yes
Anniella stebbinsi	Southern California legless lizard		G3	S3	None	None	CDFW:SSC USFS:S	Yes	Yes

HELODERMATIDAE (venomous lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Heloderma suspectum cinctum	banded Gila monster		G4T4	S1	None	None	BLM:S CDFW:SSC	Yes	Yes

BOIDAE (boas)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Charina umbratica	southern rubber boa		G2G3	S2S3	None	Threatened	IUCN:VU USFS:S	Yes	

COLUBRIDAE (egg-laying snakes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Arizona elegans occidentalis	California glossy snake		G5T2	S2	None	None	CDFW:SSC	Yes	
Diadophis punctatus modestus	San Bernardino ringneck snake		G5T2T3	S2?	None	None	USFS:S	Yes	
Diadophis punctatus regalis	regal ringneck snake		G5TNR	S2	None	None	CDFW:SSC	Yes	
Diadophis punctatus similis	San Diego ringneck snake		G5T4	S2?	None	None	USFS:S	Yes	
Masticophis flagellum ruddocki	San Joaquin coachwhip		G5T2T3	S3	None	None	CDFW:SSC	Yes	
Masticophis fuliginosus	Baja California coachwhip		G5	S1S2	None	None	CDFW:SSC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Masticophis lateralis euryxanthus	Alameda whipsnake		G4T2	S2	Threatened	Threatened		Yes	
Pituophis catenifer pumilus	Santa Cruz Island gophersnake		G5T1T2	S1?	None	None	CDFW:WL	No	
Salvadora hexalepis virgultea	coast patch-nosed snake		G5T4	S3	None	None	CDFW:SSC	Yes	

NATRICIDAE (live-bearing snakes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Thamnophis gigas	giant gartersnake		G2	S2	Threatened	Threatened	IUCN:VU	Yes	
Thamnophis hammondii	two-striped gartersnake		G4	S3S4	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Thamnophis hammondii pop. 1	Santa Catalina gartersnake		G4T1?	S1	None	None		No	
Thamnophis sirtalis pop. 1	south coast gartersnake	Coastal plain from Ventura Co. to San Diego Co., from sea level to about 850 m.	G5T1T2	S1S2	None	None	CDFW:SSC	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Thamnophis sirtalis tetrataenia	San Francisco gartersnake		G5T2Q	S2	Endangered	Endangered	CDFW:FP	Yes	

VIPERIIDAE (vipers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Crotalus ruber	red-diamond rattlesnake		G4	S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	

Birds

ANATIDAE (ducks, geese, and swans)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anser albifrons elgasi	tule greater white-fronted goose	Wintering	G5T3	S3	None	None	CDFW:SSC	No	
Aythya americana	redhead	Nesting	G5	S3S4	None	None	CDFW:SSC IUCN:LC	No	
Aythya valisineria	canvasback	Nesting	G5	S2	None	None	IUCN:LC	No	
Branta bernicla	brant	Wintering & staging	G5	S2	None	None	CDFW:SSC IUCN:LC	No	
Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	Wintering	G5T3	S3	Delisted	None	CDFW:WL	Yes	
Bucephala islandica	Barrow's goldeneye	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	No	
Dendrocygna bicolor	fulvous whistling-duck	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	Yes	
Histrionicus histrionicus	harlequin duck	Nesting	G4	S1	None	None	CDFW:SSC IUCN:LC	Yes	

PHASIANIDAE (grouse and ptarmigan)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bonasa umbellus	ruffed grouse		G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	
Centrocercus urophasianus	greater sage-grouse	Nesting & leks	G3G4	S2S3	None	None	BLM:S CDFW:SSC IUCN:NT USFS:S	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dendragapus fuliginosus howardi	Mount Pinos sooty grouse		G5T2T3	S2S3	None	None	CDFW:SSC	Yes	Yes
Tympanuchus phasianellus columbianus	Columbian sharp-tailed grouse		G5T3	SX	None	None	CDFW:SSC	No	

ODONTOPHORIDAE (partridge and quail)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Callipepla californica catalinensis	Catalina California quail		G5T2	S2	None	None	CDFW:SSC	No	

GAVIIDAE (loons)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gavia immer	common loon	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	No	

DIOMEDEIDAE (albatrosses)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Phoebastria albatrus	short-tailed albatross		G1	S1	Endangered	None	CDFW:SSC IUCN:VU NABCI:RWL	No	

HYDROBATIDAE (storm petrels)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hydrobates furcatus	fork-tailed storm-petrel	Nesting colony	G5	S1	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Hydrobates homochroa	ashy storm-petrel	Nesting colony	G2	S2	None	None	BLM:S CDFW:SSC IUCN:EN NABCI:RWL USFWS:BCC	Yes	
Hydrobates melania	black storm-petrel	Nesting colony	G3G4	S1	None	None	CDFW:SSC IUCN:LC NABCI:YWL USFWS:BCC	Yes	

PELECANIIDAE (pelicans)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pelecanus erythrorhynchos	American white pelican	Nesting colony	G4	S1S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Pelecanus occidentalis californicus	California brown pelican	Nesting colony & communal roosts	G4T3T4	S3	Delisted	Delisted	BLM:S CDFW:FP USFS:S	Yes	

PHALACROCORACIDAE (cormorants)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Nannopterum auritum	double-crested cormorant	Nesting colony	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	

ARDEIDAE (herons, egrets, and bitterns)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ardea alba	great egret	Nesting colony	G5	S4	None	None	CDF:S IUCN:LC	Yes	
Ardea herodias	great blue heron	Nesting colony	G5	S4	None	None	CDF:S IUCN:LC	Yes	
Botaurus lentiginosus	American bittern		G5	S3S4	None	None	IUCN:LC	No	
Egretta thula	snowy egret	Nesting colony	G5	S4	None	None	IUCN:LC	Yes	
Ixobrychus exilis	least bittern	Nesting	G4G5	S2	None	None	CDFW:SSC IUCN:LC	Yes	
Nycticorax nycticorax	black-crowned night heron	Nesting colony	G5	S4	None	None	IUCN:LC	Yes	

THRESKIORNITHIDAE (ibises and spoonbills)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Plegadis chihi	white-faced ibis	Nesting colony	G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	

CICONIIDAE (storks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Mycteria americana	wood stork		G4	S1	None	None	CDFW:SSC IUCN:LC	No	

CATHARTIDAE (New World vultures)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gymnogyps californianus	California condor		G1	S1	Endangered	Endangered	CDF:S CDFW:FP IUCN:CR NABCI:RWL	Yes	

PANDIONIDAE (ospreys)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pandion haliaetus	osprey	Nesting	G5	S4	None	None	CDF:S CDFW:WL IUCN:LC	Yes	

ACCIPITRIDAE (hawks, kites, harriers, and eagles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Accipiter cooperii	Cooper's hawk	Nesting	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Accipiter gentilis	northern goshawk	Nesting	G5	S3	None	None	BLM:S CDF:S CDFW:SSC IUCN:LC USFS:S	Yes	
Accipiter striatus	sharp-shinned hawk	Nesting	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	
Aquila chrysaetos	golden eagle	Nesting and wintering	G5	S3	None	None	BLM:S CDF:S CDFW:FP CDFW:WL IUCN:LC	Yes	
Buteo regalis	ferruginous hawk	Wintering	G4	S3S4	None	None	CDFW:WL IUCN:LC	Yes	
Buteo swainsoni	Swainson's hawk	Nesting	G5	S3	None	Threatened	BLM:S IUCN:LC	Yes	
Circus hudsonius	northern harrier	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	Yes
Elanus leucurus	white-tailed kite	Nesting	G5	S3S4	None	None	BLM:S CDFW:FP IUCN:LC	Yes	
Haliaeetus leucocephalus	bald eagle	Nesting and wintering	G5	S3	Delisted	Endangered	BLM:S CDF:S CDFW:FP IUCN:LC USFS:S	Yes	
Parabuteo unicinctus	Harris' hawk	Nesting	G5	S1	None	None	CDFW:WL IUCN:LC	No	

FALCONIDAE (falcons)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Falco columbarius	merlin	Wintering	G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	
Falco mexicanus	prairie falcon	Nesting	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	
Falco peregrinus anatum	American peregrine falcon	Nesting	G4T4	S3S4	Delisted	Delisted	CDF:S CDFW:FP	Yes	

RALLIDAE (rails, coots, and gallinules)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Coturnicops noveboracensis	yellow rail		G4	S1S2	None	None	CDFW:SSC IUCN:LC NABCI:RWL USFS:S USFWS:BCC	Yes	
Laterallus jamaicensis coturniculus	California black rail		G3T1	S1	None	Threatened	BLM:S CDFW:FP IUCN:EN NABCI:RWL	Yes	Yes
Rallus obsoletus levipes	light-footed Ridgway's rail		G3T1T2	S1	Endangered	Endangered	CDFW:FP NABCI:RWL	Yes	Yes
Rallus obsoletus obsoletus	California Ridgway's rail		G3T1	S1	Endangered	Endangered	CDFW:FP NABCI:RWL	Yes	Yes
Rallus obsoletus yumanensis	Yuma Ridgway's rail		G3T3	S1S2	Endangered	Threatened	CDFW:FP NABCI:RWL	Yes	Yes

GRUIDAE (cranes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Antigone canadensis canadensis	lesser sandhill crane	Wintering	G5T4	S3S4	None	None	CDFW:SSC	No	
Antigone canadensis tabida	greater sandhill crane	Nesting & wintering	G5T5	S2	None	Threatened	BLM:S CDFW:FP USFS:S	Yes	

CHARADRIIDAE (plovers and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Charadrius montanus	mountain plover	Wintering	G3	S2S3	None	None	BLM:S CDFW:SSC IUCN:NT NABCI:RWL USFWS:BCC	Yes	Yes
Charadrius nivosus nivosus	western snowy plover	Nesting	G3T3	S3	Threatened	None	CDFW:SSC NABCI:RWL	Yes	Yes

SCOLOPACIDAE (sandpipers and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Numenius americanus	long-billed curlew	Nesting	G5	S2	None	None	CDFW:WL IUCN:LC NABCI:YWL	No	

LARIDAE (gulls and terns)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chlidonias niger	black tern	Nesting colony	G4G5	S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Gelochelidon nilotica	gull-billed tern	Nesting colony	G5	S1	None	None	CDFW:SSC IUCN:LC NABCI:YWL USFWS:BCC	Yes	Yes
Hydroprogne caspia	Caspian tern	Nesting colony	G5	S4	None	None	IUCN:LC	Yes	Yes
Larus californicus	California gull	Nesting colony	G5	S4	None	None	CDFW:WL IUCN:LC USFWS:BCC	Yes	
Leucophaeus atricilla	laughing gull	Nesting colony	G5	S1	None	None	CDFW:WL IUCN:LC	No	
Rynchops niger	black skimmer	Nesting colony	G5	S2	None	None	CDFW:SSC IUCN:LC NABCI:YWL USFWS:BCC	Yes	
Sternula antillarum browni	California least tern	Nesting colony	G4T2T3Q	S2	Endangered	Endangered	CDFW:FP NABCI:RWL	Yes	Yes
Thalasseus elegans	elegant tern	Nesting colony	G2	S3	None	None	CDFW:WL IUCN:NT USFWS:BCC	No	Yes

ALCIDAE (auklets, puffins, and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Brachyramphus marmoratus	marbled murrelet	Nesting	G3	S2	Threatened	Endangered	CDF:S IUCN:EN NABCI:RWL	Yes	
Cerorhinca monocerata	rhinoceros auklet	Nesting colony	G5	S3	None	None	CDFW:WL IUCN:LC	Yes	
Fratercula cirrhata	tufted puffin	Nesting colony	G5	S1S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Ptychoramphus aleuticus	Cassin's auklet	Nesting colony	G4	S3	None	None	CDFW:SSC IUCN:NT USFWS:BCC	No	
Synthliboramphus scrippsi	Scripps's murrelet	Nesting colony	G2	S2	None	Threatened	BLM:S IUCN:VU NABCI:RWL USFWS:BCC	Yes	Yes

CUCULIDAE (cuckoos and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Nesting	G5T2T3	S1	Threatened	Endangered	BLM:S NABCI:RWL USFS:S	Yes	

STRIGIDAE (owls)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Asio flammeus	short-eared owl	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Asio otus	long-eared owl	Nesting	G5	S3?	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Athene cunicularia	burrowing owl	Burrow sites & some wintering sites	G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC USFWS:BCC	Yes	Yes
Micrathene whitneyi	elf owl	Nesting	G5	S1	None	Endangered	BLM:S IUCN:LC	Yes	
Psiloscops flammeolus	flammulated owl	Nesting	G4	S2S4	None	None	IUCN:LC NABCI:YWL USFWS:BCC	Yes	
Strix nebulosa	great gray owl	Nesting	G5	S1	None	Endangered	CDF:S IUCN:LC USFS:S	Yes	
Strix occidentalis caurina	northern spotted owl		G3G4T3	S2	Threatened	Threatened	CDF:S NABCI:YWL	No	Yes
Strix occidentalis occidentalis	California spotted owl		G3G4T2T3	S3	None	None	BLM:S CDFW:SSC USFS:S USFWS:BCC	No	Yes

APODIDAE (swifts)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chaetura vauxi	Vaux's swift	Nesting	G5	S2S3	None	None	CDFW:SSC IUCN:LC USFWS:BCC	No	
Cypseloides niger	black swift	Nesting	G4	S2	None	None	CDFW:SSC IUCN:VU NABCI:YWL USFWS:BCC	Yes	

TROCHILIDAE (hummingbirds)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Calypte costae	Costa's hummingbird	Nesting	G5	S4	None	None	IUCN:LC USFWS:BCC	No	
Selasphorus rufus	rufous hummingbird	Nesting	G4	S1S2	None	None	IUCN:NT NABCI:YWL USFWS:BCC	No	

PICIDAE (woodpeckers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Colaptes chrysoides	gilded flicker		G5	S1	None	Endangered	BLM:S IUCN:LC NABCI:YWL USFWS:BCC	Yes	
Melanerpes lewis	Lewis' woodpecker	Nesting	G4	S4	None	None	IUCN:LC NABCI:YWL USFWS:BCC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Melanerpes uropygialis	Gila woodpecker		G5	S1	None	Endangered	BLM:S IUCN:LC USFWS:BCC	Yes	
Picoides arcticus	black-backed woodpecker		G5	S2	None	None	IUCN:LC	Yes	
Sphyrapicus ruber	red-breasted sapsucker	Nesting	G5	S4	None	None	IUCN:LC	Yes	

TYRANNIDAE (tyrant flycatchers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Contopus cooperi	olive-sided flycatcher	Nesting	G4	S3	None	None	CDFW:SSC IUCN:NT NABCI:YWL USFWS:BCC	Yes	
Empidonax traillii	willow flycatcher	Nesting	G5	S1S2	None	Endangered	IUCN:LC USFS:S	Yes	Yes
Empidonax traillii brewsteri	little willow flycatcher	Nesting	G5T3T4	S1S2	None	Endangered		Yes	Yes
Empidonax traillii extimus	southwestern willow flycatcher	Nesting	G5T2	S1	Endangered	Endangered	NABCI:RWL	Yes	Yes
Myiarchus tyrannulus	brown-crested flycatcher	Nesting	G5	S3	None	None	CDFW:WL IUCN:LC	Yes	
Pyrocephalus rubinus	vermilion flycatcher	Nesting	G5	S2S3	None	None	CDFW:SSC IUCN:LC	Yes	

LANIIDAE (shrikes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lanius ludovicianus	loggerhead shrike	Nesting	G4	S4	None	None	CDFW:SSC IUCN:NT	Yes	
Lanius ludovicianus anthonyi	Island loggerhead shrike		G4T1	S1	None	None	CDFW:SSC NABCI:RWL	No	
Lanius ludovicianus mearnsi	San Clemente loggerhead shrike		G4T1Q	S2	Endangered	None	CDFW:SSC NABCI:RWL	Yes	Yes

VIREONIDAE (vireos)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Vireo bellii arizonae	Arizona Bell's vireo	Nesting	G5T4	S1S2	None	Endangered	BLM:S	Yes	Yes
Vireo bellii pusillus	least Bell's vireo	Nesting	G5T2	S2	Endangered	Endangered	NABCI:YWL	Yes	Yes
Vireo huttoni unitti	Catalina Hutton's vireo		G5T2?	S2	None	None	CDFW:SSC	No	
Vireo vicinior	gray vireo	Nesting	G5	S2	None	None	BLM:S CDFW:SSC IUCN:LC NABCI:YWL USFS:S	Yes	

CORVIDAE (jays, crows, and magpies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aphelocoma californica cana	Eagle Mountain scrub-jay		G5T3	S3	None	None	CDFW:WL	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aphelocoma insularis	Island scrub-jay		G1	S1	None	None	IUCN:NT NABCI:RWL USFWS:BCC	No	
Pica nuttalli	yellow-billed magpie	Nesting & communal roosts	G3G4	S3S4	None	None	IUCN:VU NABCI:YWL USFWS:BCC	No	

ALAUDIDAE (larks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eremophila alpestris actia	California horned lark		G5T4Q	S4	None	None	CDFW:WL IUCN:LC	Yes	

HIRUNDINIDAE (swallows)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Progne subis	purple martin	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Riparia riparia	bank swallow	Nesting	G5	S2	None	Threatened	BLM:S IUCN:LC	Yes	

PARIDAE (titmice and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Poecile atricapillus	black-capped chickadee		G5	S3	None	None	CDFW:WL IUCN:LC	No	

TROGLODYTIDAE (wrens)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	San Diego & Orange Counties only	G5T3Q	S2	None	None	CDFW:SSC USFS:S USFWS:BCC	Yes	Yes
Cistothorus palustris clarkae	Clark's marsh wren		G5T2T3	S2	None	None	CDFW:SSC	No	
Thryomanes bewickii leucophrys	San Clemente Bewick's wren		G5TX	SX	None	None	CDFW:SSC	No	

POLIOPTILIDAE (gnatcatchers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Polioptila californica californica	coastal California gnatcatcher		G4G5T3Q	S2	Threatened	None	CDFW:SSC NABCI:YWL	Yes	Yes
Polioptila melanura	black-tailed gnatcatcher		G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	

MIMIDAE (mockingbirds and thrashers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Toxostoma bendirei	Bendire's thrasher		G4	S3	None	None	BLM:S CDFW:SSC IUCN:VU NABCI:RWL USFWS:BCC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Toxostoma crissale	Crissal thrasher		G5	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Toxostoma lecontei	Le Conte's thrasher		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC NABCI:RWL USFWS:BCC	Yes	Yes

PASSERELLIDAE (sparrows)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aimophila ruficeps canescens	southern California rufous-crowned sparrow		G5T3	S3	None	None	CDFW:WL	Yes	
Aimophila ruficeps obscura	Santa Cruz Island rufous-crowned sparrow		G5T2T3	S2	None	None	CDFW:SSC	No	
Ammodramus savannarum	grasshopper sparrow	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Artemisiospiza belli belli	Bell's sage sparrow		G5T2T3	S3	None	None	CDFW:WL	Yes	Yes
Artemisiospiza belli clementeae	San Clemente sage sparrow		G5T2Q	S2	Threatened	None	CDFW:SSC NABCI:YWL	Yes	Yes
Junco hyemalis caniceps	gray-headed junco	Nesting	G5T5	S1	None	None	CDFW:WL	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Melospiza melodia graminea	Channel Island song sparrow		G5T1	S1	None	None	CDFW:SSC USFWS:BCC	Yes	Yes
Melospiza melodia maxillaris	Suisun song sparrow		G5T3	S3	None	None	CDFW:SSC	Yes	
Melospiza melodia pop. 1	song sparrow ("Modesto" population)		G5T3?Q	S3?	None	None	CDFW:SSC	Yes	
Melospiza melodia pusillula	Alameda song sparrow		G5T2T3	S2S3	None	None	CDFW:SSC USFWS:BCC	Yes	
Melospiza melodia samuelis	San Pablo song sparrow		G5T2	S2	None	None	CDFW:SSC USFWS:BCC	Yes	
Melozone aberti	Abert's towhee		G3G4	S4	None	None	IUCN:LC	No	
Melozone crissalis eremophilus	Inyo California towhee		G4G5T2	S2	Threatened	Endangered	NABCI:RWL	Yes	Yes
Passerculus sandwichensis alaudinus	Bryant's savannah sparrow		G5T2T3	S3	None	None	CDFW:SSC	No	
Passerculus sandwichensis beldingi	Belding's savannah sparrow		G5T3	S3	None	Endangered	USFWS:BCC	Yes	
Passerculus sandwichensis rostratus	large-billed savannah sparrow	Wintering	G5T2T3Q	S2	None	None	CDFW:SSC	No	
Pipilo maculatus clementae	San Clemente spotted towhee		G5T1T2	S1S2	None	None	CDFW:SSC	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pooecetes gramineus affinis	Oregon vesper sparrow	Wintering	G5T3?	S2	None	None	CDFW:SSC NABCI:RWL USFWS:BCC	No	
Spizella breweri	Brewer's sparrow	Nesting	G5	S4	None	None	IUCN:LC	Yes	

ICTERIIDAE (yellow-breasted chats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Icteria virens	yellow-breasted chat	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

ICTERIDAE (blackbirds)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Agelaius phoeniceus aciculatus	Kern red-winged blackbird		G5T1T2	S1S2	None	None	CDFW:SSC	No	
Agelaius tricolor	tricolored blackbird	Nesting colony	G1G2	S1S2	None	Threatened	BLM:S CDFW:SSC IUCN:EN NABCI:RWL USFWS:BCC	Yes	
Xanthocephalus xanthocephalus	yellow-headed blackbird	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

PARULIDAE (wood-warblers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Geothlypis trichas sinuosa	saltmarsh common yellowthroat		G5T3	S3	None	None	CDFW:SSC USFWS:BCC	Yes	Yes
Leiothlypis luciae	Lucy's warbler	Nesting	G5	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Leiothlypis virginiae	Virginia's warbler	Nesting	G5	S2	None	None	CDFW:WL IUCN:LC NABCI:YWL USFWS:BCC	Yes	
Setophaga petechia	yellow warbler	Nesting	G5	S3S4	None	None	CDFW:SSC IUCN:LC	Yes	Yes
Setophaga petechia sonorana	Sonoran yellow warbler	Nesting	G5T2T3	S2	None	None	CDFW:SSC	Yes	Yes

CARDINALIDAE (cardinals)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cardinalis cardinalis	northern cardinal		G5	S1	None	None	CDFW:WL IUCN:LC	Yes	
Piranga flava	hepatic tanager	Nesting	G5	S1	None	None	CDFW:WL IUCN:LC	Yes	
Piranga rubra	summer tanager	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	Yes	

FRINGILLIDAE (finches and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Spinus lawrencei	Lawrence's goldfinch	Nesting	G3G4	S4	None	None	IUCN:LC NABCI:YWL USFWS:BCC	Yes	

Mammals

SORICIDAE (shrews)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Sorex lyelli	Mount Lyell shrew		G3G4	S3S4	None	None	CDFW:SSC IUCN:LC	Yes	
Sorex ornatus relictus	Buena Vista Lake ornate shrew		G5T1	S1	Endangered	None	CDFW:SSC	Yes	
Sorex ornatus salarius	Monterey shrew		G5T1T2	S1S2	None	None	CDFW:SSC	Yes	
Sorex ornatus salicornicus	southern California saltmarsh shrew		G5T1?	S1	None	None	CDFW:SSC	Yes	
Sorex ornatus sinuosus	Suisun shrew		G5T1T2Q	S1S2	None	None	CDFW:SSC	Yes	
Sorex ornatus willetti	Santa Catalina shrew		G5T1	S1	None	None	CDFW:SSC	Yes	
Sorex vagrans halicoetes	salt-marsh wandering shrew		G5T1	S1	None	None	CDFW:SSC	Yes	
Sorex vagrans paludivagus	Monterey vagrant shrew		G5T1	S2	None	None		No	

TALPIDAE (moles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Scapanus latimanus insularis	Angel Island mole		G5T1	SH	None	None		Yes	
Scapanus latimanus parvus	Alameda Island mole		G5T1Q	SH	None	None	CDFW:SSC	Yes	

PHYLLOSTOMIDAE (leaf-nosed bats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Choeronycteris mexicana	Mexican long-tongued bat		G3G4	S1	None	None	CDFW:SSC IUCN:NT	Yes	
Leptonycteris yerbabuenae	lesser long-nosed bat		G3	S1	Delisted	None	CDFW:SSC IUCN:NT	Yes	Yes
Macrotus californicus	California leaf-nosed bat		G3G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	

VESPERTILIONIDAE (evening bats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Antrozous pallidus	pallid bat		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Corynorhinus townsendii	Townsend's big-eared bat		G4	S2	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Euderma maculatum	spotted bat		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Lasionycteris noctivagans	silver-haired bat		G3G4	S3S4	None	None	IUCN:LC	Yes	
Lasiurus cinereus	hoary bat		G3G4	S4	None	None	IUCN:LC	Yes	
Lasiurus frantzii	western red bat		G4	S3	None	None	CDFW:SSC IUCN:LC	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lasiurus xanthinus	western yellow bat		G4G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Myotis ciliolabrum	western small-footed myotis		G5	S3	None	None	BLM:S IUCN:LC	Yes	
Myotis evotis	long-eared myotis		G5	S3	None	None	BLM:S IUCN:LC	Yes	
Myotis occultus	Arizona Myotis		G4G5	S1	None	None	CDFW:SSC IUCN:LC	Yes	
Myotis thysanodes	fringed myotis		G4	S3	None	None	BLM:S IUCN:LC USFS:S	Yes	
Myotis velifer	cave myotis		G4G5	S1	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Myotis volans	long-legged myotis		G4G5	S3	None	None	IUCN:LC	Yes	
Myotis yumanensis	Yuma myotis		G5	S4	None	None	BLM:S IUCN:LC	Yes	

MOLOSSIDAE (free-tailed bats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eumops perotis californicus	western mastiff bat		G4G5T4	S3S4	None	None	BLM:S CDFW:SSC	Yes	
Nyctinomops femorosaccus	pocketed free-tailed bat		G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Nyctinomops macrotis	big free-tailed bat		G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

OCHOTONIDAE (pikas)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ochotona princeps schisticeps	gray-headed pika		G5T4	S2S4	None	None		Yes	

LEPORIDAE (rabbits and hares)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Brachylagus idahoensis	pygmy rabbit		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Lepus americanus klamathensis	Oregon snowshoe hare		G5T3T4Q	S2	None	None	CDFW:SSC	Yes	
Lepus americanus tahoensis	Sierra Nevada snowshoe hare		G5T3T4Q	S2	None	None	CDFW:SSC	Yes	
Lepus californicus bennettii	San Diego black-tailed jackrabbit		G5T3T4	S3S4	None	None		Yes	
Lepus townsendii townsendii	western white-tailed jackrabbit		G5T5	S3?	None	None	CDFW:SSC	Yes	
Sylvilagus bachmani riparius	riparian brush rabbit		G5T1	S1	Endangered	Endangered		Yes	

APLODONTIIDAE (mountain beavers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aplodontia rufa californica	Sierra Nevada mountain beaver		G5T3T4	S2S3	None	None	CDFW:SSC IUCN:LC	Yes	Yes
Aplodontia rufa humboldtiana	Humboldt mountain beaver		G5TNR	SNR	None	None		Yes	
Aplodontia rufa nigra	Point Arena mountain beaver		G5T1	S1	Endangered	None	CDFW:SSC IUCN:LC	Yes	Yes
Aplodontia rufa phaea	Point Reyes mountain beaver		G5T2	S2	None	None	CDFW:SSC IUCN:LC	Yes	Yes

SCIURIDAE (squirrels and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel		G2G3	S2S3	None	Threatened	BLM:S IUCN:EN	Yes	
Callospermophilus lateralis bernardinus	San Bernardino golden-mantled ground squirrel		G5T1	S1	None	None		No	
Glaucomys oregonensis californicus	San Bernardino flying squirrel		G5T1T2	S1S2	None	None	CDFW:SSC USFS:S	Yes	
Neotamias alpinus	Alpine chipmunk		G4	S3	None	None	IUCN:LC	No	
Neotamias panamintinus acrus	Kingston Mountain chipmunk		G4T1T2	S1S2	None	None		Yes	
Neotamias speciosus callipeplus	Mount Pinos chipmunk		G4T2	S2	None	None	USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Neotamias speciosus speciosus	lodgepole chipmunk		G4T3T4	S2	None	None		Yes	
Urocitellus mollis	Piute ground squirrel		G5	S3	None	None	IUCN:LC	No	
Xerospermophilus mohavensis	Mohave ground squirrel		G2G3	S2S3	None	Threatened	BLM:S IUCN:NT	Yes	
Xerospermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel		G5T2Q	S2	None	None	BLM:S CDFW:SSC	Yes	

GEOMYIDAE (pocket gophers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Thomomys bottae operarius	Owens Lake pocket gopher		G5T1?	S1?	None	None		No	

HETEROMYIDAE (kangaroo rats, pocket mice, and kangaroo mice)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chaetodipus californicus femoralis	Dulzura pocket mouse		G5T3	S3	None	None	CDFW:SSC	Yes	
Chaetodipus fallax fallax	northwestern San Diego pocket mouse		G5T3T4	S3S4	None	None	CDFW:SSC	Yes	Yes
Chaetodipus fallax pallidus	pallid San Diego pocket mouse		G5T3T4	S3S4	None	None	CDFW:SSC	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dipodomys californicus eximius	Marysville California kangaroo rat		G4T1	S1	None	None	CDFW:SSC	Yes	
Dipodomys heermanni arenae	Lompoc kangaroo rat		G4T1T2	S1S2	None	None		No	
Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat		G4T1	S2	None	None		Yes	
Dipodomys heermanni dixoni	Merced kangaroo rat		G4T2T3	S2	None	None		Yes	
Dipodomys heermanni goldmani	Salinas kangaroo rat		G4T2T3	S2S3	None	None		No	
Dipodomys heermanni heermanni	Heermann's kangaroo rat		G4T2	S2	None	None		No	
Dipodomys heermanni morroensis	Morro Bay kangaroo rat		G4TH	SH	Endangered	Endangered	CDFW:FP	Yes	
Dipodomys ingens	giant kangaroo rat		G1G2	S1S2	Endangered	Endangered	IUCN:EN	Yes	
Dipodomys merriami collinus	Earthquake Merriam's kangaroo rat		G5T2?	S2	None	None		Yes	
Dipodomys merriami parvus	San Bernardino kangaroo rat		G5T1	S1	Endangered	Candidate Endangered	CDFW:SSC	Yes	
Dipodomys merriami trinidadensis	Valle de la Trinidad kangaroo rat		G5T2T3Q	S2	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat		G3T1T2	S1S2	None	None	BLM:S CDFW:SSC IUCN:VU	Yes	
Dipodomys nitratoides exilis	Fresno kangaroo rat		G3TH	SH	Endangered	Endangered	IUCN:VU	Yes	
Dipodomys nitratoides nitratoides	Tipton kangaroo rat		G3T1T2	S1S2	Endangered	Endangered	IUCN:VU	Yes	
Dipodomys panamintinus argusensis	Argus Mountains kangaroo rat		G5T1T3	S1S3	None	None		Yes	
Dipodomys panamintinus panamintinus	Panamint kangaroo rat		G5T3	S3	None	None		Yes	
Dipodomys simulans	Dulzura kangaroo rat		G4	S3	None	None	IUCN:LC	No	
Dipodomys stephensi	Stephens' kangaroo rat		G2	S2	Threatened	Threatened	IUCN:VU	Yes	
Dipodomys venustus elephantinus	big-eared kangaroo rat		G4T2	S3	None	None		Yes	
Dipodomys venustus sanctiluciae	Santa Lucia Mountain kangaroo rat		G4TNR	S3	None	None		No	
Dipodomys venustus venustus	Santa Cruz kangaroo rat		G4T1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Perognathus alticola alticola	white-eared pocket mouse		G2TH	SH	None	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	Yes
Perognathus alticola inexpectatus	Tehachapi pocket mouse		G2T1T2	S1S2	None	None	CDFW:SSC IUCN:VU USFS:S	Yes	Yes
Perognathus inornatus	San Joaquin pocket mouse		G2G3	S2S3	None	None	BLM:S IUCN:LC	Yes	Yes
Perognathus inornatus psammophilus	Salinas pocket mouse		G2G3T2?	S1	None	None	CDFW:SSC	Yes	
Perognathus longimembris bangsi	Palm Springs pocket mouse		G5T2	S1	None	None	BLM:S CDFW:SSC	Yes	
Perognathus longimembris brevinasus	Los Angeles pocket mouse		G5T2	S1S2	None	None	CDFW:SSC	Yes	
Perognathus longimembris internationalis	Jacumba pocket mouse		G5T2T3	S2	None	None	CDFW:SSC	Yes	
Perognathus longimembris pacificus	Pacific pocket mouse		G5T1	S2	Endangered	None	CDFW:SSC	Yes	
Perognathus longimembris salinensis	Saline Valley pocket mouse		G5T1	S1	None	None		No	
Perognathus longimembris tularensis	Tulare pocket mouse		G5T1	S1	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Perognathus mollipilosus xanthonotus	yellow-eared pocket mouse		GNRT2	S2	None	None	BLM:S	Yes	

CRICETIDAE (mice, rats, and voles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Arborimus albipes	white-footed vole		G3G4	S2	None	None	CDFW:SSC IUCN:LC	Yes	
Arborimus pomo	Sonoma tree vole		G3	S3	None	None	CDFW:SSC IUCN:NT	Yes	
Microtus californicus halophilus	Monterey vole		G5T1	S2	None	None		No	
Microtus californicus mohavensis	Mohave river vole		G5T1	S1	None	None	CDFW:SSC	Yes	
Microtus californicus sanpabloensis	San Pablo vole		G5T1T2	S1S2	None	None	CDFW:SSC	Yes	
Microtus californicus scirpensis	Amargosa vole		G5T1	S1	Endangered	Endangered		Yes	
Microtus californicus stephensi	south coast marsh vole		G5T2T3	S2	None	None	CDFW:SSC	Yes	
Microtus californicus vallicola	Owens Valley vole		G5T3	S3	None	None	BLM:S CDFW:SSC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Neotoma albigula venusta	Colorado Valley woodrat		G5T3T4	S1S2	None	None		Yes	
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat		G5T2T3	S2S3	None	None	CDFW:SSC	Yes	
Neotoma fuscipes riparia	riparian (=San Joaquin Valley) woodrat		G5T1Q	S1	Endangered	None	CDFW:SSC	Yes	Yes
Neotoma lepida intermedia	San Diego desert woodrat		G5T3T4	S3S4	None	None	CDFW:SSC	Yes	
Neotoma macrotis luciana	Monterey dusky-footed woodrat		G5T3	S3	None	None	BLM:S CDFW:SSC	Yes	
Onychomys torridus ramona	southern grasshopper mouse		G5T3	S3	None	None	CDFW:SSC	Yes	
Onychomys torridus tularensis	Tulare grasshopper mouse		G5T1T2	S1S2	None	None	BLM:S CDFW:SSC	Yes	
Peromyscus maniculatus anacapae	Anacapa Island deer mouse		G5T1T2	S1S2	None	None	CDFW:SSC	Yes	
Peromyscus maniculatus clementis	San Clemente deer mouse		G5T1T2	S1S2	None	None	CDFW:SSC	No	
Reithrodontomys megalotis distichlis	Salinas harvest mouse		G5T1	S2	None	None		Yes	
Reithrodontomys megalotis santacruzae	Santa Cruz harvest mouse		G5T1Q	S1	None	None		Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Reithrodontomys raviventris	salt-marsh harvest mouse		G1G2	S1S2	Endangered	Endangered	CDFW:FP IUCN:EN	Yes	
Sigmodon arizonae plenus	Colorado River cotton rat		G5T2T3	S1S2	None	None	CDFW:SSC	Yes	
Sigmodon hispidus eremicus	Yuma hispid cotton rat		G5T2T3	S2	None	None	CDFW:SSC	Yes	

DIPODIDAE (jumping mice)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Zapus trinotatus orarius	Point Reyes jumping mouse		G5T1T3Q	S2	None	None	CDFW:SSC	Yes	

ERETHIZONTIDAE (New World porcupines)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Erethizon dorsatum	North American porcupine		G5	S3	None	None	IUCN:LC	Yes	

CANIDAE (foxes, wolves, and coyotes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Canis lupus	gray wolf		G5	S1	Endangered	Endangered	IUCN:LC	Yes	
Urocyon littoralis catalinae	Santa Catalina Island fox		G3T1	S1	Threatened	Threatened		Yes	Yes
Urocyon littoralis clementae	San Clemente Island fox		G3T1	S1	None	Threatened		Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Urocyon littoralis dickeyi	San Nicolas Island fox		G3T1	S1	None	Threatened		Yes	Yes
Urocyon littoralis littoralis	San Miguel Island fox		G3T1	S1	Delisted	Threatened		Yes	Yes
Urocyon littoralis santacruzae	Santa Cruz Island fox		G3T1	S1	Delisted	Threatened		Yes	Yes
Urocyon littoralis santarosae	Santa Rosa Island fox		G3T1	S1	Delisted	Threatened		Yes	Yes
Vulpes macrotis mutica	San Joaquin kit fox		G4T2	S2	Endangered	Threatened		Yes	
Vulpes vulpes necator pop. 1	Sierra Nevada red fox - southern Cascades DPS		G5TNR	S1	None	Threatened	USFS:S	Yes	
Vulpes vulpes necator pop. 2	Sierra Nevada red fox - Sierra Nevada DPS		G5TNR	S1	Endangered	Threatened	USFS:S	Yes	
Vulpes vulpes patwin	Sacramento Valley red fox		G5T2	S2	None	None		No	

OTARIIDAE (sea lions and fur seals)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Arctocephalus townsendi	Guadalupe fur-seal		G1	S1	Threatened	Threatened	CDFW:FP IUCN:LC	Yes	
Callorhinus ursinus	northern fur-seal		G3	S1	None	None	IUCN:VU	Yes	
Eumetopias jubatus	Steller sea lion		G3	S2	Delisted	None	IUCN:NT MMC:SSC	Yes	

PROCYONIDAE (raccoons and ringtails)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bassariscus astutus octavus	southern California ringtail		G5TNR	S3	None	None	CDFW:FP	No	
Bassariscus astutus willetti	Palo Verde Mountains ringtail		G5TNR	S2	None	None	CDFW:FP	No	
Bassariscus astutus yumanensis	Yuma ringtail		G5TNR	S2	None	None	CDFW:FP	No	

MUSTELIDAE (weasels and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Enhydra lutris nereis	southern sea otter		G4T2	S3	Threatened	None	CDFW:FP IUCN:EN MMC:SSC	Yes	Yes
Gulo gulo	wolverine		G4	S1	Proposed Threatened	Threatened	CDFW:FP IUCN:LC USFS:S	Yes	
Lontra canadensis sonora	southwestern river otter		G5T1	SH	None	None	CDFW:SSC	Yes	Yes
Martes caurina	Pacific marten		G4G5	S3	None	None	IUCN:LC USFS:S	Yes	
Martes caurina humboldtensis	Humboldt marten		G4G5T1	S1	Threatened	Endangered	CDFW:SSC USFS:S	Yes	Yes
Martes caurina sierrae	Sierra marten		G4G5T3	S3	None	None	USFS:S	Yes	
Mustela frenata inyoensis	Inyo long-tailed weasel		G5T2Q	S2	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Mustela frenata xanthogenys	San Joaquin long-tailed weasel		G5T2T3	S3	None	None		No	
Pekania pennanti	Fisher		G5	S2S3	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	Yes
Pekania pennanti pop. 2	Fisher - southern Sierra Nevada ESU		G5T1	S1	Endangered	Threatened	BLM:S CDFW:SSC USFS:S	Yes	
Taxidea taxus	American badger		G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

MEPHITIDAE (skunks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Spilogale gracilis amphiala	Channel Islands spotted skunk		G5T3	S3	None	None	CDFW:SSC	Yes	

FELIDAE (cats and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lynx rufus pallescens	pallid bobcat		G5T3?	S3?	None	None		No	
Puma concolor browni	Yuma mountain lion		G5T1T2Q	S1	None	None	CDFW:SSC	Yes	

CERVIDAE (deer, elk, and moose)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cervus canadensis nannodes	tule elk		G5T3	S3	None	None		No	

ANTILOCAPRIDAE (pronghorn)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Antilocapra americana	pronghorn		G5	S3	None	None	IUCN:LC	No	
Antilocapra americana sonoriensis	Sonoran pronghorn		G5T1	SH	Endangered	None	IUCN:EN	No	

BOVIDAE (sheep and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ovis canadensis nelsoni	desert bighorn sheep		G4T4	S3	None	None	BLM:S CDFW:FP USFS:S	Yes	Yes
Ovis canadensis nelsoni pop. 2	Peninsular bighorn sheep DPS		G4T3Q	S2	Endangered	Threatened	CDFW:FP	Yes	Yes
Ovis canadensis sierrae	Sierra Nevada bighorn sheep		G4T2	S2	Endangered	Endangered	CDFW:FP	Yes	

End Notes

Invertebrates

GASTROPODA (snails, slugs, and abalones)

Prophysaon sp. 1

Klamath taildropper

1) This entity is known to be unique morphologically and genetically (Frest & Johannes 2000, Wilke & Duncan 2004, Roth & Sadeghian 2006), but has not been formally described and some may reference it as part of the *Prophysaon coeruleum* species complex.

ARACHNIDA (spiders and relatives)

Hubbardia shoshonensis

Shoshone Cave whip-scorpion

1) BLM Sensitive list uses the scientific name *Trithyreus shoshonensis*.

CRUSTACEA, Order Amphipoda (amphipods)

Hyalella muerta

Texas Spring amphipod

1) First North American hypogean hyalellid.

Hyalella sandra

Death Valley amphipod

1) Population in Texas Springs is an accidental introduction. Population in Nevares Springs may be a new species.

INSECTA, Order Coleoptera (beetles)

Trigonoscuta sp.

Doyen's trigonoscuta dune weevil

1) Sometimes referred to as *Trigonoscuta doyeni*, which is an unpublished manuscript name.

INSECTA, Order Lepidoptera (butterflies and moths)

Callophrys thornei

Thorne's hairstreak

1) Formerly *Mitoura thornei*.

Euproserpinus euterpe

Kern primrose sphinx moth

1) Until its rediscovery in Kern County in 1974, this moth had been thought to be extinct. A second population was later found in San Luis Obispo County (Xerces Society 2005).

Speyeria zerene myrtleae

Myrtle's silverspot butterfly

1) The USFWS and others have not yet determined if the taxonomic expansion by Emmel and Emmel (1998) into *S. z. myrtleae* and *S. z. puntareyes* is warranted. The *Speyereia zerene* along the coast of Marin and Sonoma Counties are federally endangered under the subspecies concept in the 1992 listing.

INSECTA, Order Hymenoptera (ants, bees, and wasps)

Bombus crotchii

Crotch bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. Trial court decision temporarily removed its candidacy in February 2021. State Supreme Court ruling reversed judgement and reinstated its candidacy in Sep 2022 (Supreme Court Case S275412).

Bombus franklini

Franklin's bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. Trial court decision temporarily removed its candidacy in February 2021. State Supreme Court ruling reversed judgement and reinstated its candidacy in Sep 2022 (Supreme Court Case S275412).

Bombus occidentalis

western bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. Trial court decision temporarily removed its candidacy in February 2021. State Supreme Court ruling reversed judgement and reinstated its candidacy in Sep 2022 (Supreme Court Case S275412).

Bombus suckleyi

Suckley's cuckoo bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. Trial court decision temporarily removed its candidacy in February 2021. State Supreme Court ruling reversed judgement and reinstated its candidacy in Sep 2022 (Supreme Court Case S275412).

Fishes

SALMONIDAE (trout and salmon)

Oncorhynchus kisutch pop. 2

coho salmon - southern Oregon / northern California ESU

1) Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.
2) State listing refers to populations between the Oregon border and Punta Gorda, Humboldt County, California.

Oncorhynchus kisutch pop. 4

coho salmon - central California coast ESU

1) Federal listing is limited to naturally spawning populations in streams between Punta Gorda, Humboldt County and the San Lorenzo River, Santa Cruz County.
2) State listing is limited to populations south of Punta Gorda, Humboldt County.

Oncorhynchus mykiss irideus pop. 1

steelhead - Klamath Mountains Province DPS

1) This ESU includes all naturally spawned populations residing in streams between the Elk River in Oregon and the Klamath River in California, inclusive.
2) CDFW SSC designation refers only to the California portion of the ESU and refers only to the summer-run.

Oncorhynchus mykiss irideus pop. 10

steelhead - southern California DPS

1) The federal designation refers to fish in the coastal basins from the Santa Maria River (inclusive), south to the U.S. - Mexico Border.

Oncorhynchus mykiss irideus pop. 11

steelhead - Central Valley DPS

1) Federal listing includes all runs in the Sacramento and San Joaquin rivers and their tributaries.

Oncorhynchus mykiss irideus pop. 16

steelhead - northern California DPS

1) The federal designation refers to naturally spawned populations residing below impassable barriers in coastal basins from Redwood Creek in Humboldt County to, and including, the Gualala River in Mendocino County
2) CDFW SSC designation refers only to the summer-run.

Oncorhynchus mykiss irideus pop. 8

steelhead - central California coast DPS

1) Federal listing includes all runs in coastal basins from the Russian River in Sonoma County, south to Soquel Creek in Santa Cruz County, inclusive. It includes the San Francisco and San Pablo Bay basins, but excludes the Sacramento-San Joaquin River basins.

Oncorhynchus mykiss irideus pop. 9

steelhead - south-central California coast DPS

1) Federal listing includes all runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.
2) CDFW SSC designation refers to southern steelhead trout.

Oncorhynchus tshawytscha pop. 11

chinook salmon - Central Valley spring-run ESU

1) Federal listing refers to the Central Valley spring-run ESU. It includes populations spawning in the Sacramento River and its tributaries.

Oncorhynchus tshawytscha pop. 13

chinook salmon - Central Valley fall / late fall-run ESU

1) The Central Valley fall/late fall-run ESU refers to populations spawning in the Sacramento and San Joaquin rivers and their tributaries.
2) CDFW SSC designation refers only to the fall-run.

Oncorhynchus tshawytscha pop. 17

chinook salmon - California coastal ESU

1) Originally proposed as part of a larger Southern Oregon and California Coastal ESU. This new ESU was revised to include only naturally spawned coastal spring- and fall-run chinook salmon between Redwood Creek in Humboldt County and the Russian River in Sonoma County.

OSMERIDAE (smelt)

Spirinchus thaleichthys

longfin smelt

1) Federal proposed status (2022-10-07) is for the San Francisco Bay-Delta DPS of the longfin smelt.

Thaleichthys pacificus

eulachon

1) The Federal Threatened status pertains to the "southern DPS" of eulachon that range from central British Columbia, Washington, Oregon, and northern California.

CYPRINIDAE (minnows and carp)

Rhinichthys osculus ssp. 1

Amargosa Canyon speckled dace

1) Current taxonomy considers this taxon to be a distinct population of *Rhinichthys osculus nevadensis*.

Rhinichthys osculus ssp. 12

Long Valley speckled dace

1) Formerly *Rhinichthys osculus* ssp. 5, which did not account for other undescribed subspecies outside of CA.

Rhinichthys osculus ssp. 2

Owens speckled dace

1) Current taxonomy includes the Benton Valley speckled dace (formerly ssp. 4) with the Owens speckled dace.

Rhinichthys osculus ssp. 8

Santa Ana speckled dace

1) Formerly *Rhinichthys osculus* ssp. 3, which did not account for other undescribed subspecies outside of CA.

Siphateles bicolor ssp. 11

High Rock Springs tui chub

1) Formerly *Siphateles bicolor* ssp. 2, which did not account for other undescribed subspecies outside of CA.

Siphateles bicolor ssp. 12

Eagle Lake tui chub

1) Formerly *Siphateles bicolor* ssp. 1, which did not account for other undescribed subspecies outside of CA.

Siphateles bicolor ssp. 14

Pit River tui chub

1) Formerly *Siphateles bicolor* ssp. 3, which did not account for other undescribed subspecies outside of CA.

GASTEROSTEIDAE (sticklebacks)

Gasterosteus aculeatus microcephalus

resident threespine stickleback

1) USFS Sensitive designation refers to the full species.

Gasterosteus aculeatus williamsoni

unarmored threespine stickleback

1) USFS Sensitive designation refer to the full species.

Amphibians

PLETHODONTIDAE (lungless salamanders)

Aneides niger

Santa Cruz black salamander

1) CDFW SSC status uses former subspecies concept of *Aneides flavipunctatus niger*.

Batrachoseps relictus

relictual slender salamander

1) Taxonomy follows Jockusch et al. 2012. Morphological and molecular diversification of slender salamanders (Caudata: Plethodontidae: *Batrachoseps*) in the southern Sierra Nevada of California with descriptions of two new species. Zootaxa 3190:1-30, which synonymized *Batrachoseps* sp. 1, Breckenridge Mountain slender salamander, with *B. relictus*.

Hydromantes shastae

Shasta salamander

1) *Hydromantes shastae* has been proposed to consist of cryptic genetic structuring that may warrant recognition of additional species named as *Hydromantes samweli* and *Hydromantes wintu* (Bingham et al. 2018, Bull. Mus. Comp. Zool. 161(10):403-427). Until formally reviewed by the Fish and Game Commission, all populations in the Shasta salamander complex are legally state threatened.

Plethodon asupak

Scott Bar salamander

1) Since this newly described species was formerly considered to be a subpopulation of *Plethodon stormi* (Mead et al. 2005), and since *Plethodon stormi* is listed as threatened under CESA, *Plethodon asupak* retains the designation as a threatened species under CESA (Calif. Regulatory Notice Register, No. 21-Z, p.916, 25 May 2007).

BUFONIDAE (true toads)

Anaxyrus californicus

arroyo toad

1) At the time of listing, arroyo toad was known as *Bufo microscaphus californicus*, a subspecies of southwestern toad. In 2001, it was determined to be its own species, *Bufo californicus*. Since then, many species in the genus *Bufo* were changed to the genus *Anaxyrus*, and now arroyo toad is known as *Anaxyrus californicus* (Frost et al. 2006).

Anaxyrus canorus

Yosemite toad

1) Formerly *Bufo canorus*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Anaxyrus* (Tschudi 1845).

Anaxyrus exsul

black toad

1) Formerly *Bufo canorus*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Anaxyrus* (Tschudi 1845).

Incilius alvarius

Sonoran Desert toad

1) Formerly *Bufo alvarius*. Between 2006-2009, the scientific name has been changed to *Cranopsis alvaria*, *Ollotis alvaria*, *Incilius alvarius*, back to *Ollotis alvarius*, and then back to *Incilius alvarius*. The common name has changed from Colorado River toad to Sonoran Desert toad.

RANIDAE (true frogs)

Lithobates pipiens

northern leopard frog

1) Formerly *Rana pipiens*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Lithobates* (Fitzinger 1843).

Lithobates yavapaiensis

lowland leopard frog

1) Formerly *Rana yavapaiensis*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus Lithobates (Fitzinger 1843).

Rana aurora

northern red-legged frog

1) An mtDNA study (Shaffer et al. 2004) concluded that *Rana aurora aurora* and *Rana aurora draytonii* should be recognized as separate species with a narrow zone of overlap

Rana draytonii

California red-legged frog

1) An mtDNA study (Shaffer et al. 2004) concluded that *Rana aurora aurora* and *Rana aurora draytonii* should be recognized as separate species with a narrow zone of overlap, and that the range of draytonii extends about 100 km further north in coastal California than previously thought.

Rana muscosa

southern mountain yellow-legged frog

1) Both federally recognized Distinct Population Segments (DPS) of the mountain yellow-legged frog (*Rana muscosa*) are currently Endangered (2021). The mountain yellow-legged frog – northern DPS is known from the southern Sierra Nevada; the mountain yellow-legged frog – southern DPS is known from the Transverse Ranges.

Rana sierrae

Sierra Nevada yellow-legged frog

1) Formerly *Rana muscosa*. *Rana muscosa* was split into *Rana sierrae*, the Sierra Nevada yellow-legged frog, found in the northern and central Sierra Nevada, and *Rana muscosa*, the southern mountain yellow-legged frog, found in the southern Sierra Nevada and southern California.

Reptiles

EMYDIDAE (box and water turtles)

Emys marmorata

western pond turtle

1) CNDDB tracks western pond turtle at the full species level, based on the determination that the previous subspecies split was not warranted (Spinks, P.Q. and Shaffer, H.B. 2005. Range-wide molecular analysis of the western pond turtle (*Emys marmorata*): cryptic variation, isolation by distance, and their conservation implications. Molecular Ecology 14(7):2047-2064).
2) Genus was updated to *Emys* based on findings in: Spinks, P.Q. and Shaffer, H.B. 2009. Conflicting mitochondrial and nuclear phylogenies for the widely disjunct *Emys* (Testudines: Emydidae) species complex, and what they tell us about biogeography and hybridization. Systematic Biology. 58(1):1-20.

XANTUSIIDAE (night lizards)

Xantusia vigilis sierrae

Sierra night lizard

1) Formerly *Xantusia sierrae*; scientific name changed to reflect currently accepted subspecies concept.

ANNIELLIDAE (legless lizards)

Anniella alexanderae

Temblor legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella campi

Southern Sierra legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella grinnelli

Bakersfield legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella pulchra

Northern California legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella spp.

California legless lizard

1) This element represents California records of *Anniella* not yet assigned to new species within the *Anniella pulchra* complex. Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). CNDDB has assigned new species concepts to most, but not all, previously known and extant legless lizard occurrences. Where an occurrence of a legless lizard is not known to the species level, the general concept California legless lizard (*Anniella* spp.) will be applied until further evidence is available. All legless lizards in California are a Species of Special Concern (Thomson et al., 2016).

Anniella stebbinsi

Southern California legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

HELODERMATIDAE (venomous lizards)

Heloderma suspectum cinctum

banded Gila monster

1) BLM Sensitive designation refers to the full species.

NATRICIDAE (live-bearing snakes)

Thamnophis sirtalis pop. 1

south coast gartersnake

1) CDFW Species of Special Concern treats this population as a distinct taxon, though it is more commonly treated as a subpopulation of *Thamnophis sirtalis infernalis*, the California red-sided gartersnake.

Birds

PHASIANIDAE (grouse and ptarmigan)

Centrocercus urophasianus

greater sage-grouse

1) 20151002 finding was that federal listing of the full species was not warranted, Proposed rule to federally list the Bi-State DPS (Mono Basin of CA and NV; Mono, Alpine, and Inyo counties in California) as threatened was withdrawn 20200331.

Dendragapus fuliginosus howardi

Mount Pinos sooty grouse

1) Formerly merged with *D. obscurus* as blue grouse, but separated on the basis of genetic evidence and differences in voice, behavior, and plumage.
2) The North American Bird Conservation Initiative Watch List designation refers to the full species.

ACCIPITRIDAE (hawks, kites, harriers, and eagles)

Circus hudsonius

northern harrier

1) Formerly considered conspecific with *Circus cyaneus*, but treated as separate on the basis of differences in morphology, plumage, and breeding habitat.

RALLIDAE (rails, coots, and gallinules)

Laterallus jamaicensis coturniculus

California black rail

1) The North American Bird Conservation Initiative Watch List designation refers to the full species.
2) The IUCN designation of Near Threatened refers to the full species.

Rallus obsoletus levipes

light-footed Ridgway's rail

1) The North American Bird Conservation Initiative Watch List designation refers to the full species.

Rallus obsoletus obsoletus

California Ridgway's rail

1) The North American Bird Conservation Initiative Watch List designation refers to the full species.

Rallus obsoletus yumanensis

Yuma Ridgway's rail

1) The North American Bird Conservation Initiative Watch List designation refers to the full species.

CHARADRIIDAE (plovers and relatives)

Charadrius montanus

mountain plover

1) Proposed rule to federally list the mountain plover as threatened was withdrawn 20110512.

Charadrius nivosus nivosus

western snowy plover

1) Federal listing applies only to the Pacific coastal population.
2) CDFW SSC designation refers to both the coastal and interior populations.

LARIDAE (gulls and terns)

Gelochelidon nilotica

gull-billed tern

1) Taxonomy recently changed from *Sterna nilotica*.

Hydroprogne caspia

Caspian tern

1) Taxonomy recently changed from *Sterna caspia*.

Sternula antillarum browni

California least tern

1) Taxonomy recently changed from *Sterna antillarum browni*.
2) North American Bird Conservation Initiative Watch List designation refers to the full species.

Thalasseus elegans

elegant tern

1) Taxonomy recently changed from *Sterna elegans*.

ALCIDAE (auklets, puffins, and relatives)

Synthliboramphus scrippsi

Scripps's murrelet

1) Formerly included in Xantus's murrelet as *Synthliboramphus hypoleucus scrippsi*. Now considered a full species.

STRIGIDAE (owls)

Athene cunicularia

burrowing owl

1) A burrow site = an observation of one or more owls at a burrow or evidence of recent occupation such as whitewash and feathers. Winter observations at a burrow are mapped. Winter observations with or without a burrow in San Francisco, Ventura, Sonoma, Marin, Napa, and Santa Cruz Counties are mapped.

Strix occidentalis caurina

northern spotted owl

1) There are no spotted owl EOs in the CNDDB. All spotted owl location information is maintained in a separate database (https://wildlife.ca.gov/Data/CNDDB/Spotted-Owl-Info). CNDDB subscribers can access these datasets from the same bookmark as the CNDDB layer in BIOS (https://www.wildlife.ca.gov/Data/BIOS).
2) North American Bird Conservation Initiative Watch List designation refers to the full species.

Strix occidentalis occidentalis

California spotted owl

1) There are no spotted owl EOs in the CNDDB. All spotted owl location information is maintained in a separate database (https://wildlife.ca.gov/Data/CNDDB/Spotted-Owl-Info). CNDDB subscribers can access these datasets from the same bookmark as the CNDDB layer in BIOS (https://www.wildlife.ca.gov/Data/BIOS).
2) The North American Bird Conservation Initiative Watch List designation refers to the full species.

TYRANNIDAE (tyrant flycatchers)

Empidonax traillii

willow flycatcher

1) State listing of the full species includes all subspecies.

Empidonax traillii brewsteri

little willow flycatcher

1) State listing of the full species includes all subspecies.
2) North American Bird Conservation Initiative Watch List designation refers to the full species.

Empidonax traillii extimus

southwestern willow flycatcher

1) State listing of the full species includes all subspecies.
2) North American Bird Conservation Initiative Watch List designation refers to the full species.

LANIIDAE (shrikes)

Lanius ludovicianus mearnsi

San Clemente loggerhead shrike

1) Subspecific identity of shrikes currently on San Clemente is uncertain. Mundy et al. (1997a, b) provided evidence *L. l. mearnsi* is genetically distinct from *L. l. gambeli* and *L. l. anthonyi*, whereas Patten and Campbell (2000) concluded, based on morphology, that the birds now on San Clemente are intergrades between *L. l. mearnsi* and *L. l. anthonyi*.

VIREONIDAE (vireos)

Vireo bellii arizonae

Arizona Bell's vireo

1) North American Bird Conservation Initiative Watch List designation refers to the full species.
2) The IUCN designation of Near Threatened refers to the full species.

Vireo bellii pusillus

least Bell's vireo

1) North American Bird Conservation Initiative Watch List designation refers to the full species.
2) The IUCN designation of Near Threatened refers to the full species.

TROGLODYTIDAE (wrens)

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

1) CDFW Bird Species of Special Concern report uses the common name San Diego cactus wren.

POLIOPTILIDAE (gnatcatchers)

Polioptila californica californica

coastal California gnatcatcher

1) CDFW Bird Species of Special Concern report uses the common name Alta California gnatcatcher.
2) North American Bird Conservation Initiative Watch List designation refers to the full species.

MIMIDAE (mockingbirds and thrashers)

Toxostoma lecontei

Le Conte's thrasher

1) CDFW SSC designation refers only to the San Joaquin population.
2) The BLM Sensitive designation refers to the San Joaquin Le Conte's thrasher, *Toxostoma lecontei macmillanorum*, although the subspecies concept is not universally recognized.

PASSERELLIDAE (sparrows)

Artemisiospiza belli belli

Bell's sage sparrow

1) North American Bird Conservation Initiative Watch List designation refers to the full species.

Artemisiospiza belli clementeae

San Clemente sage sparrow

1) Subspecific validity uncertain. Recognized by AOU (1957), but not by Patten and Unitt (2002).
2) North American Bird Conservation Initiative Watch List designation refers to the full species.

Melospiza melodia graminea

Channel Island song sparrow

1) Subspecific validity is uncertain. This subspecies when referred to as Santa Barbara song sparrow is extinct. However, the subspecies was merged by Patten (2001) with the San Miguel (*M. m. micronyx*), and San Clemente (*M. m. clementae*) song sparrows as the Channel Island song sparrow with the subspecific name *M. m. graminea*.

Melozone crissalis eremophilus

Inyo California towhee

1) Previously in the genus *Pipilo*.

PARULIDAE (wood-warblers)

Geothlypis trichas sinuosa

saltmarsh common yellowthroat

1) CDFW Bird Species of Special Concern report uses the common name San Francisco common yellowthroat

Setophaga petechia

yellow warbler

1) This element includes the subspecies *S. p. morcormi* and *S. p. brewsteri*, which are tracked under the full species, *S. petechia*, due to difficulty distinguishing them. *S. p. sonorana*, which nests in California only along the Colorado River, is tracked separately.

Setophaga petechia sonorana

Sonoran yellow warbler

1) Nests in California only along the Colorado River. Observations of yellow warblers from other regions are tracked as the full species, *S. petechia*.

Mammals

PHYLLOSTOMIDAE (leaf-nosed bats)

Leptonycteris yerbabuenae

lesser long-nosed bat

1) Federal listing uses the scientific name *Leptonycteris curasoae yerbabuenae*.

VESPERTILIONIDAE (evening bats)

Lasiurus frantzii

western red bat

1) Nomenclature changed from *Lasiurus blossevillii* to *Lasiurus frantzii* based on Baird et al. 2015, J. of Mammalogy 96(6):1255-1274.

APLODONTIIDAE (mountain beavers)

Aplodontia rufa californica

Sierra Nevada mountain beaver

1) The IUCN Least Concern designation refers to the full species.

Aplodontia rufa nigra

Point Arena mountain beaver

1) The IUCN Least Concern designation refers to the full species.

Aplodontia rufa phaea

Point Reyes mountain beaver

1) The IUCN Least Concern designation refers to the full species.

HETEROMYIDAE (kangaroo rats, pocket mice, and kangaroo mice)

Chaetodipus fallax fallax

northwestern San Diego pocket mouse

1) CDFW SSC designation refers to the full species.

Chaetodipus fallax pallidus

pallid San Diego pocket mouse

1) CDFW SSC designation refers to the full species.

Perognathus alticola alticola

white-eared pocket mouse

1) CDFW SSC, BLM Sensitive, and IUCN Endangered designations refer to the full species.

Perognathus alticola inexpectatus

Tehachapi pocket mouse

1) CDFW SSC and IUCN Endangered designations refer to the full species.

Perognathus inornatus

San Joaquin pocket mouse

1) This element includes the subspecies *P. i. inornatus* and *P. i. neglectus*, which are tracked under the full species, *P. inornatus*, due to difficulty distinguishing them. *P. i. inornatus* generally occurs on the eastern side of the San Joaquin Valley, while *P. i. neglectus* generally occurs on the western side. *P. i. psammophilus*, which occurs only in the Salinas Valley, is tracked separately.

CRICETIDAE (mice, rats, and voles)

Neotoma fuscipes riparia

riparian (=San Joaquin Valley) woodrat

1) This species is currently undergoing taxonomic revision

Reithrodontomys megalotis santacruzae

Santa Cruz harvest mouse

1) Synonymous with *Reithrodontomys megalotus longicaudus*, Santa Cruz Island population.

CANIDAE (foxes, wolves, and coyotes)

Urocyon littoralis catalinae

Santa Catalina Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis clementae

San Clemente Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis dickeyi

San Nicolas Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis littoralis

San Miguel Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis santacruzae

Santa Cruz Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis santarosae

Santa Rosa Island fox

1) The IUCN Near Threatened status refers to the full species.

MUSTELIDAE (weasels and relatives)

Enhydra lutris nereis

southern sea otter

1) The IUCN Endangered designation refers to the full species.

Lontra canadensis sonora

southwestern river otter

1) CDFW SSC status refers only to the subspecies *L. canadensis sonora*, which is known in California only from the Colorado River.

Martes caurina humboldtensis

Humboldt marten

1) Federal status refers to the coastal DPS of Pacific marten (*Martes caurina*)

Pekania pennanti

Fisher

1) In 2004, the West Coast DPS of fisher became a candidate for federal listing, and underwent numerous evaluations, proposed rules, and revisions in subsequent years. In 2020, the West Coast DPS was further divided into the Southern Sierra Nevada DPS and the Northern California/Southern Oregon DPS (which also includes Northern Sierra Nevada and Southern Oregon Cascades subpopulations which arose from reintroductions). State threatened and federal endangered statuses apply only to the Southern Sierra Nevada ESU/DPS. State listing defines the northern limit of the SSN ESU as the Merced River, while federal listing uses the Tuolumne River.

BOVIDAE (sheep and relatives)

Ovis canadensis nelsoni

desert bighorn sheep

1) Desert bighorn sheep (*O. c. nelsoni*) in the Peninsular Ranges are tracked as a metapopulation of the subspecies, Peninsular bighorn sheep DPS (*O. c. nelsoni* pop. 2)
2) Fully Protected with the exception of legal hunting conducted in compliance with California Code of Regulations 14 CCR 362.

Ovis canadensis nelsoni pop. 2

Peninsular bighorn sheep DPS

1) The subspecies peninsular bighorn sheep (*O. c. cremnobates*) has been synonymized with *O. c. nelsoni* (Wehausen & Ramey 1993). Peninsular bighorn sheep are now considered to be a metapopulation and are recognized as a federal Distinct Population Segment (DPS).

B-2 USFWS IPaC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Reno Fish And Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, NV 89502-7147
Phone: (775) 861-6300 Fax: (775) 861-6301

In Reply Refer To:
Project Code: 2023-0022852
Project Name: BIH_RSA_Project

December 08, 2022

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, 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 U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

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 Code 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
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

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:

Reno Fish And Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, NV 89502-7147
(775) 861-6300

Project Summary

Project Code: 2023-0022852
Project Name: BIH_RSA_Project
Project Type: Airport - Maintenance/Modification
Project Description: Inyo County seeks to bring the Runway Safety Area (RSAs) off both the Runway 12 and 30 ends at Bishop Airport into compliance with FAA requirements (RSA Project). The RSA improvements require certain changes to the Airport Layout Plan (ALP).

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.372660350000004,-118.36411243640129,14z

Counties: Inyo County, California

Endangered Species Act Species

There is a total of 6 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.

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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
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Owens Pupfish *Cyprinodon radiosus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4982	Endangered
Owens Tui Chub *Gila bicolor ssp. snyderi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7289	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
Fish Slough Milk-vetch *Astragalus lentiginosus var. piscinensis*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7947

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American White Pelican *pelecanus erythrorhynchos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6886	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Swift *Cypseloides niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Tern *Chlidonias niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15

NAME	BREEDING SEASON
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Sage Thrasher *Oreoscoptes montanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

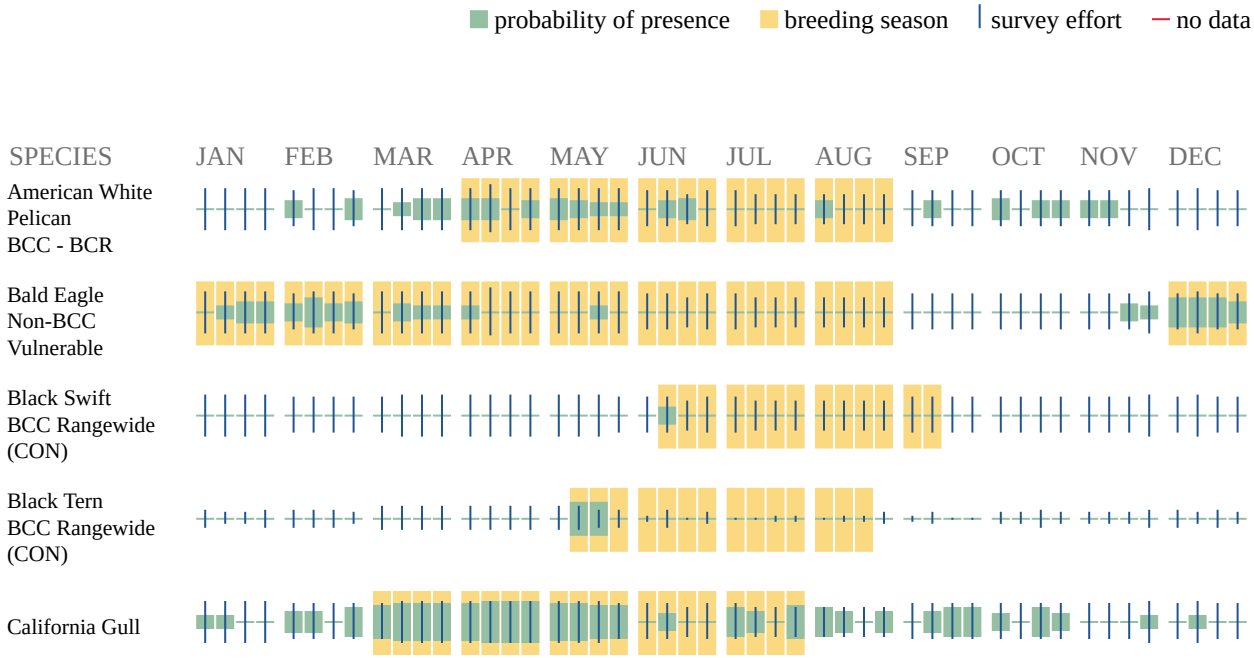
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

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Appendix C

Aquatic Resources Delineation Report

ESA

DRAFT

RUNWAY 12/30 SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

Aquatic Resources Delineation Report

Prepared for
Inyo County Public Works

July 2023

DRAFT

RUNWAY 12/30 SAFETY AREA IMPROVEMENT PROJECT AT BISHOP AIRPORT

Aquatic Resources Delineation Report

Prepared for
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July 2023

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CHAPTER 1
Introduction

Environmental Science Associates (ESA) conducted an aquatic resources delineation for the Runway Safety Area Improvement Project at Bishop Airport (Proposed Project) in Inyo County, California (County). This report presents the regulatory framework, methods, and results of the delineation of aquatic resources within the Project area. The survey area for this delineation report includes approximately 403 acres in Inyo County and encompasses areas where Project activities are expected to occur. The purpose of the delineation was to determine the extent of state and federal jurisdiction within each survey area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA, and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

The aquatic resources delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987)*, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008b), and *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2020), where applicable. ESA also reviewed the *USACE Sacramento District Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE 2017), *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016), and *Aquatic Resource Delineation Report Submittal Workshop* (USACE 2019) for information to include in the report, figures, and supporting data.

1.1 Project Description

Runway 12/30 currently has a nonstandard Runway Safety Area (RSA) with portions featuring excessive slopes, noncompliant grading, and/or excessive vegetation. In addition, a Los Angeles Department Of Water And Power (LADWP) service road currently runs through the RSA off the Runway 12 end and the airport security fence runs through the RSA off both the Runway 12 and Runway 30 ends. Inyo County seeks to correct the existing deficiencies in the RSA so it can meet FAA standards for a runway of its type (Proposed Project). The RSA improvements require certain changes to the Airport Layout Plan (ALP) and would be funded, in part, by FAA conferred grants. The Proposed Project is subject to discretionary approval on the part of the County and is thus subject to the California Environmental Quality Act (CEQA).

1.2 Survey Location

The Project location, as depicted on **Figure 1**, is approximately 2 miles east of the town of Bishop, California in Inyo County on the property of the Bishop Airport. The survey area, as depicted on **Figure 2**, is bordered by North Fork Bishop Creek to the north, Owens River to the east, Line Street to the south, and CA route 395 to the west. The survey location is on the Bishop, Poleta Canyon, Laws, and Fish Slough quadrangles 7.5-Minute series. The elevation of the survey location ranges from 4,080 feet to 4,130 feet above sea level.

1.2.1 Directions to the Survey Area

To navigate to the survey area (37.372987, -118.368002) from Bishop, CA:

- Drive east on East Line Street
- Turn left on Airport Road and continue north 0.7 miles

1.3 Contact Information

Applicant

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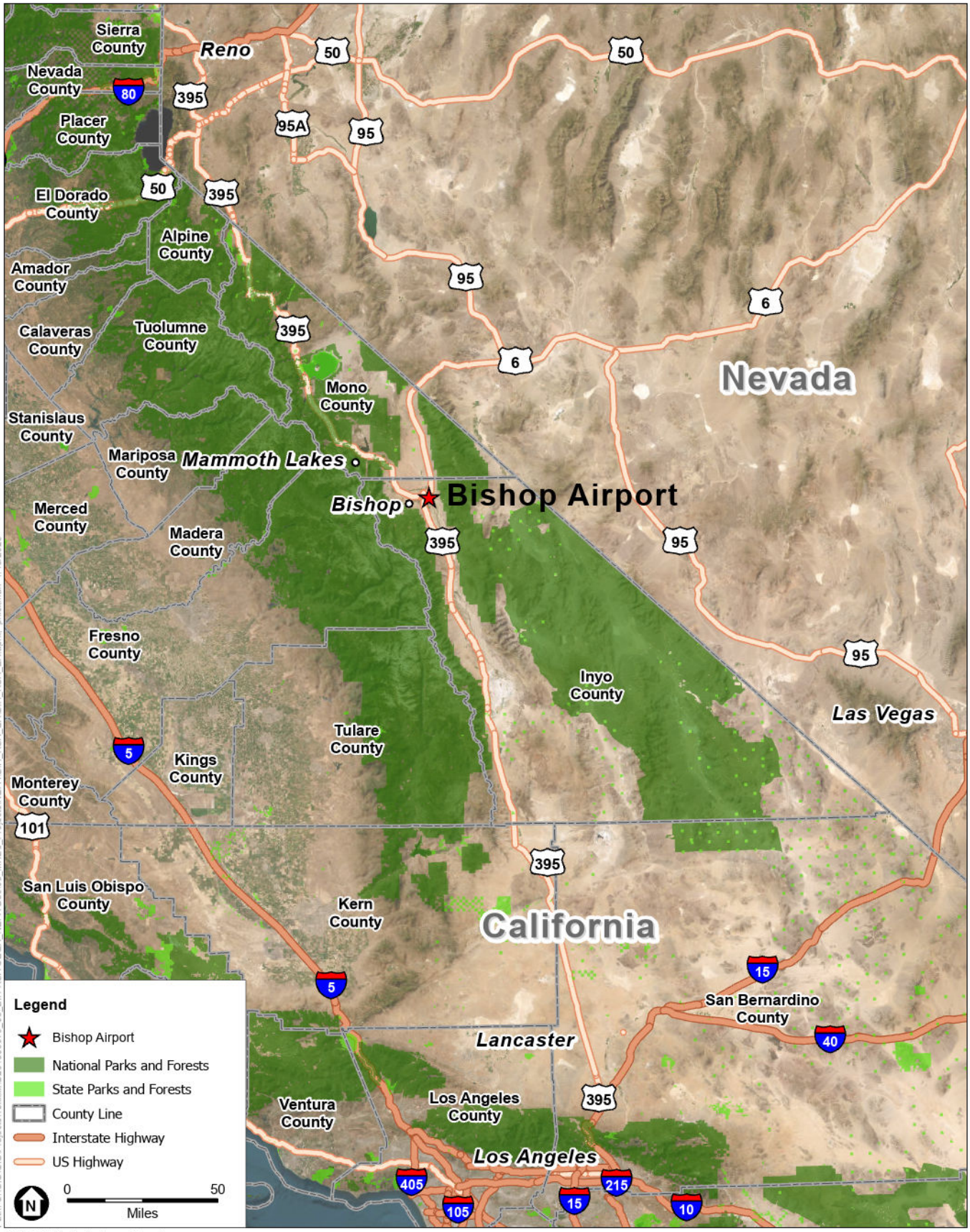
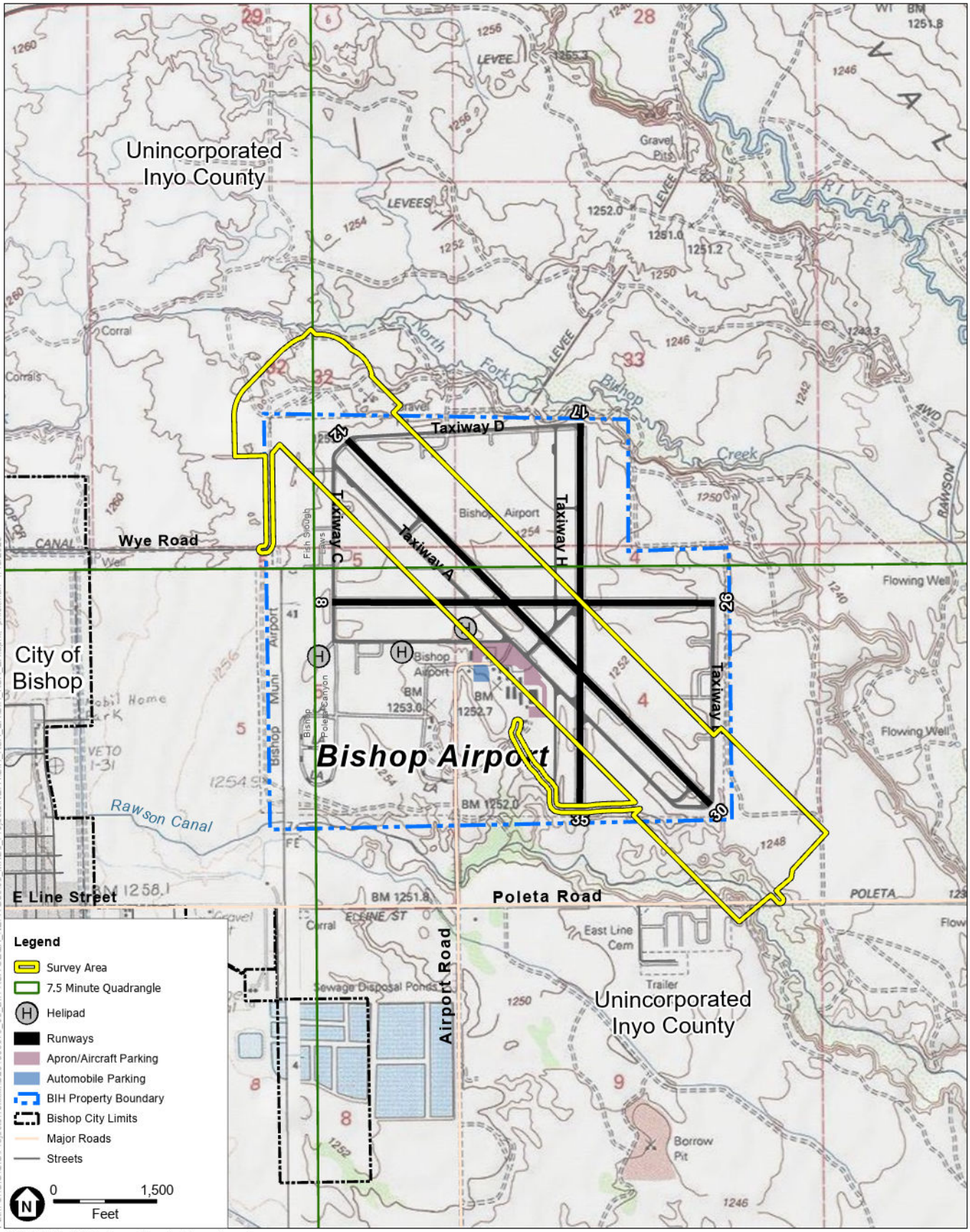


SOURCE: Esri; Inyo County Department of Public Works; ESA, 2020.

Figure 1
Bishop Airport Location

ESA



SOURCE: ESRI; Inyo County Department of Public Works; ESA, 2020; USGSTopo, 2021.

Figure 2
Bishop Airport Vicinity Map

ESA

CHAPTER 2
Existing Conditions

2.1 Aquatic Resources Delineation Survey Area

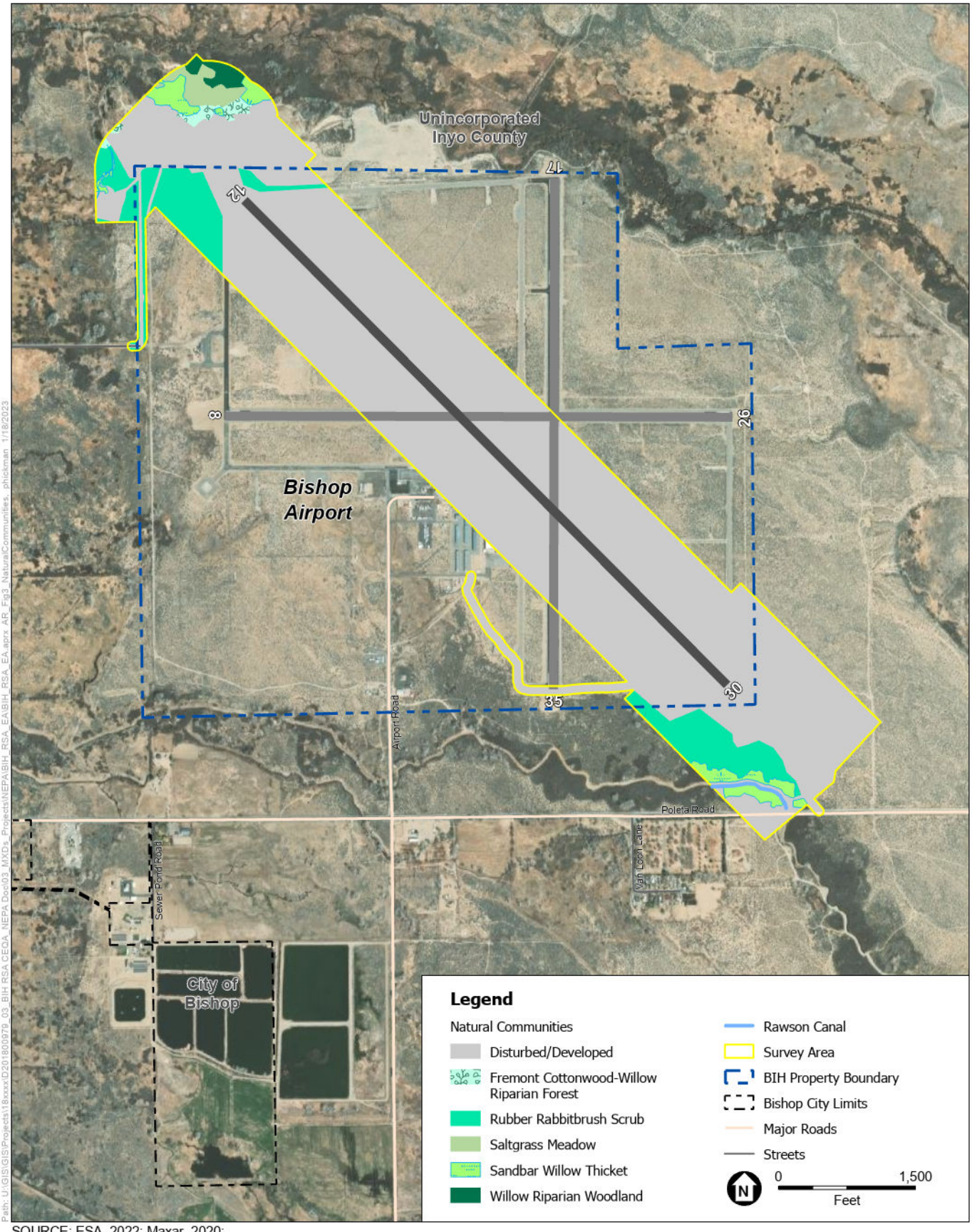
The Project survey area encompasses approximately 403 acres. The survey area includes the area of the proposed runway expansion along with a 100-foot buffer to account for moving wildlife and hydrological resources. The survey area has an average annual precipitation of 4.84 inches. Temperatures range from an average annual maximum temperature of 99.7°F to an average annual minimum temperature of 54.5°F.

The areas surrounding Bishop Airport are generally disturbed. Areas to the north of the Airport—beyond Runway 12—were once used as a gravel quarry and are now frequently used for recreation, including off highway vehicle (OHV) use. On the south end of the survey area—beyond Runway 30—there is riparian scrub on the north and south banks of Rawson Canal. This riparian scrub was too dense to survey on foot, and the southern portion was not accessible due to Rawson Canal and barbed wire fencing. The survey area is not irrigated and is graded including vegetation management to comply with airport regulations. This region has been affected by drought within the watershed in the past few decades.

The survey area was investigated for potential jurisdictional wetlands and non-wetland habitats. The survey area was accessible by foot or vehicle and was walked during surveys, with exception of the area of dense riparian scrub mentioned above, taking care to stay within the 100-foot buffer area and within approved lands.

2.2 Vegetation Communities and Land Cover Types

Vegetation communities and land cover types were mapped in the survey area (**Figure 3**). These include upland habitats (rubber rabbitbrush scrub and disturbed/developed), wetland/riparian habitats (Fremont cottonwood-willow riparian forest, sandbar willow thicket, willow riparian woodland, saltgrass meadow), and canals (Rawson Canal). The area of all vegetation communities and land cover types are included in **Table 2-1** and the vegetation communities found in the survey area are described below.



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; California Department of Water Resources, 2022.

Aquatic Resources Delineation Report

Figure 3
Natural Communities and Land Cover Types

ESA

TABLE 2-1
VEGETATION COMMUNITIES AND LAND COVER TYPES WITHIN THE SURVEY AREA

Vegetation Community/Land Cover Type	Acreage
Open Water, Riparian, and Wetlands[a]	
Sandbar Willow Thicket	9.69
Fremont Cottonwood-Willow Riparian Forest	2.54
Willow Riparian Woodland	2.73
Saltgrass Meadow	4.60
Uplands	
Rubber rabbitbrush scrub	35.93
Developed/Disturbed Land Cover Types	
Disturbed/Developed	347.68

NOTE:
[a] U.S. Fish and Wildlife Service definition of wetland
SOURCE: Environmental Science Associates, 2022; CNPS 2022

2.2.1 Wetland Vegetation Communities

Wetland communities at the far north and south ends of the survey area were identified through research using the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) database and field surveys conducted on November 1, 2022. The USFWS NWI identifies the presence of freshwater forested/shrub riparian habitat slightly within and immediately surrounding the survey area. Field surveys confirm that these areas consist of perennial herbaceous vegetation, shrubby willow trees (*Salix* sp.), and rose (*Rosa woodsii*) bushes at the northern end—beyond Runway 12.

Rawson Canal is a perennial stream located on the southeastern end—beyond Runway 30—and is potential habitat for wetland and stream species. Rawson Canal is located within the Crowley Lake Watershed and empties into the Owens River. Small areas of willow shrubs and rose thicket are located to the south along Rawson Canal. The wetland vegetation communities within the survey area are described below.

Sandbar willow thicket (Salix exigua Alliance)

Dense thickets of sandbar willow (*Salix exigua*) are present within the northwestern end of the survey area—beyond Runway 12. Stands are almost uniformly comprised of sandbar willow, with interspersed Wood's rose (*Rose woodsii*). Due to high density of sandbar willow, very little herbaceous cover is present. Breaks in this community contain small patches of cattail (*Typha* sp.). Along Rawson Canal, beyond Runway 30, small clusters of common reeds (*Phragmites australis*) are also present within this community.

Fremont cottonwood-willow riparian forest (*Populus fremontii-Salix gooddingii-S. lasiolepis, S. laevigata* Alliance)

Patches of Fremont cottonwood (*Populus fremontii*) are scattered along the north edge of the survey area, beyond Runway 12, primarily near the transition from upland to riparian areas. Co-occurring species include black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*). Herbaceous cover associated with this community is variable and includes stands of perennial pepperweed (*Lepidium latifolium*), saltgrass (*Distichlis spicata*), and rushes (*Juncus* spp.).

Willow riparian woodland (*Salix gooddingii-S. lasiolepis Salix laevigata* Alliance)

Small areas of willow riparian woodland are present in the north portion of the survey area, at its closest proximity to North Fork Bishop Creek, beyond Runway 12. Black willow, red willow and arroyo willow are dominant or co-dominant in this vegetation alliance. Areas of sandbar willow and Wood's rose occur in the shrub layer, with an herbaceous layer including Indian hemp dogbane (*Apocynum cannabium*), saltgrass, and reeds.

Saltgrass meadow (*Distichlis spicata* Alliance)

An open saltgrass meadow is located in the survey area northwest of Runway 12. Additional component species of this community include common spike rush (*Eleocharis macrostachya*), scratchgrass (*Muhlenbergia asperifolia*), and rushes. The driest portion of this meadow includes small areas of rabbitbrush, while the wettest includes cattail and alkali bulrush (*Bolboschoenus maritimus*) (Sawyer et al. 2009).

2.2.2 Upland Habitat

The survey area primarily consists of upland habitat. This includes areas with a mixture of low-intensity development, open space, and shrub/scrub habitat. The open areas surrounding the runway are routinely graded and maintained by the Airport operations staff for general aviation usage, which requires low-growing vegetation. The area to the northwest of the survey area was previously used for gravel mining, and is largely abandoned, except for occasional OHV use. The LADWP regularly patrol this area to ensure that there are no illegal dumping activities that could compromise the integrity of local water resources. The shrub/scrub habitat consists of primarily low-growing ruderal grassland and common shrub species. The upland vegetation communities within the survey area are described below.

Rubber rabbitbrush scrub (*Ericameria nauseosa* Alliance)

Airport property and surrounding areas outside of the actively maintained runway and taxiway object free areas consist of rubber rabbitbrush (*Ericameria nauseosa*) as the primary shrub species, with interspersed greasewood (*Sarcobatus vermiculatus*), and saltbush (*Atriplex* spp.). The herbaceous cover is general sparse, and includes buckwheat, cryptantha, and short-podded mustard.

Disturbed/Developed

Airport infrastructure (buildings, runways, taxiways, etc.), gravel and paved roads, and actively managed areas are bare or have sparse vegetation. Within the maintained object-free areas adjacent to the runways, low-growing angle-stemmed buckwheat (*Eriogonum maculatum*), cryptantha (*Cryptantha micrantha*), and short-podded mustard (*Hirschfeldia incana*) are present.

2.3 Soils

Soils within the survey area are shown in **Figure 4** (USDA 2020). The survey area contains seven soil types belonging to five soil series (Dehy, Inyo, Poleta, Shabbell, Shondow). Four of these soil types are considered hydric, according to the Natural Resources Conservation Service (NRCS). Additional details can be found in **Table 2-2** and in the NRCS soil report (**Appendix C-1** of this Technical Report).

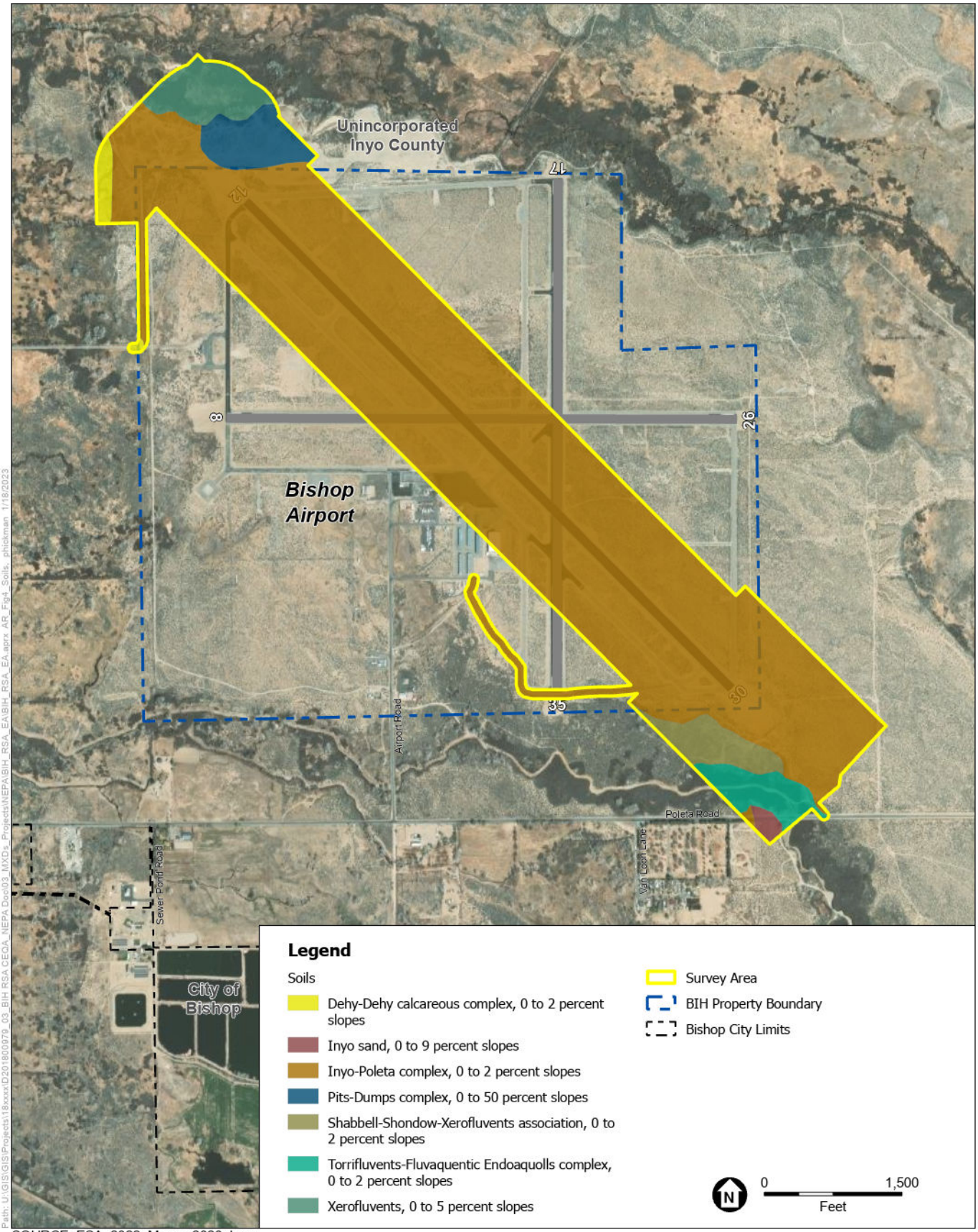
The following resources regarding soils were reviewed:

1. *Hydric Soils List of California*, 2022 (NRCS 2022a) https://www.nrcs.usda.gov/publications/query-by-state.html
2. NRCS's *Web Soil Survey*, queried to determine the soils that have been mapped within the survey area (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx; NRCS 2022b)

TABLE 2-2
SURVEY AREA SOILS

Soil Units	Description	Hydric Soil List Y/N
Dehy-Dehy calcareous complex, 0 to 2 percent slopes	Formed on alluvial fans and stream terraces, somewhat poorly drained	Y
Inyo sand, 0 to 9 percent slopes	Formed on dunes and stream terraces, excessively drained with low runoff	N
Inyo-Poleta complex, 0 to 2 percent slopes	Formed on stream terraces, excessively drained with low runnoff	N
Pits-Dumps complex, 0 to 50 percent slopes	Anthropogenic soil found on valley floors and alluvial fans	N
Shabbell-Shondow-Xerofluvents association, 0 to 2 percent slopes	Formed on stream terraces, well drained with very low runnoff	Y
Torrifluvents-Fluvaquentic Endoaquolls complex, 0 to 2 percent slopes	Loamy soil formed on stream terraces and depressions, somewhat poorly drained	Y
Xerofluvents, 0 to 5 percent slopes	Gravelly sandy loam soils formed in drainageways, poorly drained	Y

SOURCE: NRCS, 2022.



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; NRCS, 2022.

Aquatic Resources Delineation Report

Figure 4
Soil Map

ESA

2.4 Hydrology

The survey area lies within the Owens River watershed (USGS Hydrologic Unit Code 180901020705) with a drainage area of 2,604 mi^2, which drains into and through the Owens Valley, an arid basin between the eastern slope of the Sierra Nevada Mountains and the western faces of the Inyo and White Mountains. The river terminates at the endorheic Owens Lake south of Lone Pine, CA. The Owens River hydrologic cycle is driven by snowmelt from the Sierra Nevada, Inyo, and White Mountains. The surface hydrology in the survey area has been altered by urban development to include agricultural irrigation ditches and the Los Angeles Aqueduct system.

North Fork Bishop Creek, a tributary to the Owens River, runs northeast and is located beyond the northern boundary of the survey area. Bishop Creek is the largest tributary to the Owens River with three forks, the North, Middle, and South, which converge below the Intake Two reservoir. Bishop Creek converges with the Owens River 2.2 miles southeast of the survey area. At the south end of the survey area Rawson Canal runs southeast and drains to Rawson Ponds, and further downstream is connected to the Owens River via a manmade drainage canal.

ESA reviewed the stream gage information available for the region and there are no stream gages local enough to provide relevant information for survey area conditions.

2.5 Climate

The USACE Antecedent Precipitation Tool was used to query the field survey date and HUC12 Watershed (180901020705). The results are included in **Table 2-3** and as **Appendix C-2** of this Technical Report. The tool indicated that field surveys were conducted during the dry season with an average score of 15.0 (wetter than normal). During delineations in November the field site had normal late dry season conditions for California. In addition, the Agricultural Applied Climate Information System Wetlands (WETS) climate table for the Bishop Airport is included below (**Table 2-4**; NOAA 2022).

TABLE 2-3
ANTECEDENT PRECIPITATION TOOL RESULTS FOR PROJECT SITE ON NOVEMBER 1, 2022

No. of Sampling Points	PDSI Class	Season	Antecedent Precipitation Score	Antecedent Precipitation Condition
8	Severe Drought	Dry Season	15.0	Wetter than Normal

SOURCE: Antecedent Precipitation Tool (v.1.0.19), generated on 11/14/2022

TABLE 2-4
WETS TABLE: MONTHLY TOTAL PRECIPITATION FOR BISHOP AIRPORT, CA

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2017	5.23	2.21	0.09	0.92	0.35	T	T	0.02	T	0	0.16	T	8.98
2018	0.04	T	M	0.4	0.27	0	1.52	0.01	0.06	0.4	0.91	0.26	M
2019	1.89	2.42	1.92	T	0.89	0.03	T	T	0.01	0	0.91	0.19	8.26
2020	0.06	0.16	0.45	0.48	T	T	T	T	T	0	T	0.21	1.36
2021	1.09	0.31	0.01	T	T	T	0.06	0.01	T	0.65	0.13	3.72	5.98
2022 (*current year)*	0	T	0.25	T	0	T	0.17	0.72	1.09	T	M	M	M
Mean (2017-2022)	1.39	0.85	0.54	0.3	0.25	0.01	0.29	0.13	0.19	0.18	0.42	0.88	6.15

NOTE:

1 M = missing and is used when more than one day of data is missing for a month.
2 T = trace and is used when a precipitation is <0.01 inch.

SOURCE: USDA 2022.

CHAPTER 3
Regulatory Framework

3.1 Waters of the U.S.

3.1.1 Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972.

In 1986, the term "waters of the United States" was defined as follows (33 CFR 328.3[a]):

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other 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:

   (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

   (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

   (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a)(1) through (4) of this section;

(6) The territorial seas; and

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) through (6) of this section.

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for

> the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with Environmental Protection Agency (EPA).

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered waters of the U.S. (subject to the significant nexus test, described below), and are defined by USACE as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

Section 401 of the CWA gives the state authority to grant, deny, or waive certification of proposed federally licensed or permitted activities resulting in discharge to waters of the U.S. The State Water Resources Control Board (State Water Board) directly regulates multi-regional projects and supports the Section 401 certification and wetlands program statewide. The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the federal CWA, which specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State or appropriate interstate water pollution control agency in/where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

Solid Waste Agency of Northern Cook County (SWANCC) v. United States

Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001), was a United States Supreme Court decision that determined that the USACE’s use of the "migratory bird rule" to decide the extent of its authority over discharges into "isolated waters" (including isolated wetlands), exceeded the authority that was granted by Section 404 of the Clean Water Act. In 2001 and again in 2003, the agencies developed guidance to address the definition of "waters of the United States" under the Clean Water Act following the SWANCC Supreme Court decision. Isolated, intrastate waters that are capable of supporting navigation by watercraft remain subject to CWA jurisdiction after SWANCC if they are traditional navigable waters. However, SWANCC eliminates CWA jurisdiction over isolated waters that are intrastate and non-navigable.

Rapanos v. United States & Carabell v. United States

The USACE and the EPA have issued a set of guidance documents detailing the process for determining CWA jurisdiction over waters of the U.S. following the 2008 Rapanos decision. The EPA and USACE issued a summary memorandum of the guidance for implementing the Supreme

Court's decision in Rapanos that addresses the jurisdiction over waters of the U.S. under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation by the EPA and the USACE to determine CWA jurisdiction over the project and to complete the "significant nexus test" as detailed in the guidelines.

Summary of Key Points

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable Tributary

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
- Significant nexus includes consideration of hydrologic and ecologic factors

The significant nexus test includes consideration of hydrologic and ecologic factors. For certain circumstances, the significant nexus test would take into account physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to a Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and EPA will apply the significant nexus standard to

assess the flow characteristics and functions of a potential water of the U.S. to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.

3.2 Waters of the State

Most projects involving water bodies or drainages are regulated by the RWQCB, the principal State agency overseeing water quality of the State at the local/regional level. The survey area is located within the jurisdiction of the Lahontan RWQCB 6v. Where waters of the State overlap with waters of the U.S., pending verification from the USACE, those waters would be regulated under Section 401 of the CWA which is described in the Regulatory Framework in Section 3.1.

In the absence of waters of the U.S., waters may be regulated under the Porter-Cologne Water Quality Control Act if project activities, discharges, or proposed activities or discharges could affect California's surface, coastal, or ground waters. The permit submitted by the applicant and issued by RWQCB is either a Water Quality Certification in the presence of waters of the U.S. or a Waste Discharge Requirement (WDR) in the absence of waters of the U.S.

The *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (procedures), as prepared by the State Water Resources Control Board, was implemented on May 28, 2020. The procedures include a definition for wetland waters of the state that include 1) all wetland waters of the U.S.; and 2) aquatic resources that meet both the soils and hydrology criteria for wetland waters of the U.S. but lack vegetation.[1]

3.3 Rivers, Streams, and Lakes

Pursuant to Division 2, Chapter 6, Section 1600 et seq. of the FGC, California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for “any activity that may substantially change the bed, channel, or bank of any river, stream, or lake.” In addition, CDFW has authority under FGC over wetland and riparian habitats associated with lakes and streams. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement (LSAA).

[1] Less than 5 percent areal coverage at the peak of the growing season.

CHAPTER 4
Methodology

4.1 Pre-Field Review

Prior to completing the aquatic resources delineation, ESA conducted a review of available background information pertaining to the survey area. The following resources were reviewed to obtain information on the hydrology, including information on the local geography and topography:

- United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2022b);
- USGS 7.5' topographic quadrangle maps: Bishop, Poleta Canyon, Laws, and Fish Slough (USGS 2022a);
- Current aerial imagery (Google, Inc.2022);
- Precipitation data from the Applied Climate Information System (NOAA 2022);
- The National Wetlands Inventory (NWI) (USFWS 2022); and
- National Hydrography Dataset (NHD), (USGS 2022b).

4.1.1 National Wetlands Inventory

Aerial maps (Google, Inc. 2022) and the NWI were used to conduct a preliminary assessment of the limits of aquatic features in the survey area. NWI mapped freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwater pond and riverine within the survey area (**Figures 5** and **6**). Field surveys verified the extent of aquatic features.

4.2 Field Survey Methods

A delineation of aquatic resources within the survey area was conducted on November 1, 2022, by ESA Biologists Anna Schwyter and Natalie Lamas. Weather conditions during the delineation were conducive to conducting field surveys and were sunny and clear. Temperatures ranged from 38 degrees to 52 degrees Fahrenheit and winds ranged from 0-32 mph. Field data were collected using an EOS Arrow 100 Global Navigation Satellite System receiver, which provides Satellite-based Augmentation System corrections processing in the field and can provide submeter real-time horizontal accuracy.

The delineation was conducted by walking throughout the survey area to selected areas where aquatic resources were identified during the literature review. Features that were identified as aquatic resources included, but were not limited to, drainages that had an OHWM and defined channels with bed and bank, as well as potential wetlands evidenced by visible hydrologic

indicators and/or hydrophytic vegetation. Additional data, such as landforms, vegetation, hydrology, and soils (USACE 2008b) were noted where these characteristics were pertinent to identification of features.

Aquatic resources were identified and delineated following current federal and state methodology and guidelines, including waters of the U.S., waters of the State, and FGC Section 1600 resources. Field data forms are included in **Appendix C-3**.

4.2.1 Waters of the U.S.

Wetlands

The delineation used the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008), hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed. Wetlands and waters were classified using commonly accepted habitat types; however, the Cowardin classification (Cowardin et al. 1979) of each feature type is noted in the discussion in Chapter 5.

To determine the extent of potential jurisdictional wetlands on a project site, the 1987 Manual and Arid West Supplement were used as a guide for identifying wetland characteristics. Three positive wetland parameters must normally be present for an area to be considered a wetland: 1) a dominance of wetland vegetation, 2) presence of hydric soils, and 3) presence of wetland hydrology. Presence or absence of positive indicators for wetland vegetation, soils and hydrology was assessed per the 1987 Manual and Arid West Supplement guidelines. Data points were taken within suspected wetlands and a paired point was taken (where applicable) in nearby upland areas. Data points were recorded on Arid West Region wetland determination data forms, which are provided in Appendix C-3.

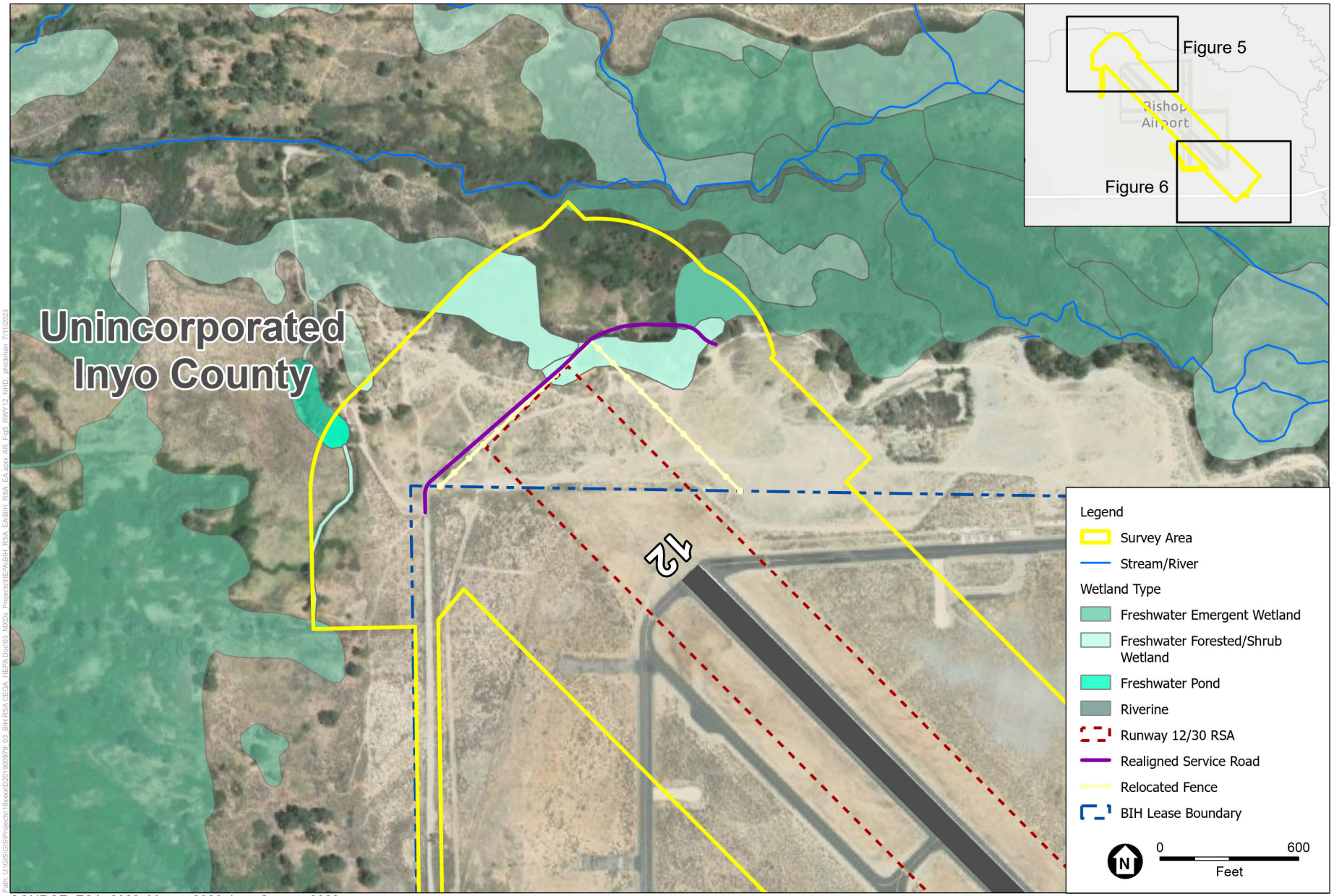
At each data point, a visual assessment of the dominant plant species within the vegetation community was made. Dominant species were assessed using the "Dominance Test" method per the Arid West Supplement. Plants were identified to species using the *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). The *Arid West 2016 Regional Wetland Plant List* (Lichvar et al. 2016) was used to determine the wetland indicator status of all plants.

Hydric soils were identified using soil indicators presented in the *Regional Supplement to the* Arid West Supplement. Soils at each data point were characterized by color, texture, organic matter accumulation, and the presence or absence of hydric soil indicators. The coloration of the soil samples, matrix, and mottles is assessed using the *Munsell Soil Color Charts* (Munsell 2015).

Presence of wetland hydrology was determined at each data point by presence of one or more of the primary and/or secondary indicators, per guidance of the Arid West Supplement.

Non-Wetland (Other) Waters of the U.S.

Federal jurisdiction over non-wetland waters of the U.S. extends to the OHWM, defined in 33 CFR 328.3 as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris. In the Arid West region of the United States, waters are variable and include ephemeral, intermittent and perennial channel forms. Delineation methods were completed in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE, 2008a).

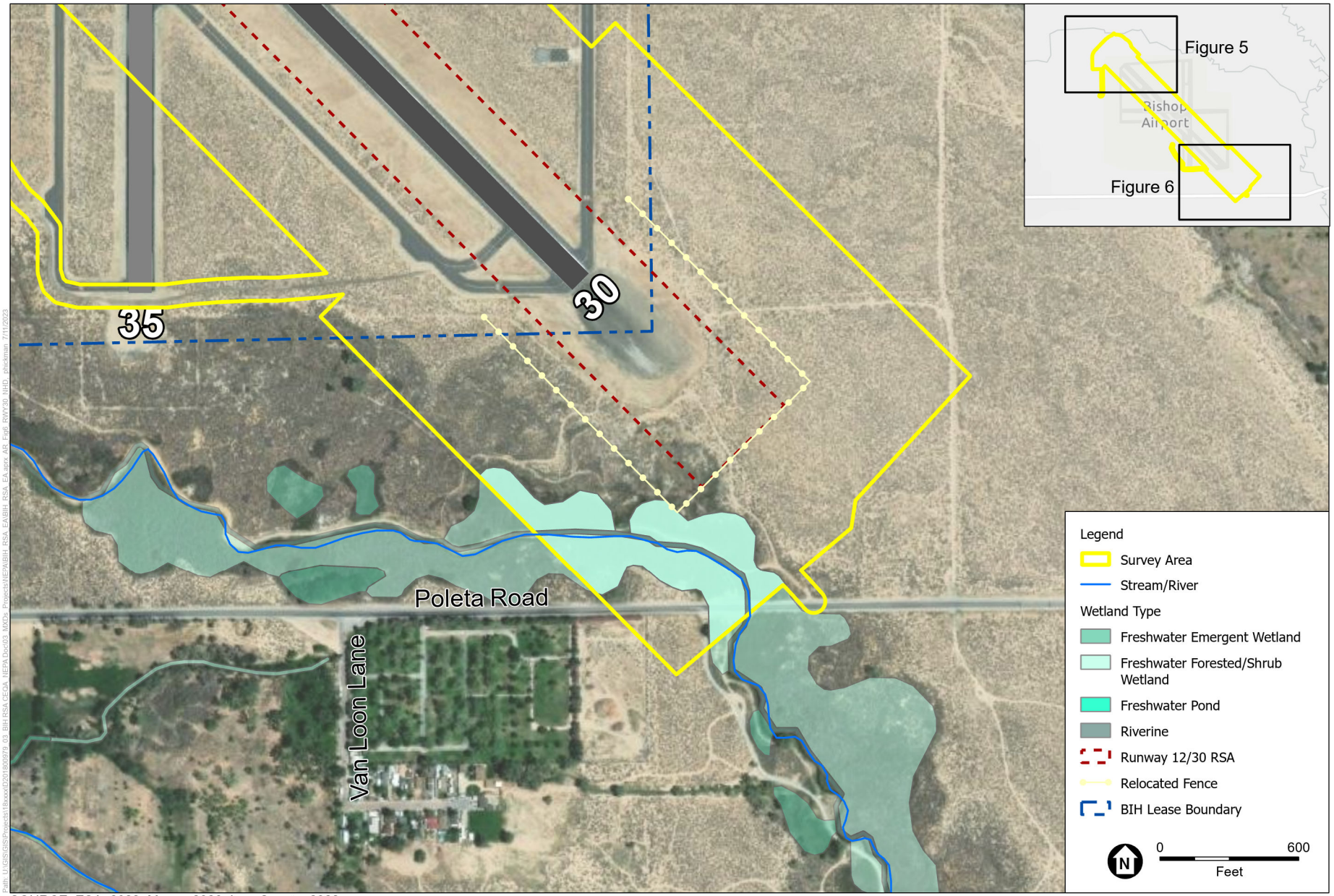


SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; National Hydrography Dataset, 2022.

Aquatic Resources Delineation Report

Figure 5
Hydrology
Runway 12 End

ESA



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022; National Hydrography Dataset, 2022.

Aquatic Resources Delineation Report

Figure 6
Hydrology
Runway 30 End

ESA

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CHAPTER 5
Results

5.1 Aquatic Resources

The delineation identified aquatic resources in the survey area consisting of freshwater emergent wetlands freshwater forested/scrub wetlands, an ephemeral drainage, and a perennial canal. Aquatic resources were classified using the *Classification of Wetlands and Deepwater Habitats of the United* States (the "Cowardin Classification") (FGDC 2013). The details of the aquatic resources are provided below.

Table 5-1 summarizes the aquatic features by type and these types of resources are discussed in detail in the following sections. All aquatic resources are shown in **Figure 7-1** through **Figure 7-5**. **Figures 7-6** and **7-7** depict the delineated wetlands and the Proposed Project. Data forms from the field delineation are included as Appendix C-3 of this Technical Report and representative site photographs are included in **Appendix C-5** of this Report. The full table of individual features is presented in **Appendix C-4** of this Report.

TABLE 5-1
AQUATIC RESOURCES WITHIN THE SURVEY AREA

Aquatic Feature	Cowardin Classification	Linear Feet	Area (acres)
Wetlands			
Freshwater Emergent Wetland (FEW-1)	Emergent, Palustrine (PEM)	**N/A**	**1.27**
Freshwater Forest/Shrub Wetlands (FFSW-1, FFSW-2, FFSW-3, FFSW-4)	Scrub-Shrub, Palustrine (PSS)	N/A	7.56
Riverine			
Riverine (ED-1)	Intermittent, Riverine (R4)	650	0.14
Riverine (Rawson Canal)	Intermittent, Riverine Streambed (R4SB)	950	0.21
	Total Aquatic Features:	**1600**	**9.19**

SOURCE: Environmental Science Associates, 2022

5.1.1 Wetlands

Freshwater Emergent Wetlands

Freshwater emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes and are classified as Palustrine Emergent Wetland (PEM) according to the *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC 2013).

The emergent vegetation is present for most of the growing season in most years and these wetlands are dominated by perennial plants. Wildlife frequently use these areas for nesting and feeding, particularly during migration. Surface water is present for extended periods especially early in the growing season but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

Data point 7 represents conditions in the emergent wetland and point 6 documents the conditions in the adjacent uplands. Hydric soil indicator includes Redox Dark Surface (F6). Wetland hydrology indicators include Drift Deposits (B3) and Inundation Visible on Aerial Imagery (B7).

Freshwater Forest/Scrub Wetlands

Freshwater forest/scrub wetlands include wetland areas dominated by woody vegetation less than 20 feet tall and are classified as Palustrine Scrub-Shrub (PSS) according to the *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC 2013). Vegetation cover includes true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions. Surface water is present for extended periods especially early in the growing season but is absent by the end of the growing season in most years. Once surface water recedes the water table is variable, extending from saturated to the surface to a water table well below the ground surface. PSS wetlands supply an abundance of food and cover resources for mammals and birds and provide necessary breeding habitat for many migratory bird species.

Sample points 5 and 9 represent conditions in the freshwater forest/scrub wetlands and points 6 and 10 document the conditions in the adjacent uplands. Hydric soil indicators include Redox Dark Surface (F6) and Loamy Mucky Mineral (F1). Wetland hydrology indicators include Inundation Visible on Aerial Imagery (B7) and Thin Muck Surface (C7).

5.1.2 Other Waters

Ephemeral Drainage

Sample point 3 represents conditions in the ephemeral drainage and points 2 and 4 document the conditions in the adjacent uplands. Hydric soil indicators include Redox Dark Surface (F6). Wetland hydrology indicators include Drift Deposits (B3) and Inundation Visible on Aerial Imagery (B7). Aerial imagery shows this drainage containing water for some period of some years, and hydrology may be driven by precipitation events.

Riverine

Rawson Canal represents conditions in the riverine classification. Surface water is present in the channel for extended periods especially early in the growing season. The canal is an open conduit which was artificially created and continuously contains flowing water and forms a manmade secondary connection between Bishop Creek and the Owens River.

5.2 Regulatory Analysis

5.2.1 Waters of the U.S.

After the aquatic resources were delineated, all features were evaluated to determine whether they may be regulated under the CWA, using the parameters set forth under the current regulations defining waters of the United States. **Table 5-2** summarizes the results of this assessment for all aquatic resources in the survey area. The evaluation below uses the guidance provided by USACE and EPA (2008) for application of regulations and case law defining waters of the United States for aquatic resources.

TABLE 5-2
POTENTIAL WATERS OF THE U.S.

Aquatic Resource	Waters of the United States (ac)	Excluded (ac)	Rationale
Wetlands			
Freshwater Emergent Wetland FEW-1	1.27	-	Directly abuts RPW
Freshwater Forest/Shrub Wetland FFSW-1	2.79	-	Directly abuts RPW
Freshwater Forest/Shrub Wetland FFSW-2	0.16	-	Directly abuts RPW
Freshwater Forest/Shrub Wetland FFSW-3	1.8	-	Directly abuts RPW
Freshwater Forest/Shrub Wetland FFSW-4	-	2.82	Adjacent but not directly abutting RPW. No surface hydrologic connection to other wetlands or waters.
Other Waters			
Riverine (Rawson Canal)	0.21	-	RPW
ED-1	-	0.14	Isolated non-RPW that drains to a small pond with no downstream connection to an RPW, adjacent wetlands, or a TNW.
Total Aquatic Features:	**6.23**	**2.96**	

NOTES: ac=acres; RPW=Relatively Permanent Waters

SOURCE: Data compiled by Environmental Science Associates in 2020 and 2022

Relatively Permanent Waters

Rawson Canal is an intermittent streambed that is connected upstream to North Fork Bishop Creek and eventually drains (in part) to the Owens River and Owens Lake, a TNW. Rawson

Canal is a RPW, typically having year-round flow. Therefore, Rawson Canal is a non-navigable tributary to a TNW and is therefore a water of the United States.

Wetlands Directly Abutting Relatively Permanent Waters

FFSW-3 directly abuts Rawson Canal because it is within the operational elevation of the canal, and during wet years reaches an elevation where it may drain into the canal thereby establishing a hydrologic connection to the canal. Therefore, FFSW-3 is a wetland directly abutting a RPW and is considered a water of the U.S.

FEW-1, FFSW-1, and FFSW-2 are adjacent to North Fork Bishop Creek. In wet years and during snowmelt and precipitation events they likely exchange surface water with North Fork Bishop Creek. North Fork Bishop Creek is a tributary to the Owens River, a non-navigable tributary to Owens Lake which is a TNW. Therefore, FEW-1, FFSW-1, and FFSW-2 are considered wetland waters of the U.S.

Wetlands Adjacent to but Not Directly Abutting Relatively Permanent Waters

FFSW-4 is adjacent to Rawson Canal but does not directly abut the creek because it is on the opposite side of a road and does not exchange surface water with the canal. Water leaves FFSW-4 through either percolation or evaporation. Based on proximity and soil hydraulic conductivity, FFSW-4 likely shares a groundwater connection with Rawson Canal but lacks a surface hydrologic connection with Rawson Canal and other nearby aquatic resources. Therefore, FFSW-4 does not contribute to the chemical, physical, and biological integrity of the downstream TNW and is not likely to be considered a water of the U.S.

Isolated Non-Relatively Permanent Water

ED-1 is an isolated non-RPW that drains to a small pond with no downstream connection to a RPW, adjacent wetlands, or a TNW. Therefore, ED-1 is not likely to be considered a water of the U.S.

5.2.2 Waters of the State

All the waters and wetlands in the survey area likely qualify as waters of the state. Waters of the state include all features that qualify as waters of the United States. In addition, the definition of waters of the state includes “natural wetlands” and “wetlands created by modification of a surface water of the state.” All wetlands (FEW-1, FFSW-1, FFSW-2, FFSW-3, FFSW-4) and surface waters (ED-1 and Rawson Canal) in the survey area likely qualify as natural aquatic features because there are no artificial hydrologic inputs.

5.2.3 Rivers, Streams, and Lakes

Features potentially subject to regulation under Fish and Game Code Section 1602 are shown in **Table 5-3** and Figures 7-1 through 7-5. Potential CFGC Section 1602 regulated resources include all waters of the state described above with the exception of Freshwater Emergent Wetlands

which do not have a defined bed or bank and do not support riparian habitat. The total acreages potentially subject to CDFW jurisdiction for the survey area are provided in Table 5-3.

TABLE 5-3
FEATURES POTENTIALLY SUBJECT TO SECTION 1600 ET SEQ. OF THE FISH AND GAME CODE

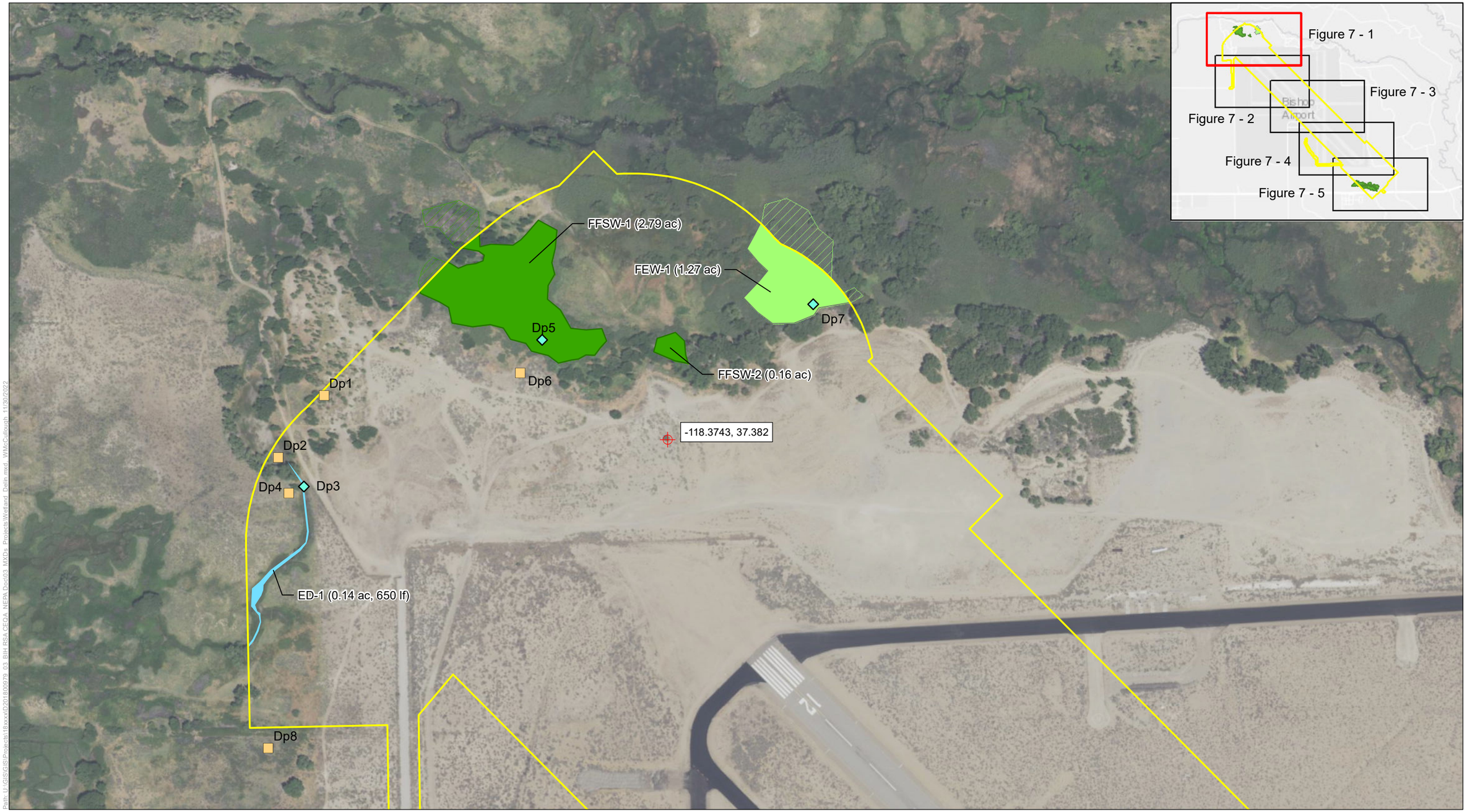
Aquatic Feature	Cowardin Type[1]	Vegetated Streambed/ Pond/Lake (Acre)	Unvegetated Streambed/ Pond/Lake (Acre)	Length (feet)	Average Width (feet)	Vegetation/ Land Cover Type	GPS Coordinates (decimal degrees)
Freshwater Forest/Shrub Wetland FFSW-1	Scrub-Shrub, Palustrine	2.7866	-	NA	NA	Sandbar willow thicket	37.38300000, -118.37579900
Freshwater Forest/Shrub Wetland FFSW-2	Scrub-Shrub, Palustrine	0.1581	-	NA	NA	Sandbar willow thicket	37.38323000, -118.37449900
Freshwater Forest/Shrub Wetland FFSW-3	Scrub-Shrub, Palustrine	1.7970	-	NA	NA	Sandbar willow thicket	37.36231300, -118.35446700
Freshwater Forest/Shrub Wetland FFSW-4	Scrub-Shrub, Palustrine	2.8211	-	NA	NA	Sandbar willow thicket	37.36279900, -118.35626900
ED-1	Intermittent, Riverine	-	0.14	650	5	Sandbar willow thicket	37.381544, -118.378334
Riverine (Rawson Canal)	Riverine intermittent streambed (R4SB)	-	0.21	950	8	Open water	37.36248300, -118.35452000
Totals:		**7.5628**	**0.35**	**1,600**			

SOURCE: Environmental Science Associates, 2022.

5.3 Conclusions

In total, 6.22 acres of aquatic resources are present in the survey area. Wetlands are waters of the United States comprising 6.01 acres. The isolated freshwater forested shrub wetland (FFSW-4) and ED-1 do not meet the significant nexus criteria to qualify as waters of the US; these make up 2.96 acres.

This report documents the delineation of the boundaries of aquatic resources in the survey area, based on the best professional judgment of ESA investigators. All conclusions presented should be considered preliminary and subject to change pending official review and jurisdictional determination in writing by USACE and/or the State of California.



SOURCE: ESA, 2022

Proposed Commercial Airline Service at Bishop Airport

Coordinate System: State Plane California Zone IV (US Feet)
Projection: Lambert Conformal Conic
Datum: NAD 1983 (2011)

*NOTE: Area (acreage) of Wetlands and Other Waters are presented only for the portionlocated within the Survey Area boundary.

Survey Area: 403.210 acres
Map Reference Point

Data Point
- Upland
- Wetland

Wetlands (9.04 acres)*
- Freshwater Emergent Wetland (1.27 acres)
- Freshwater Forested/Shrub Wetland (7.77 acres)

Other Waters (0.14 acres)
- Ephermeral Drainage (0.14 acres)

Wetlands Outside of Study Area
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

1 inch = 300 feet
0 400
Feet

Figure 7-1
Delineation of Wetlands and Other Waters of the U.S.
(1 of 5)

Delineated by: Anna Schwyter
Mapping by: Wes McCullough
Created on: November 29, 2022

Path: U:\GIS\GIS\Projects\18xxxxID\20180979_03 BIH RSA CEQA NEPA Doc\03 MXDs Projects\Wetland Delin.mxd, WMcCullough, 11/30/2022

SOURCE: ESA, 2022

Proposed Commercial Airline Service at Bishop Airport

Coordinate System: State Plane California Zone IV (US Feet)
Projection: Lambert Conformal Conic
Datum: NAD 1983 (2011)

ESA

*NOTE: Area (acreage) of Wetlands and Other Waters are presented only for the portionlocated within the Survey Area boundary.

Survey Area: 403.210 acres
Map Reference Point

Data Point
Upland
Wetland

Wetlands (9.04 acres)*
Freshwater Emergent Wetland (1.27 acres)
Freshwater Forested/Shrub Wetland (7.77 acres)

Other Waters (0.14 acres)
Ephermeral Drainage (0.14 acres)

Wetlands Outside of Study Area
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland

1 inch = 300 feet
0 400
Feet

Figure 7-2
Delineation of Wetlands and Other Waters of the U.S.
(2 of 5)

Delineated by: Anna Schwyter
Mapping by: Wes McCullough
Created on: November 29, 2022

Path: U:\GIS\GIS\Projects\18xxxx\D2018I00979_03 BIH RSA CEQA NEPA Doc\03 MXDs Projects\Wetland Delin.mxd WMcCullough 11/30/2022

SOURCE: ESA, 2022

Proposed Commercial Airline Service at Bishop Airport

Coordinate System: State Plane California Zone IV (US Feet)
Projection: Lambert Conformal Conic
Datum: NAD 1983 (2011)

ESA

*NOTE: Area (acreage) of Wetlands and Other Waters are presented only for the portionlocated within the Survey Area boundary.

Survey Area: 403.210 acres
Map Reference Point

Data Point
Upland
Wetland

Wetlands (9.04 acres)*
Freshwater Emergent Wetland (1.27 acres)
Freshwater Forested/Shrub Wetland (7.77 acres)

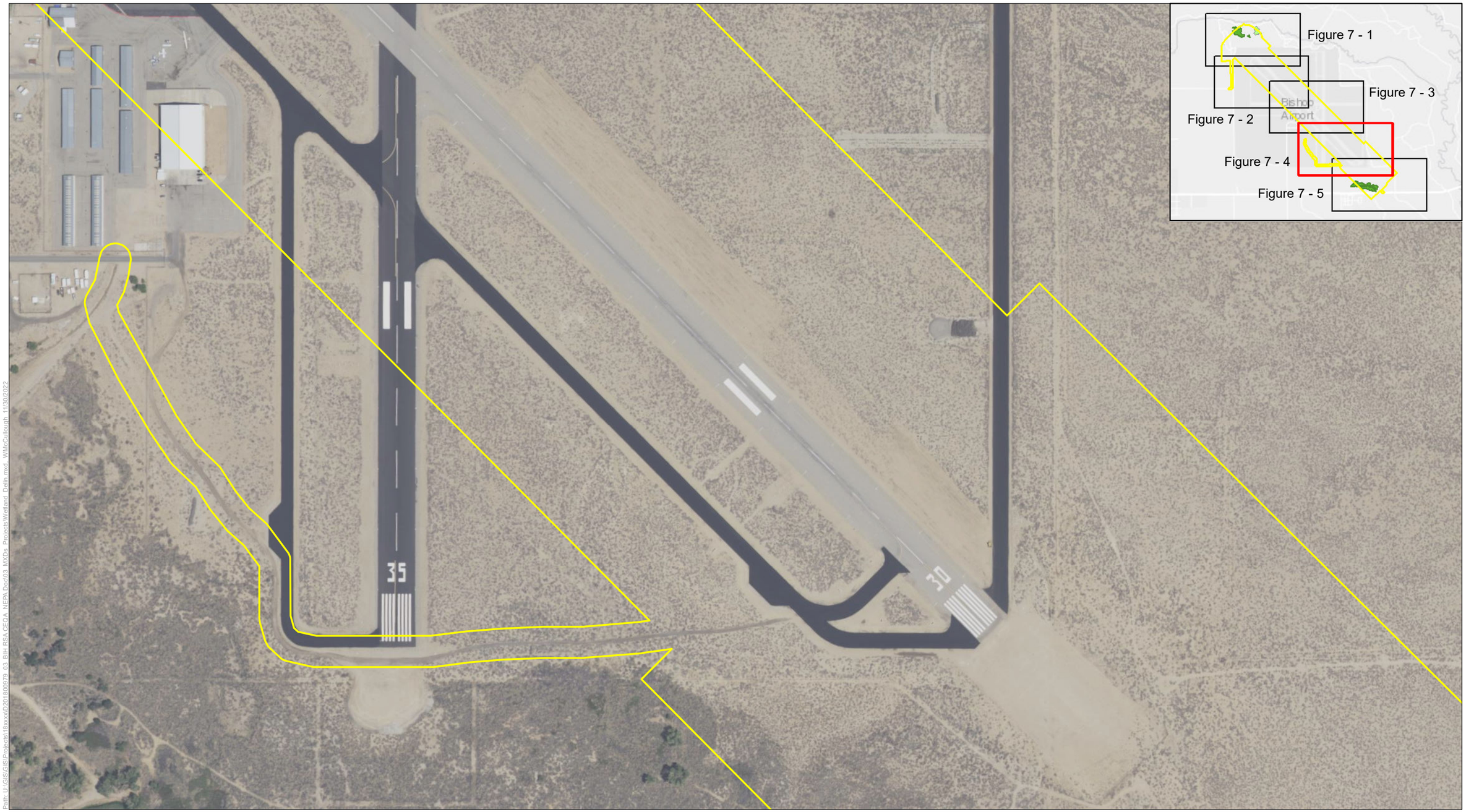
Other Waters (0.14 acres)
Ephermeral Drainage (0.14 acres)

Wetlands Outside of Study Area
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland

1 inch = 300 feet
0 400
Feet

Figure 7-3
Delineation of Wetlands and Other Waters of the U.S.
(3 of 5)

Delineated by: Anna Schwyter
Mapping by: Wes McCullough
Created on: November 29, 2022



Path: U:\GIS\GIS\Projects\18xxxx\D20180097 9_03_BIH RSA CEQA_NEPA Doc\03 MXDs_Projects\Wetland Delin.mxd - WMcCullough 11/30/2022

SOURCE: ESA, 2022

Proposed Commercial Airline Service at Bishop Airport

Coordinate System: State Plane California Zone IV (US Feet)
Projection: Lambert Conformal Conic
Datum: NAD 1983 (2011)

Survey Area: 403.210 acres
Map Reference Point

Data Point
Upland
Wetland

Wetlands (9.04 acres)*
Freshwater Emergent Wetland (1.27 acres)
Freshwater Forested/Shrub Wetland (7.77 acres)

Other Waters (0.14 acres)
Ephermeral Drainage (0.14 acres)

Wetlands Outside of Study Area
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland

1 inch = 300 feet
0 400
Feet

ESA

*NOTE: Area (acreage) of Wetlands and Other Waters are presented only for the portionlocated within the Survey Area boundary.

Figure 7-4
Delineation of Wetlands and Other Waters of the U.S.
(4 of 5)

Delineated by: Anna Schwyter
Mapping by: Wes McCullough
Created on: November 29, 2022

Path: U:\GIS\GIS\Projects\18xxxx\D20180097 9 03_BIH RSA CEQA_NEPA Doc\03 MXDs_Projects\Wetland Delin.mxd_WMcCullough 11/30/2022

SOURCE: ESA, 2022

Coordinate System: State Plane California Zone IV (US Feet)
Projection: Lambert Conformal Conic
Datum: NAD 1983 (2011)

ESA

*NOTE: Area (acreage) of Wetlands and Other Waters are presented only for the portionlocated within the Survey Area boundary.

Survey Area: 403.210 acres
Map Reference Point

Data Point
Upland
Wetland

Wetlands (9.04 acres)*
Freshwater Emergent Wetland (1.27 acres)
Freshwater Forested/Shrub Wetland (7.77 acres)

Other Waters (0.14 acres)
Ephermeral Drainage (0.14 acres)

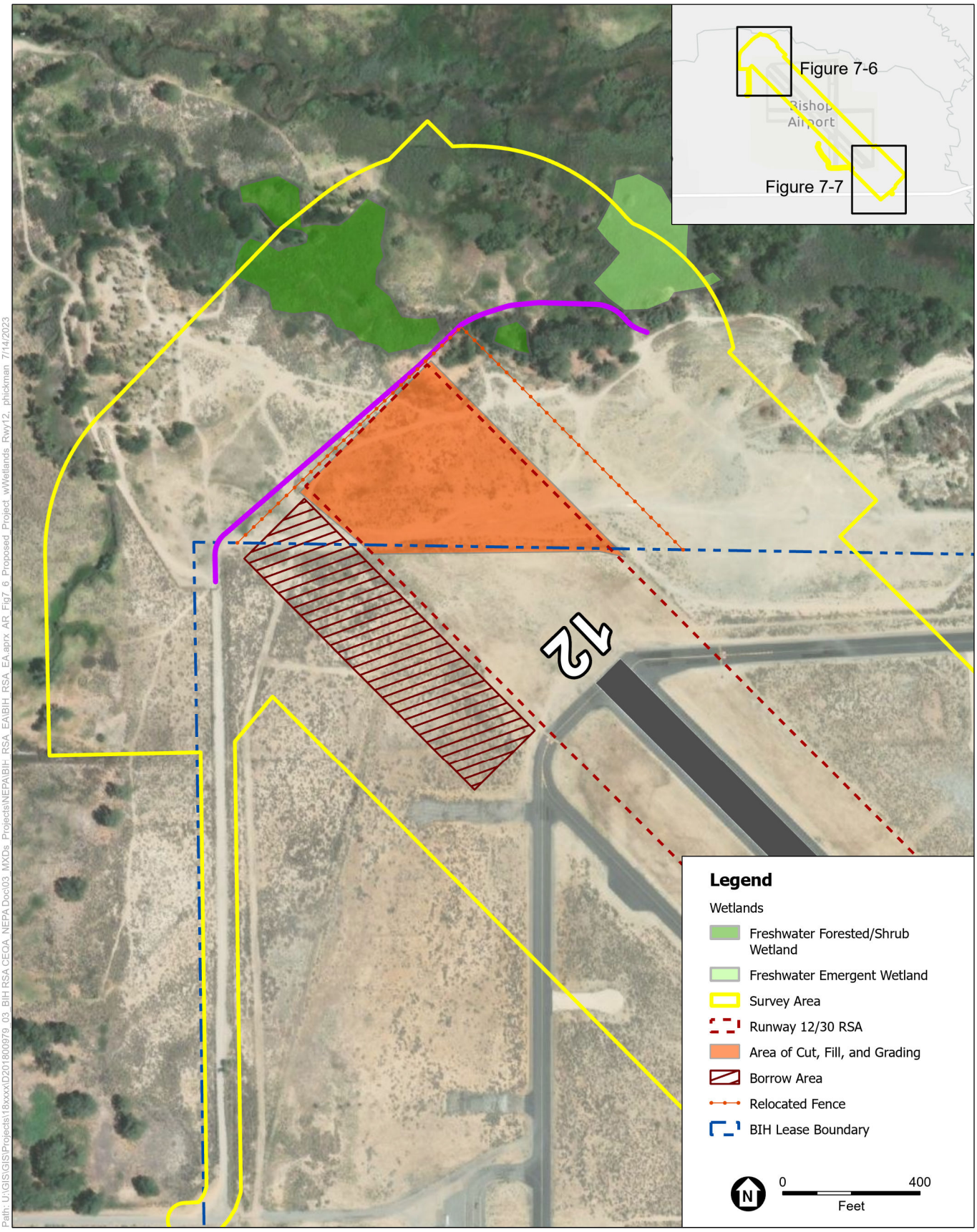
Wetlands Outside of Study Area
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland

1 inch = 300 feet
0 400
Feet

Proposed Commercial Airline Service at Bishop Airport

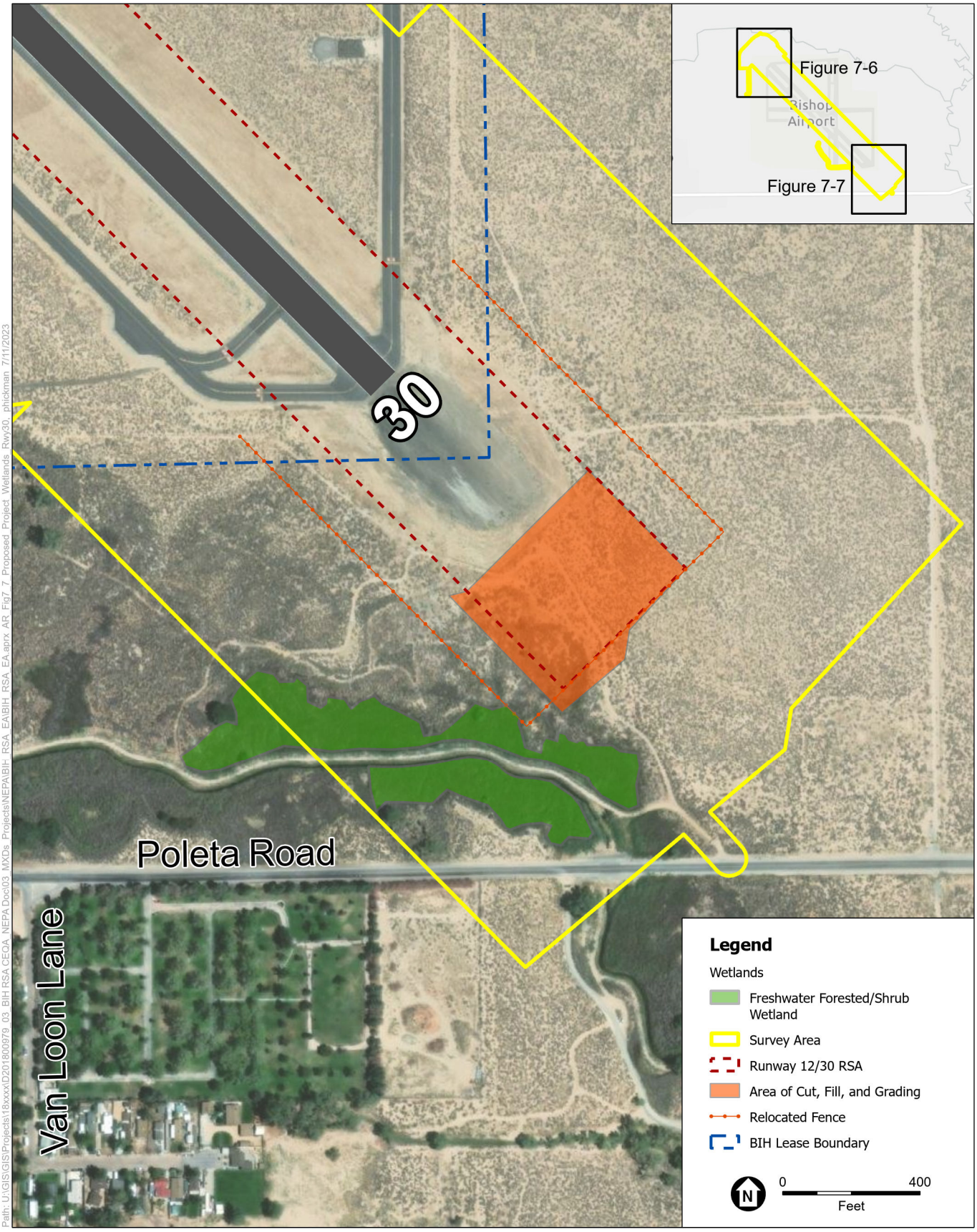
Figure 7-5
Delineation of Wetlands and Other Waters of the U.S.
(5 of 5)

Delineated by: Anna Schwyter
Mapping by: Wes McCullough
Created on: November 29, 2022



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Figure 7-6
Delineated Wetlands and Proposed Project Runway 12



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Aquatic Resources Delineation Report

Figure 7-7
Delineated Wetlands and Proposed Project Runway 30

ESA

CHAPTER 6
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C-1 Soils Report

United States Department of Agriculture

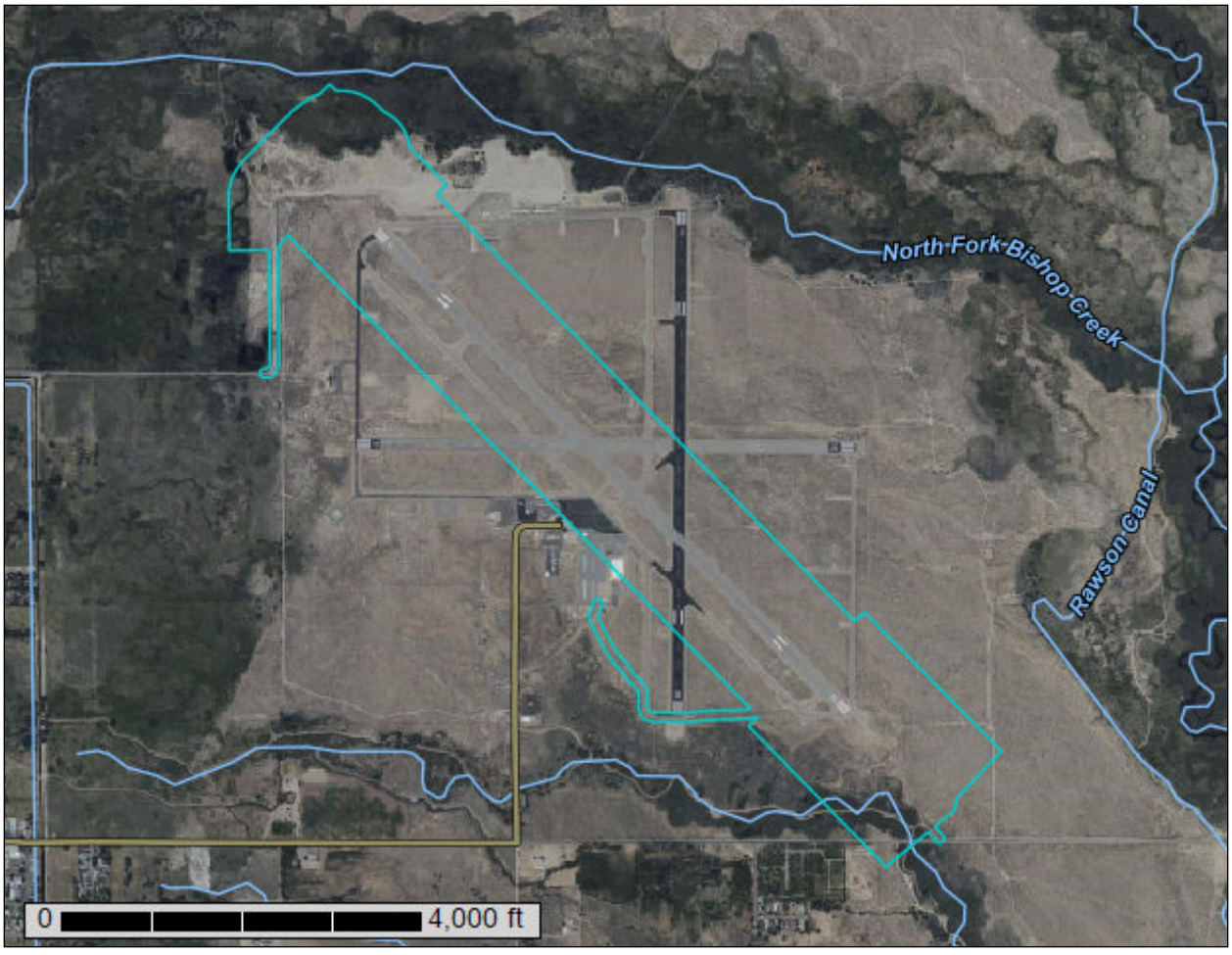
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Benton-Owens Valley Area Parts of Inyo and Mono Counties, California

BIH_RSA_Proposed_Action_Area



November 9, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

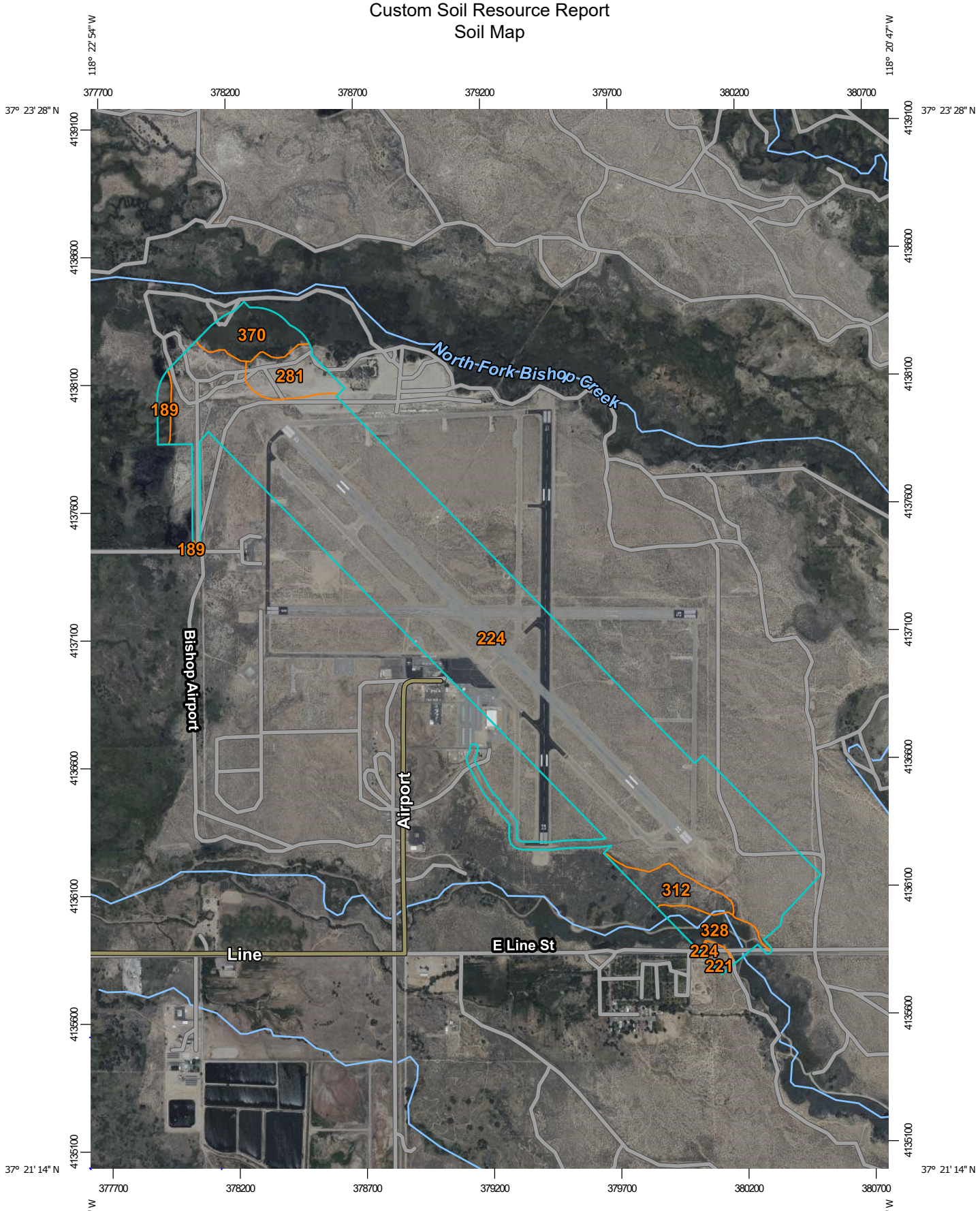
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:20,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 250 500 1000 1500

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Benton-Owens Valley Area Parts of Inyo and Mono Counties, California
Survey Area Data: Version 20, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 12, 2019—Jul 15, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
189	Dehy-Dehy calcareous complex, 0 to 2 percent slopes	3.8	0.9%
221	Inyo sand, 0 to 9 percent slopes	2.0	0.5%
224	Inyo-Poleta complex, 0 to 2 percent slopes	346.2	85.9%
281	Pits-Dumps complex, 0 to 50 percent slopes	13.6	3.4%
312	Shabbell-Shondow-Xerofluvents association, 0 to 2 percent slopes	11.4	2.8%
328	Torrifluvents-Fluvaquentic Endoaquolls complex, 0 to 2 percent slopes	11.3	2.8%
370	Xerofluvents, 0 to 5 percent slopes	14.9	3.7%
Totals for Area of Interest		**403.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a

given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Benton-Owens Valley Area Parts of Inyo and Mono Counties, California

189—Dehy-Dehy calcareous complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: jcwl
Elevation: 3,600 to 4,700 feet
Mean annual precipitation: 4 to 6 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 140 to 220 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Dehy and similar soils: 45 percent
Dehy and similar soils: 40 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dehy

Setting

Landform: Alluvial fans, stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 18 inches: loamy sand
H2 - 18 to 36 inches: sandy loam
H3 - 36 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R029XG002CA - Saline Meadow
Hydric soil rating: No

Description of Dehy

Setting

Landform: Stream terraces, alluvial fans

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 13 inches: fine sandy loam
H2 - 13 to 26 inches: loam
H3 - 26 to 55 inches: fine sandy loam
H4 - 55 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Ecological site: R029XG002CA - Saline Meadow
Hydric soil rating: No

Minor Components

Unnamed, histosols

Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: Yes

Unnamed, wet

Percent of map unit: 3 percent
Landform: Channels
Hydric soil rating: Yes

221—Inyo sand, 0 to 9 percent slopes

Map Unit Setting

National map unit symbol: jcyb

Elevation: 3,800 to 5,000 feet
Mean annual precipitation: 4 to 6 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 140 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Inyo and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Inyo

Setting

Landform: Dunes on stream terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, tread
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 5 inches: sand
H2 - 5 to 27 inches: loamy sand
H3 - 27 to 60 inches: stratified coarse sand to gravelly loamy sand

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R029XG016CA - Sand Dune 5-8" P.Z.
Hydric soil rating: No

224—Inyo-Poleta complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: jcym
Elevation: 3,680 to 5,000 feet
Mean annual precipitation: 4 to 6 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 140 to 225 days

Farmland classification: Not prime farmland

Map Unit Composition

Inyo and similar soils: 65 percent
Poleta and similar soils: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Inyo

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 6 inches: sand
H2 - 6 to 28 inches: loamy sand
H3 - 28 to 60 inches: stratified coarse sand to gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R029XG016CA - Sand Dune 5-8" P.Z.
Hydric soil rating: No

Description of Poleta

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 8 inches: loamy sand
H2 - 8 to 20 inches: sandy loam
H3 - 20 to 33 inches: indurated
H4 - 33 to 60 inches: stratified gravelly coarse sand to sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R029XG017CA - Loamy 5-8" P.Z.
Hydric soil rating: No

281—Pits-Dumps complex, 0 to 50 percent slopes

Map Unit Composition

Pits: 45 percent
Dumps: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits

Setting

Landform: Valley floors, alluvial fans
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Dumps

Setting

Landform: Valley floors, alluvial fans
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

312—Shabbell-Shondow-Xerofluvents association, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: jd2q
Elevation: 3,650 to 4,200 feet
Mean annual precipitation: 4 to 6 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 140 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Shabbell and similar soils: 40 percent
Shondow and similar soils: 30 percent
Xerofluvents and similar soils: 15 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shabbell

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 11 inches: loamy sand
H2 - 11 to 31 inches: sandy loam
H3 - 31 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s

Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R029XG002CA - Saline Meadow
Hydric soil rating: No

Description of Shondow

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 12 inches: loam
H2 - 12 to 24 inches: sandy clay loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 60.0
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: R029XG002CA - Saline Meadow
Hydric soil rating: No

Description of Xerofluvents

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 19 inches: sand
H3 - 19 to 29 inches: sandy loam
H4 - 29 to 34 inches: loam

H5 - 34 to 60 inches: stratified sand to loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 24 to 60 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Ecological site: R029XG020CA - Moist Floodplain
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 3 percent
Landform: Drainageways
Hydric soil rating: Yes

328—Torrifluvents-Fluvaquentic Endoaquolls complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: jd39
Elevation: 3,580 to 4,150 feet
Mean annual precipitation: 5 to 6 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 150 to 225 days
Farmland classification: Not prime farmland

Map Unit Composition

Torrifluvents and similar soils: 60 percent
Fluvaquentic endoaquolls and similar soils: 30 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Torrifluvents

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 13 inches: silty clay loam
H3 - 13 to 31 inches: loam
H4 - 31 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Strongly saline (16.0 to 60.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R029XG020CA - Moist Floodplain
Hydric soil rating: No

Description of Fluvaquentic Endoaquolls

Setting

Landform: Depressions
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Volcanic ash and/or alluvium derived from mixed sources

Typical profile

H1 - 0 to 12 inches: loam
H2 - 12 to 36 inches: loamy sand
H3 - 36 to 45 inches: loam
H4 - 45 to 55 inches: fine sand
H5 - 55 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Ecological site: R029XG020CA - Moist Floodplain
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 1 percent
Landform: Drainageways
Hydric soil rating: Yes

370—Xerofluvents, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: jd4n
Elevation: 4,000 to 7,500 feet
Mean annual precipitation: 4 to 12 inches
Mean annual air temperature: 45 to 61 degrees F
Frost-free period: 100 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Xerofluvents and similar soils: 85 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xerofluvents

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 11 inches: gravelly sandy loam
H2 - 11 to 18 inches: gravelly sandy loam
H3 - 18 to 34 inches: very gravelly loam
H4 - 34 to 60 inches: stratified very gravelly sand to very cobbly sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Surface area covered with cobbles, stones or boulders: 3.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Ecological site: R029XG027CA - Streambank
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: Yes

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C-2 Antecedent Precipitation Tool Results

Antecedent Precipitation Tool v.1.0 - Watershed Sampling Summary

Generated on 2022-11-14

User Inputs

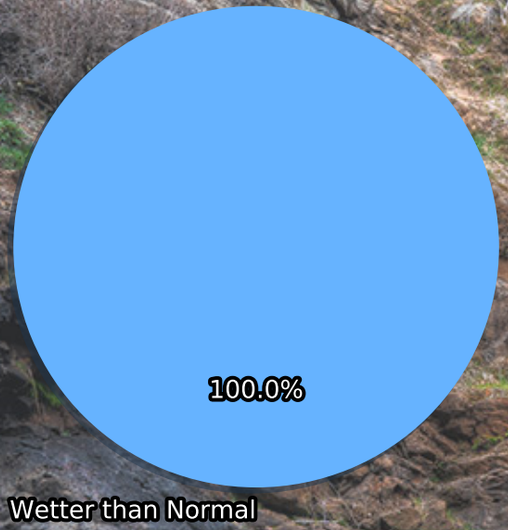
Coordinates	37.380768, -118.377285
Date	2022-11-01
Geographic Scope	HUC12

Intermediate Data

Hydrologic Unit Code	180901020705
Watershed Size	77.17 mi^2
# Random Sampling Points	8

Preliminary Result

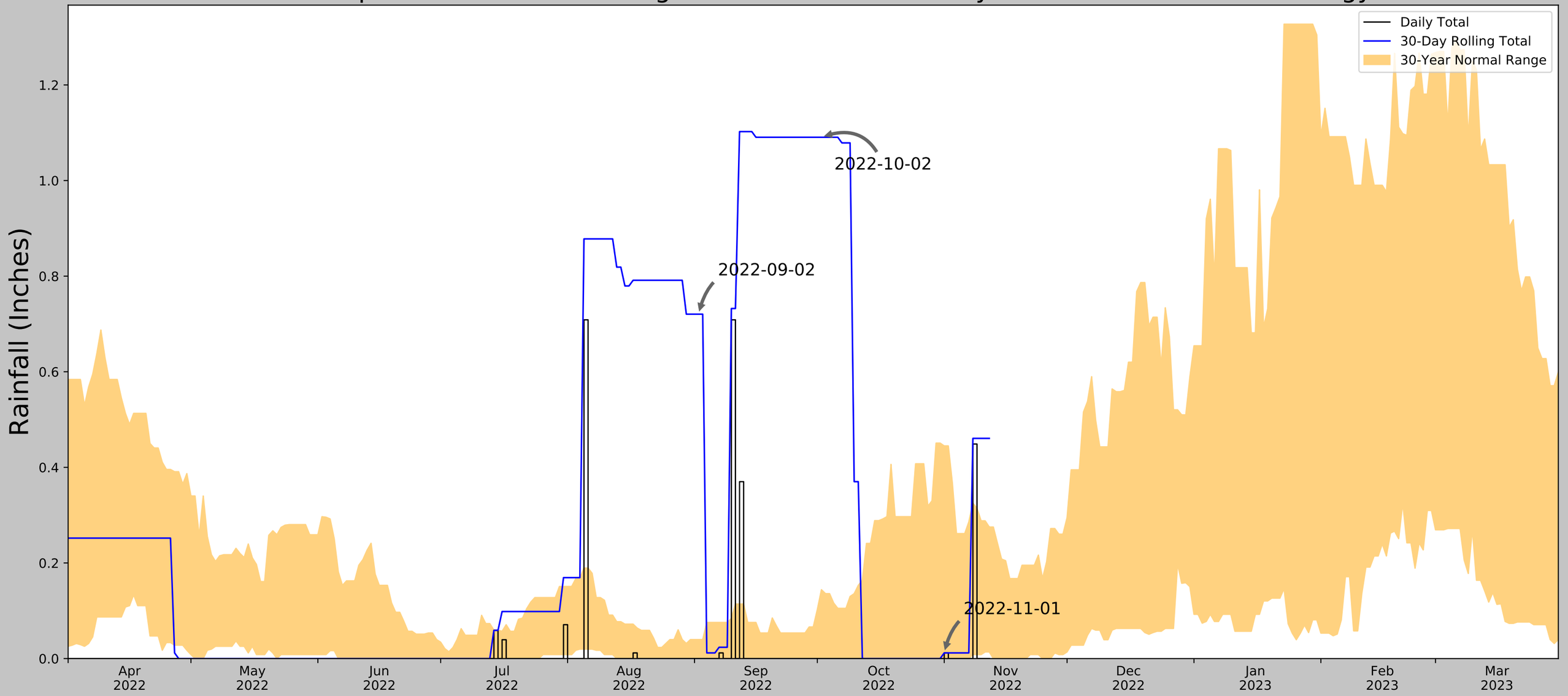
Average Antecedent Precipitation Score	15.0
Preliminary Determination	Wetter than Normal



Sampling Point Breakdown

Antecedent Precipitation Score	Antecedent Precipitation Condition	WebWIMP H_2O Balance	Drought Index (PDSI)	# of Points
15	Wetter than Normal	Dry Season	Severe drought (2022-10)	8

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.380768, -118.377285
Observation Date	2022-11-01
Elevation (ft)	4127.6
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

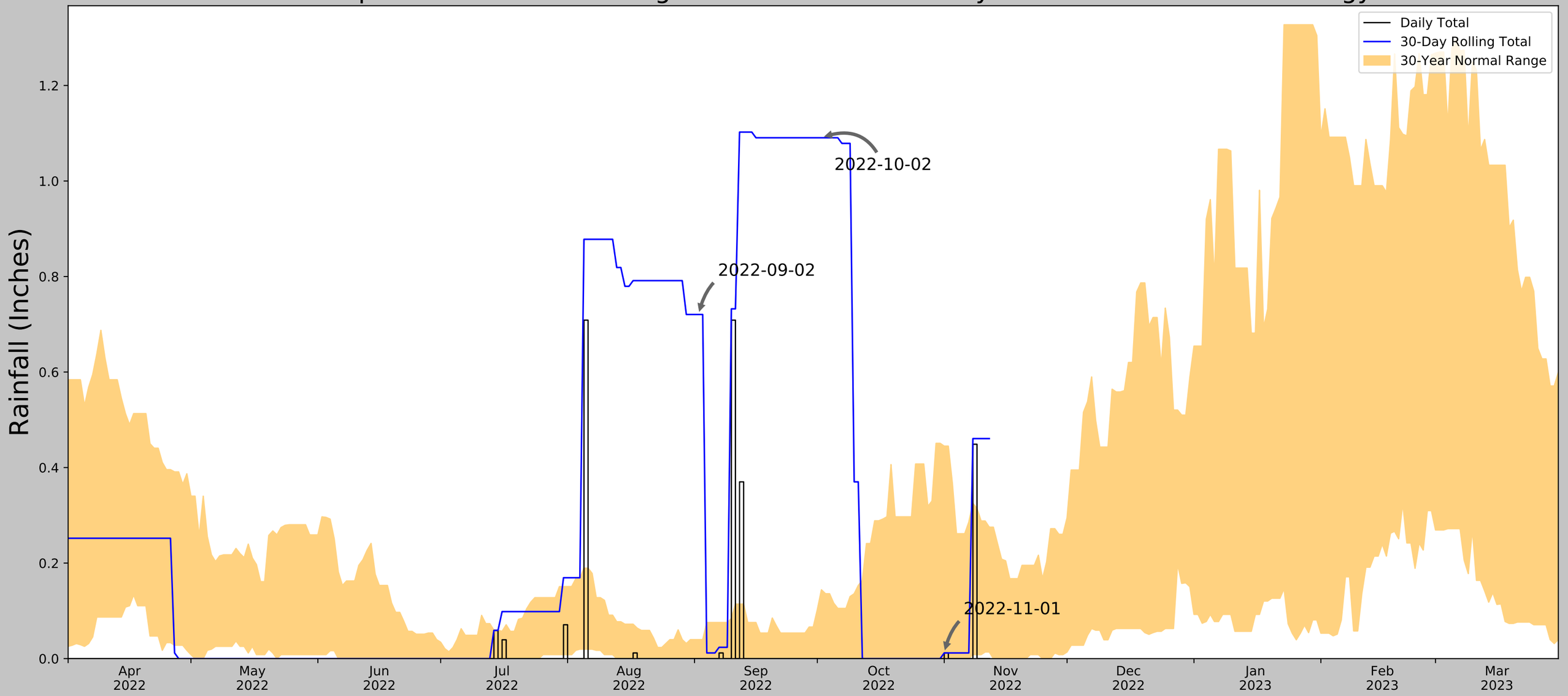
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	1.247	25.566	0.593	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.406076, -118.380802
Observation Date	2022-11-01
Elevation (ft)	4127.6
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

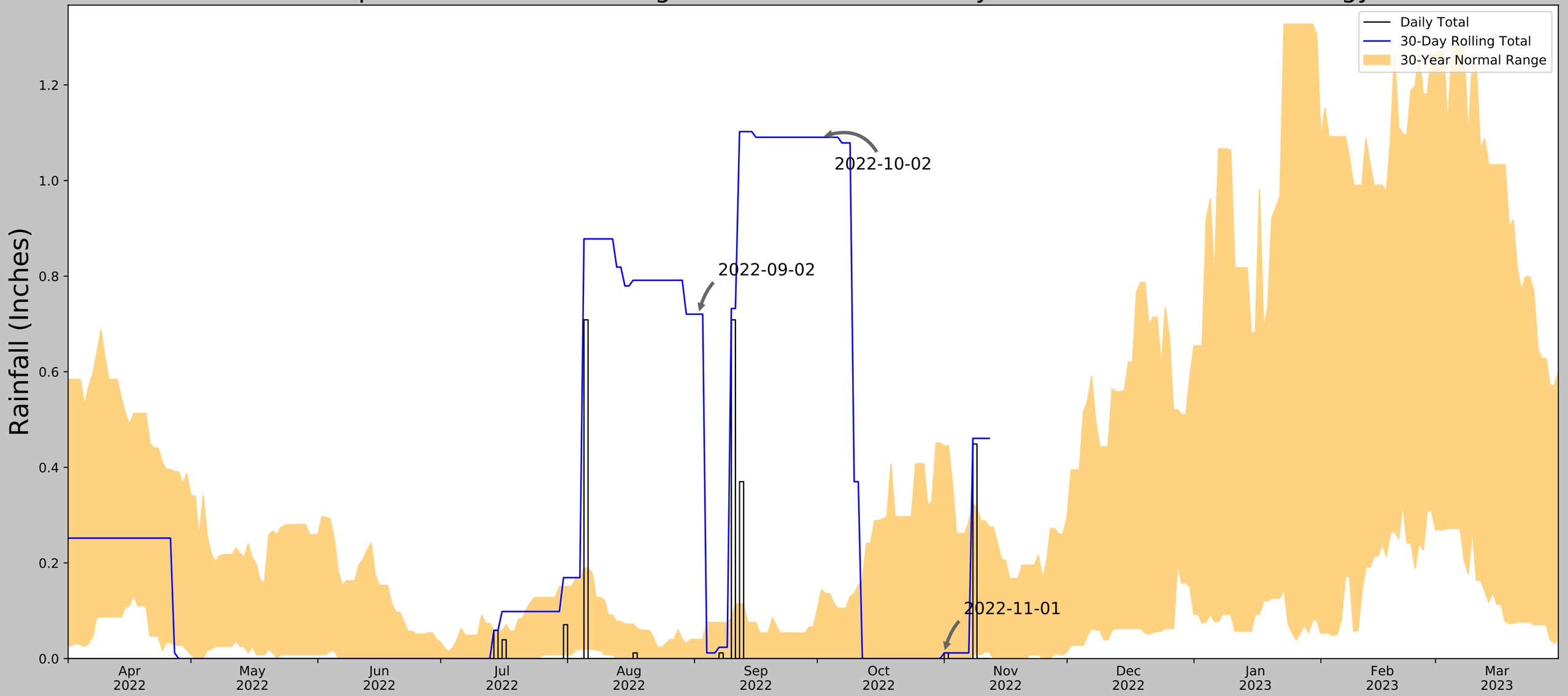
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	2.719	25.566	1.293	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.387039, -118.449967
Observation Date	2022-11-01
Elevation (ft)	4353.86
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

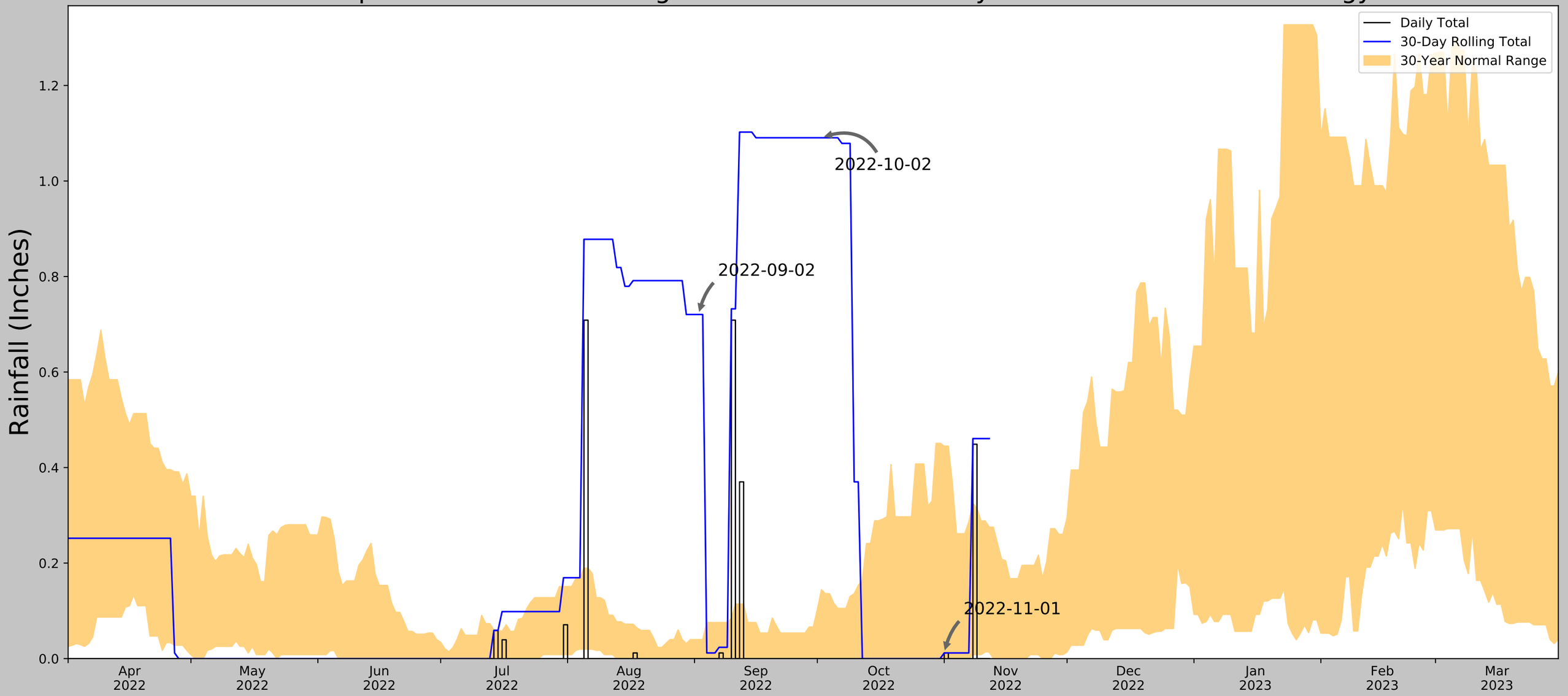
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	5.163	251.826	3.624	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.330653, -118.3379
Observation Date	2022-11-01
Elevation (ft)	4060.56
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

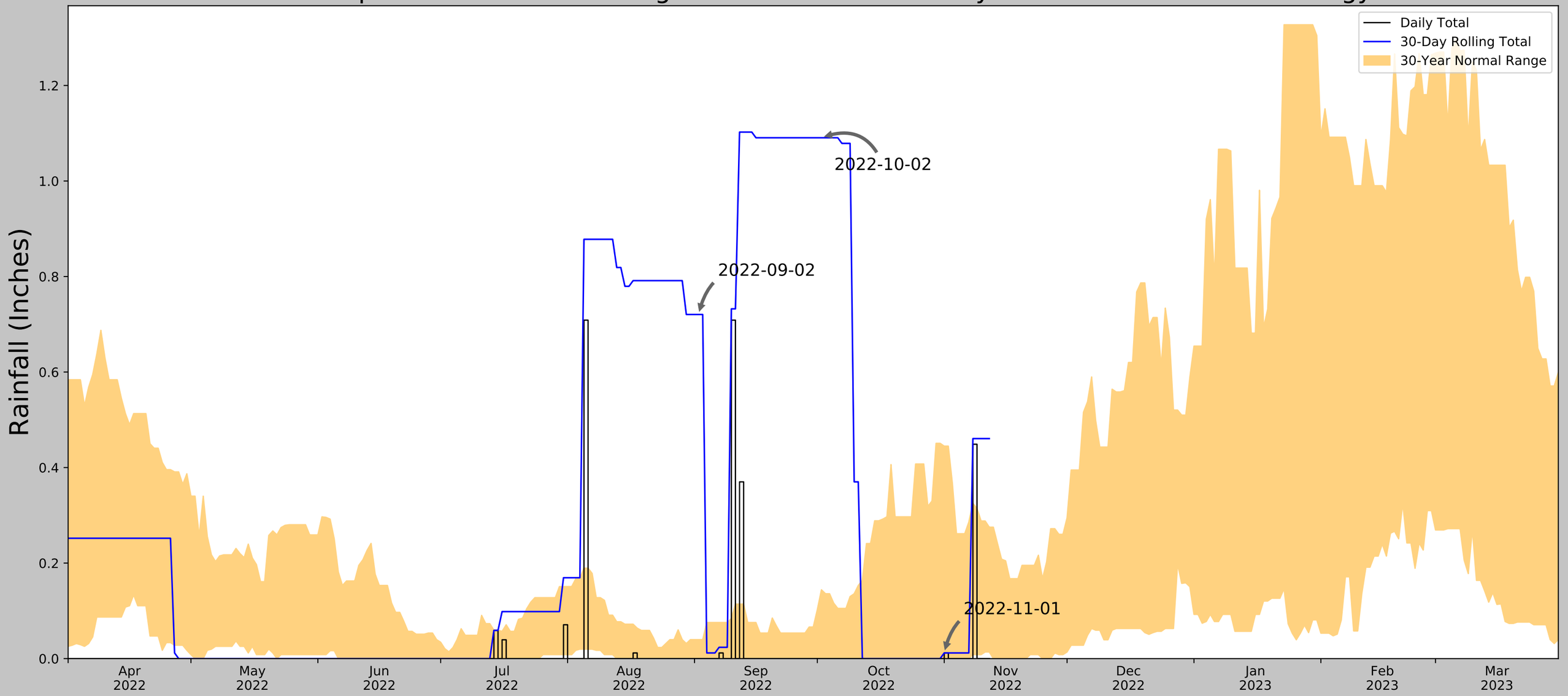
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	3.007	41.474	1.478	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.384651, -118.305248
Observation Date	2022-11-01
Elevation (ft)	4395.61
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

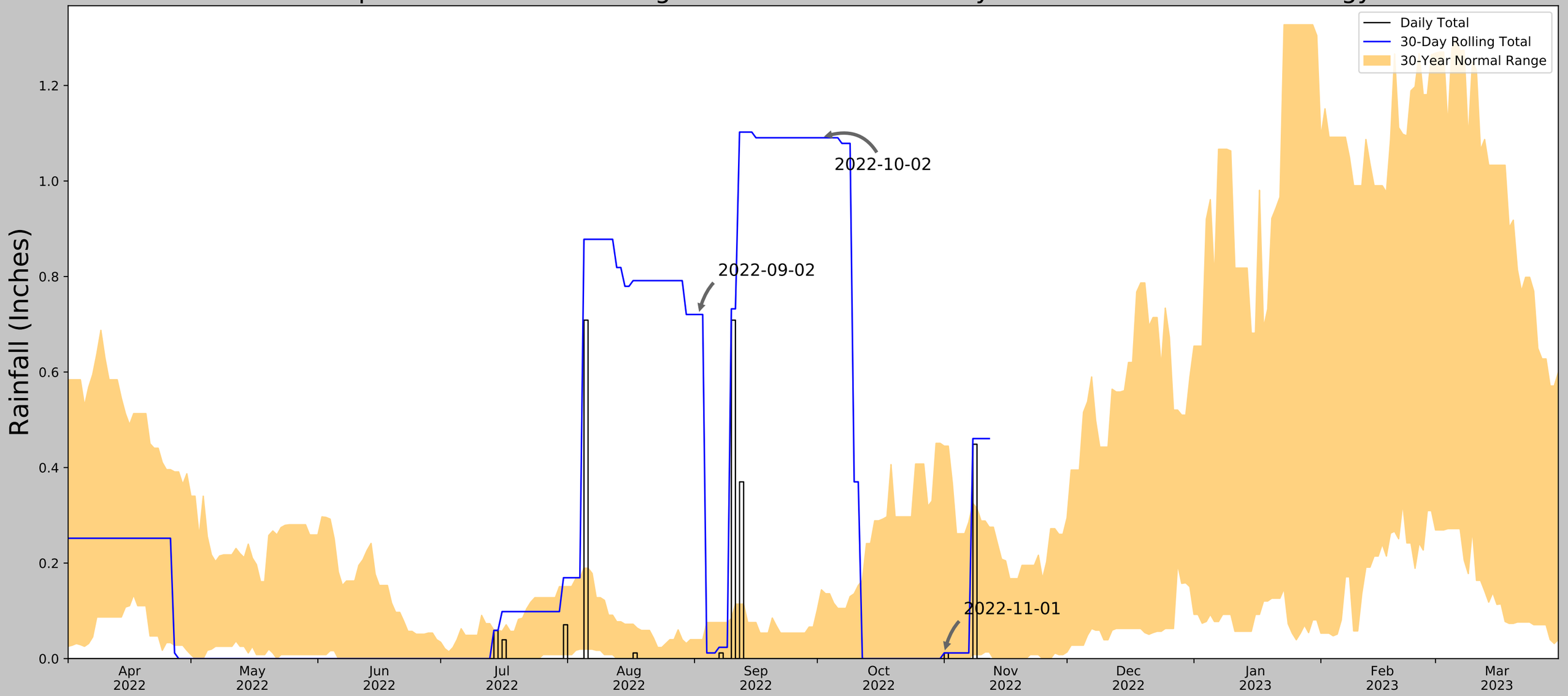
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	3.049	293.576	2.267	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.372505, -118.228118
Observation Date	2022-11-01
Elevation (ft)	8584.11
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

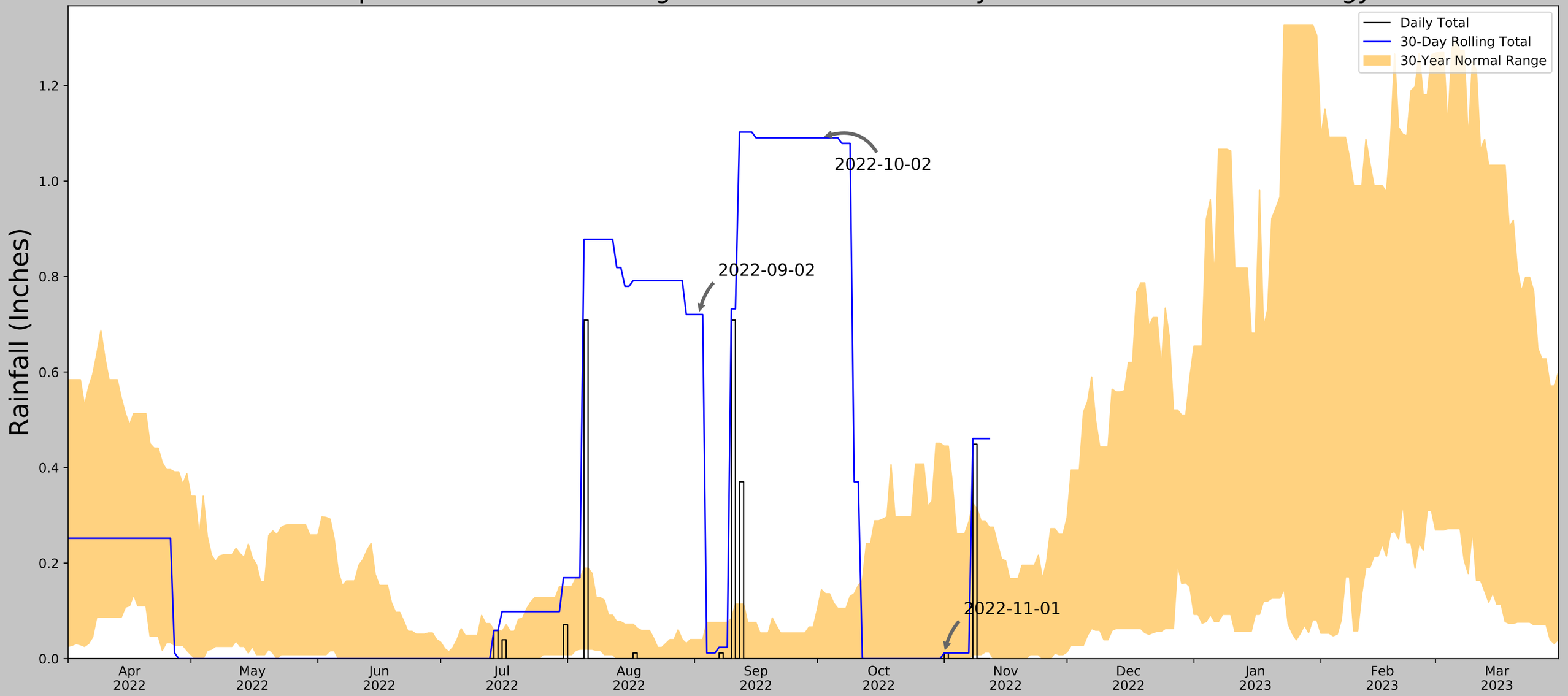
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	7.138	4482.076	35.205	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.320249, -118.235765
Observation Date	2022-11-01
Elevation (ft)	7941.5
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

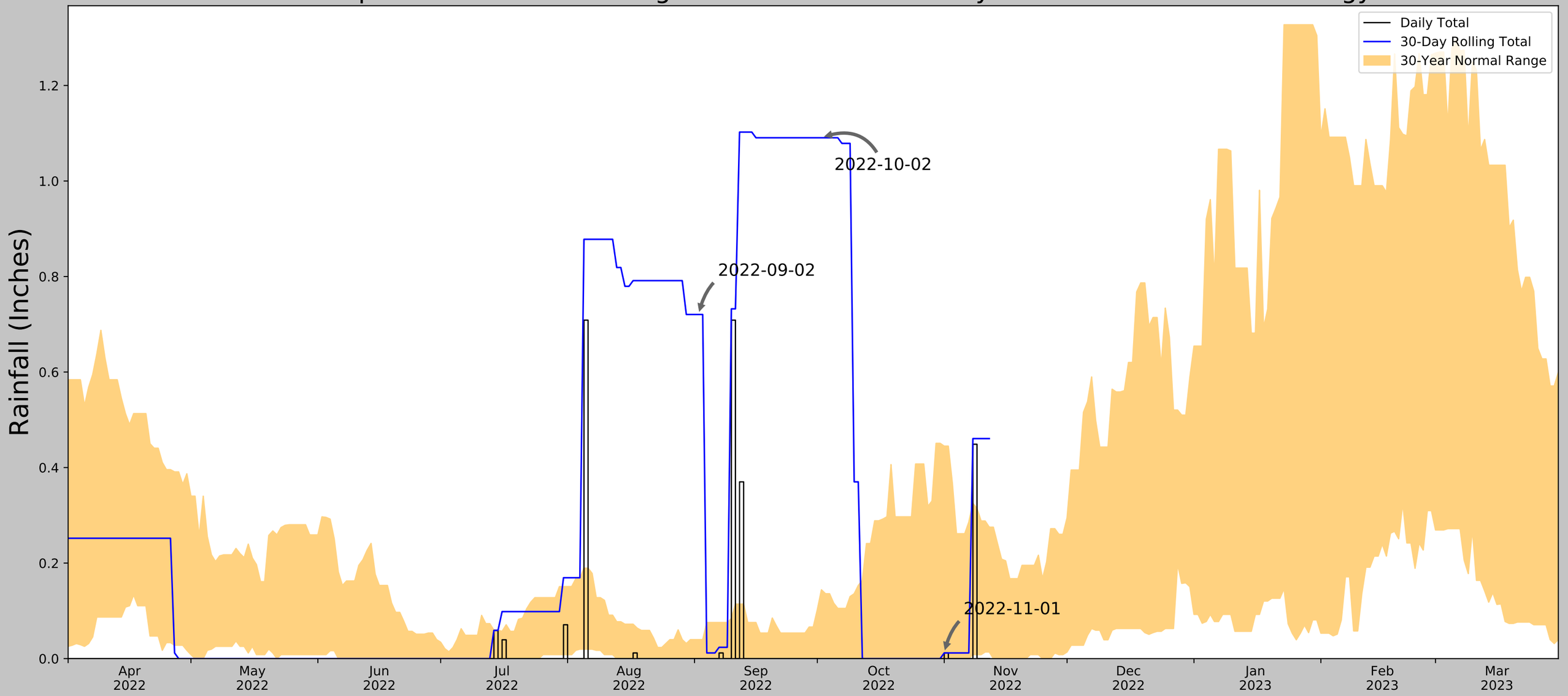
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	7.583	3839.466	32.527	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.342933, -118.48791
Observation Date	2022-11-01
Elevation (ft)	4895.7
Drought Index (PDSI)	Severe drought (2022-10)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-01	0.0	0.444882	0.011811	Normal	2	3	6
2022-10-02	0.0	0.144094	1.090551	Wet	3	2	6
2022-09-02	0.0	0.039764	0.720472	Wet	3	1	3
Result							Wetter than Normal - 15

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BISHOP AP	37.3711, -118.3581	4102.034	7.39	793.666	9.191	11349	90
BISHOP 1.7 NW	37.3878, -118.4141	4181.102	3.284	79.068	1.737	2	0
DYER 5S	37.6064, -118.0	4899.935	25.49	797.901	31.809	2	0

C-3 Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP1

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): FLOODPLAIN Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): Lat: 37.3824 Long: -118.3781 Datum:

Soil Map Unit Name: INYO-POLETA COMPLEX NWI classification: PSSF

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

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

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

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

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

Remarks:

SNOW MELT AND STREAM RUNOFF LIKELY PONDS HERE BUT SOIL ISN'T SATURATED FOR A LONG ENOUGH DURATION OF GROWING SEASON FOR HYDRIC INDICATORS

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 6X6 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	1	Yes	FACU
2.			
3.			
4.			
	1 = Total Cover		
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Ericameria nauseosa	1	Yes	UPL
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 6x6 m)			
1. Carex sp	0.001	No	FAC
2. Distichlis spicata	35	Yes	FAC
3. Lepidium latifolium	0.001		FAC
4.			
5.			
6.			
7.			
8.			
	35.002 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 65 % 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: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species _____	x 2 = 0
FAC species 3	x 3 = 9
FACU species 1	x 4 = 4
UPL species 1	x 5 = 5
Column Totals: 5 (A)	18 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Carex sp. unidentifiable this time of year, in landscape position within wetland boundary, since most Carex sp are wetland plants this species was assigned FAC to be conservative

SOIL

Sampling Point: DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10 YR 4/1	85	N/A	0			LS	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

15% COBBLE WITHIN SOIL PROFILE

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP2

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): SEASONAL POND Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): Lat: 37.3819 Long: -118.3786 Datum:

Soil Map Unit Name: INYO-POLETA COMPLEX NWI classification: PUBFh

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

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

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

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

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

Remarks:

SNOW MELT AND STREAM RUNOFF LIKELY PONDS HERE BUT SOIL ISN'T SATURATED FOR A LONG ENOUGH DURATION OF GROWING SEASON FOR HYDRIC INDICATORS

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10X10 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	2	Yes	FAC
2.			
3.			
4.			
	2	= Total Cover	
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Salix exigua	4	Yes	FACW
2.			
3.			
4.			
5.			
	4	= Total Cover	
Herb Stratum (Plot size: 6x6 m)			
1. Carex sp	4	Yes	FAC
2. Rumex crispus	1	No	FAC
3. Stipa speciosa	10	Yes	FACU
4. Glycyrrhiza lepidota	.1	No	FAC
5.			
6.			
7.			
8.			
	15.1	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 85 % 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Carex sp. unidentifiable this time of year, in landscape position within wetland boundary, since most Carex sp are wetland plants this species was assigned FAC to be conservative

SOIL

Sampling Point: DP2

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
0-1	10 YR 3/1	90	NA	0			LS	
1-10	10 YR 5/4	70	7.5 YR 5/8	5	C	M	LS	FE SOFT MASSES, 15% COBBLE
10-14	2.5 Y 5/4	80	NA	0			S	
14+	5Y 5/3	95	7.5 YR 5/8	7	C	M	SICL	REDOX FT DISTINCT

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

INUNDATION VISABLE ON 6/2020 AERIAL IMAGERY

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP3

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): DRAINAGE CHANNEL Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): C Lat: 37.3816 Long: -118.3783 Datum:

Soil Map Unit Name: DEHY-DEHY CALCAREOUS COMPLEX NWI classification: none

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

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

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

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

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

Remarks:

POINT IS PHYSICALLY IN-CHANNEL, PSSC MAPPED IN UPLAND 8 m EAST OF CURRENT CHANNEL

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 6X6 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	1	Yes	FACU
2.			
3.			
4.			
	1	= Total Cover	
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Salix exigua	8	Yes	FACW
2. Rosa woodsii	2	No	FAC
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 6x6 m)			
1. Carex sp.	0.01	Yes	FAC
2. Erigeron canadensis	0.01	Yes	FAC
3. Stipa speciosa	0.01	Yes	FACU
4. Distichlis spicata	0.01	Yes	FAC
5.			
6.			
7.			
8.			
	0.04	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 99 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Carex sp. unidentifiable this time of year, in landscape position within wetland boundary, since most Carex sp are wetland plants this species was assigned FAC to be conservative

SOIL

Sampling Point: DP3

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
0-24	10 YR 2/1	60	2.5 y 3/1	58		M	SIL	
			7.5 YR 5/6	2	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP4

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): UPLAND Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Lat: 37.3815 Long: -118.3785 Datum:

Soil Map Unit Name: DEHY-DEHY CALCAREOUS COMPLEX NWI classification: NA

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Ericameria nauseosa	6	Yes	UPL
2. Atriplex polycarpa	8	Yes	FACU
3.			
4.			
5.			
	14 = Total Cover		
Herb Stratum (Plot size: 6x6 m)			
1. Stipa speciosa	8	Yes	FACU
2. Distichlis spicata	5	Yes	FAC
3. Glycyrrhiza lepidota	.05	No	FAC
4.			
5.			
6.			
7.			
8.			
	13.05 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 85 % 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: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	1	x 5 =	5
Column Totals:	5 (A)		19 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: DP4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100	N/A	0			SL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP5

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): RIPARIAN Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): Lat: 37.3829 Long: -118.3757 Datum:

Soil Map Unit Name: XEROFLUVENTS NWI classification: PSSC

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1X1 m)			
1. Salix exigua	35	Yes	FACW
2. Rosa woodsii	20	Yes	FAC
3.			
4.			
5.			
	55 = Total Cover		
Herb Stratum (Plot size: 1X1 m)			
1. Lepidium latifolium	0.1	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0.1 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 99 % 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: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP5

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
0-7	2.5Y 3/1	85	7.5YR 5/8	3	C	M	SL	
7+	2.5Y 5/2	60	NA	0			S	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

2009 aerial imagery shows inundation, 2020 aerial imagery shows saturation

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP6

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): convex Slope (%): 5-7

Subregion (LRR): Lat: 37.3826 Long: -118.3759 Datum:

Soil Map Unit Name: INYO-POLETA COMPLEX NWI classification: NA

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Ericameria nauseosa	25	Yes	UPL
2. Salsola tragus	15	Yes	FACU
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	2 (A)		9 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: DP6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 4/3	95	N/A	0			SL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP7

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): RIPARIAN Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): Lat: 37.3832 Long: -118.3727 Datum:

Soil Map Unit Name: XEROFLUVENTS NWI classification: PEM1C

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10X10 m)			
1. Salix exigua	3	Yes	FACW
2. Rosa woodsii	6	Yes	FAC
3. Populus fremontii	0.1	No	FAC
4. Ericameria nauseosa	1	No	UPL
5.			
	10.1	= Total Cover	
Herb Stratum (Plot size: 1X1 m)			
1. Lepidium latifolium	0.1	No	FAC
2. Baccharis glutinosa	0.1	No	FACW
3. Erigeron canadensis	0.5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	0.7	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 99 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP7

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
0-12	2.5Y 3/2	99	7.5YR 4/6	5	C	M	SIL	
12+	7.5YR 5/2	65	7.5YR 4/6	5	C	M	S	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

2006 aerial imagery shows inundation

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP8

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): UPLAND Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): Lat: 37.3793 Long: -118.3787 Datum:

Soil Map Unit Name: DEHY-DEHY CALCAREOUS COMPLEX NWI classification: NA

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Ericameria nauseosa	1.5	Yes	UPL
2. Salix exigua	5	Yes	FACW
3.			
4.			
5.			
	6.5 = Total Cover		
Herb Stratum (Plot size: 6x6 m)			
1. Malvella leprosa	40	Yes	FACU
2. Distichlis spicata	0.1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40.1 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 70 % 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: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	1	x 3 =	3
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	4 (A)		14 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: DP8

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
0-4	10 YR 3/1	99	N/A	0			SIL	
4-12+	2.5Y 3/1	99	2.5Y 5/1	1	D	M	SIL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP9

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): RIPARIAN Local relief (concave, convex, none): none Slope (%): 5-7

Subregion (LRR): Lat: 37.3623 Long: -118.3527 Datum:

Soil Map Unit Name: TORRIFLUVENTS-FLUVAQUENT NWI classification: PSSC

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1X1 m)			
1. Salix exigua	15	Yes	FACW
2. Rosa woodsii	45	Yes	FAC
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 1X1 m)			
1. Lepidium latifolium	0.1	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0.1 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	98	NA	0	C	M	SL	
4-10	10YR 3/1	99	NA	0			SL	
10+	2.5Y 5/2	85	NA	0			LS	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Surface horizon sapric material, high organic C content

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

2009 aerial imagery shows inundation, 2020 aerial imagery shows saturation

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: BIH-RSA City/County: BISHOP/INYO Sampling Date: 11/1/2022

Applicant/Owner: State: CA Sampling Point: DP10

Investigator(s): N. LAMAS & A. SCHWYTER Section, Township, Range:

Landform (hillslope, terrace, etc.): UPLAND Local relief (concave, convex, none): convex Slope (%): 3-5

Subregion (LRR): Lat: 37.3624 Long: -118.3526 Datum:

Soil Map Unit Name: INYO-POLETA COMPLEX NWI classification: NA

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 6x6 m)			
1. Ericameria nauseosa	5	Yes	UPL
2. Atriplex polycarpa	8	Yes	FACU
3. Salix exigua	0.5	No	FACW
4.			
5.			
	13.5 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	3 (A)		11 (B)

Prevalence Index = B/A = 3.666666666

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: DP10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	90	NA	0			LS	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

C-4 ORM Aquatic Resources Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
ED-1	CALIFORNIA	R4	RIVERINE	Area	0.1448	ACRE	ISOLATE	37.38154	-118.37833	
FEW-1	CALIFORNIA	PEM	DEPRESS	Area	1.2712	ACRE	RPWWD	37.38335	-118.37288	
FFSW-1	CALIFORNIA	PSS	DEPRESS	Area	2.7866	ACRE	RPWWD	37.38300	-118.37580	
FFSW-2	CALIFORNIA	PSS	DEPRESS	Area	0.1581	ACRE	RPWWD	37.38323	-118.37450	
FFSW-3	CALIFORNIA	PSS	DEPRESS	Area	1.797	ACRE	RPWWD	37.36231	-118.35447	
FFSW-4	CALIFORNIA	PSS	DEPRESS	Area	2.8211	ACRE	ISOLATE	37.36279900	-118.35626900	
Rawson Canal	CALIFORNIA	R4SB	RIVERINE	Linear	950	FOOT	RPW	37.36248300	-118.35452000	

C-5 Representative Site Photographs

Photo 1: Data point 1, Upland. November 1, 2022

Photo 2: Data point 2, Dry Pond. November 1, 2022

Photo 3: Data point 3, ED-1. November 1, 2022

Photo 4: Data point 4, Rubber rabbitbrush scrub upland. November 1, 2022

D20180097903 - BIH RSA CEQA-NEPA Doc\05 Graphics-GIS-Modeling-USE AZURE\Illustrator

SOURCE: ESA, 2022

BIH RSA CEQA-NEPA Document

Appendix C-5
Representative Site Photos 1 thru 4

ESA

Photo 5: Data point 5, FFSW-1. November 1, 2022

Photo 6: Data point 6, Disturbed/developed upland. November 1, 2022

Photo 7: Data point 7, FEW-1. November 1, 2022

Photo 8: FFSW-2. November 1, 2022

D20180979.03 - BIH RSA CEQA-NEPA Doc\05 Graphics-GIS-Modeling-USE AZURE\Illustrator

SOURCE: ESA, 2022

BIH RSA CEQA-NEPA Document

Appendix C-5
Representative Site Photos 5 thru 8

ESA

Photo 9: Rawson Canal, looking east. November 1, 2022

Photo 10: Data point 9, FFSW-4 looking northwest. November 1, 2022

Photo 11: Data point 10, Rubber rabbitbrush scrub upland. November 1, 2022

Photo 12: FFSW-3 looking southwest towards E Line Street, inaccessible. November 1, 2022

SOURCE: ESA, 2022

BIH RSA CEQA-NEPA Document

Appendix C-5
Representative Site Photos 9 thru 12

ESA

Appendix D
Tribal Consultation

ESA

January 13, 2023

George Gholson
Timbisha Shoshone Tribe
621 W. Line Street
Suite 109
Bishop, CA 93514

RE: Assembly Bill 52 Consultation (Per Public Resources Code 21080.3.1)

Dear Sir or Madam:

Bishop Airport (BIH or the Airport) is a public-use airport located in Inyo County (County) in the Eastern Sierra region of California. The Airport is owned and operated by Inyo County, the airport sponsor, and is situated on land leased from the City of Los Angeles Department of Water and Power (LADWP). BIH is located approximately 1.5 miles east of the city of Bishop and approximately 45 miles southeast of the town of Mammoth Lakes. The location of the Airport is shown on **Attachment 1**.

Background

A Runway Safety Area (RSA) is a rectangular area surrounding a runway that is designed to enhance safety for aircraft that undershoot, overrun, or otherwise leave the paved runway surface. Per FAA regulations, an airport must keep the RSA cleared, graded, drained, and accessible by firefighting and rescue equipment. The FAA defines RSA standards and dimensions based on the type of aircraft using the airport. Following these guidelines, the standard RSA for Runway 12-30 would be 500 feet wide, centered on the runway centerline, and extend 1,000 feet beyond the runway end. The RSA surface should have no more than a three percent slope for 200 feet off the runway end and a maximum slope of five percent thereafter. The FAA regularly re-evaluates standard and non-standard RSAs at airports nationwide and requires airports to make incremental improvements where necessary. In situations where there is insufficient land available in which to develop a standard RSA, or if existing obstacles make a standard RSA impossible, the FAA works with airports to find alternative solutions. Bishop Airport is currently maintaining a non-standard RSA for Runway 12-30. The Proposed Project would bring the RSA into compliance with FAA regulations.

Description of the Proposed Project

To satisfy FAA regulations for runways serving the type of aircraft currently operating on Runway 12-30, the Proposed Project would correct the nonstandard length, width, and grading for the RSA. The RSA beyond the Runway 12 end would be brought into compliance with FAA standards by cutting, filling, grading, and compacting approximately 7.8 acres of land within the RSA beyond the Runway 12 end. This area is beyond the current Airport perimeter fence on land outside the current leasehold with the Los Angeles Department of Water and Power (LADWP), but within the Airport's easement. An existing LADWP unpaved patrol road would be relocated outside the runway's Object Free Area

(OFA), which is the same length as the RSA with a width of 800 feet. The portion of relocated road would be approximately 15 feet wide and 1/4 mile long. In addition, approximately 1,635 linear feet (LF) of existing fence would be removed and approximately 2,175 LF of new perimeter fence would be installed beyond the OFA boundary.

The RSA beyond the Runway 30 end would be brought into compliance with FAA standards by clearing, cutting, filling, and grading approximately 6.5 acres. This area is outside the current leasehold with LADWP, but within the Airport's easement. In addition, approximately 2,000 LF of fence would be removed and approximately 3,125 LF of new fence would be installed outside the OFA.

The necessary fill material for the RSAs will generally be taken from the cut material in the RSAs. In the event more material is required, a borrow area has been identified immediately adjacent to the RSA beyond the Runway 12 end. The RSA alongside the runway are generally in compliance with FAA regulations but would be graded to ensure an adequate, flat surface throughout. The Proposed Project is depicted on **Attachment 2, 3** and **4**.

Need for the Proposed Project
The compliant portion of the RSA beyond the Runway 12 end has been determined to be 715 feet short of the required 1,000 feet. Similarly, the RSA beyond the Runway 30 end has been determined to be 360 feet short of the required 1,000 feet. The Proposed Project would correct these deficiencies and bring the RSAs into compliance with FAA regulations.

As specified by Public Resources Code 21080.3.1 the County is hereby inviting local Tribes to consultation prior to the release of the CEQA environmental document. Also pursuant to Public Resources Code 21080.3.1, the Tribes must request consultation within 30-days of receipt of this correspondence.

If you wish to initiate the consultation process or would like more information, please contact:

Cathreen Richards, Planning Director
PO Drawer L,
Independence, CA 93526
760-878-0263
crichards@inyocounty.us

Sincerely,

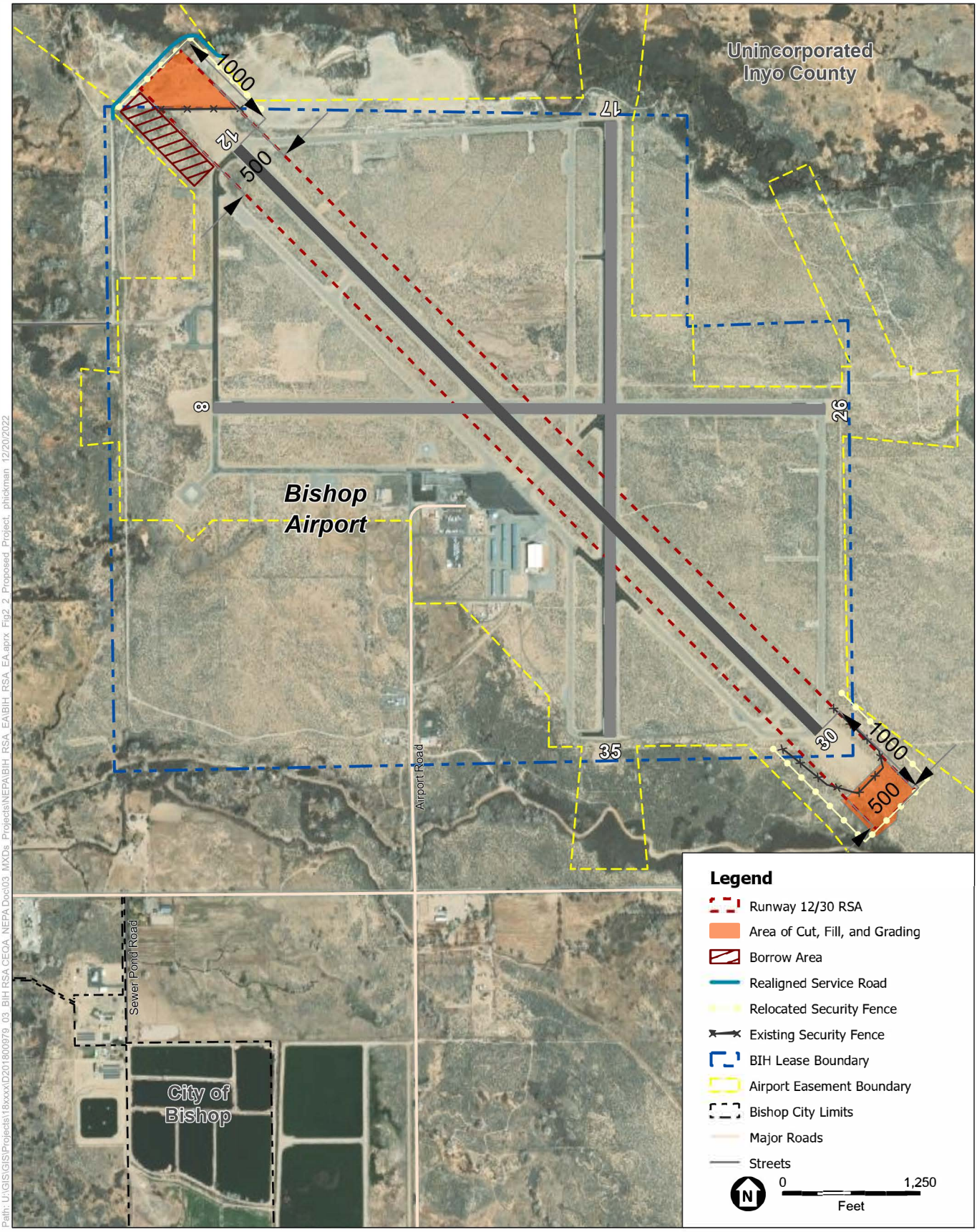
Jen Roeser, Chairperson
Inyo County Board of Supervisors

SOURCE: Esri; Inyo County Department of Public Works; ESA, 2020.

Runway Safety Area Improvement Project at Bishop Airport Draft EA

Figure 1
Bishop Airport Location

ESA

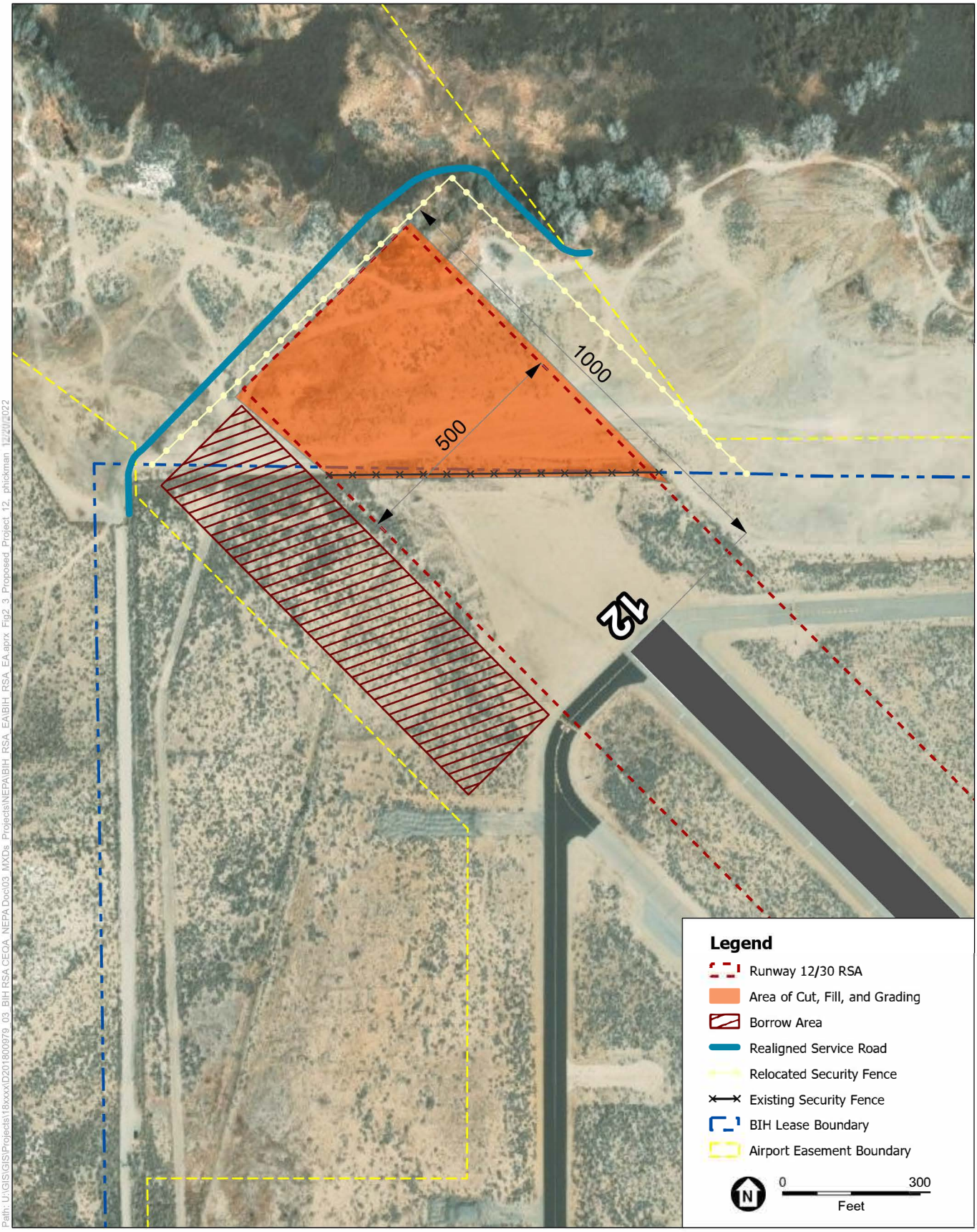


Path: U:\GIS\GIS\Projects\18xxxx\D20180097 9_03_BIH RSA CEQA_NEPA Doc\03 MXDs Projects\NEPA\BIH_RSA_EA\BIH_RSA_EA aprx Fig2_2 Proposed Project phickman 12/20/2022

SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway Safety Area Improvement Project at Bishop Airport Draft EA

Figure 2
Proposed Project
Runway 12/30

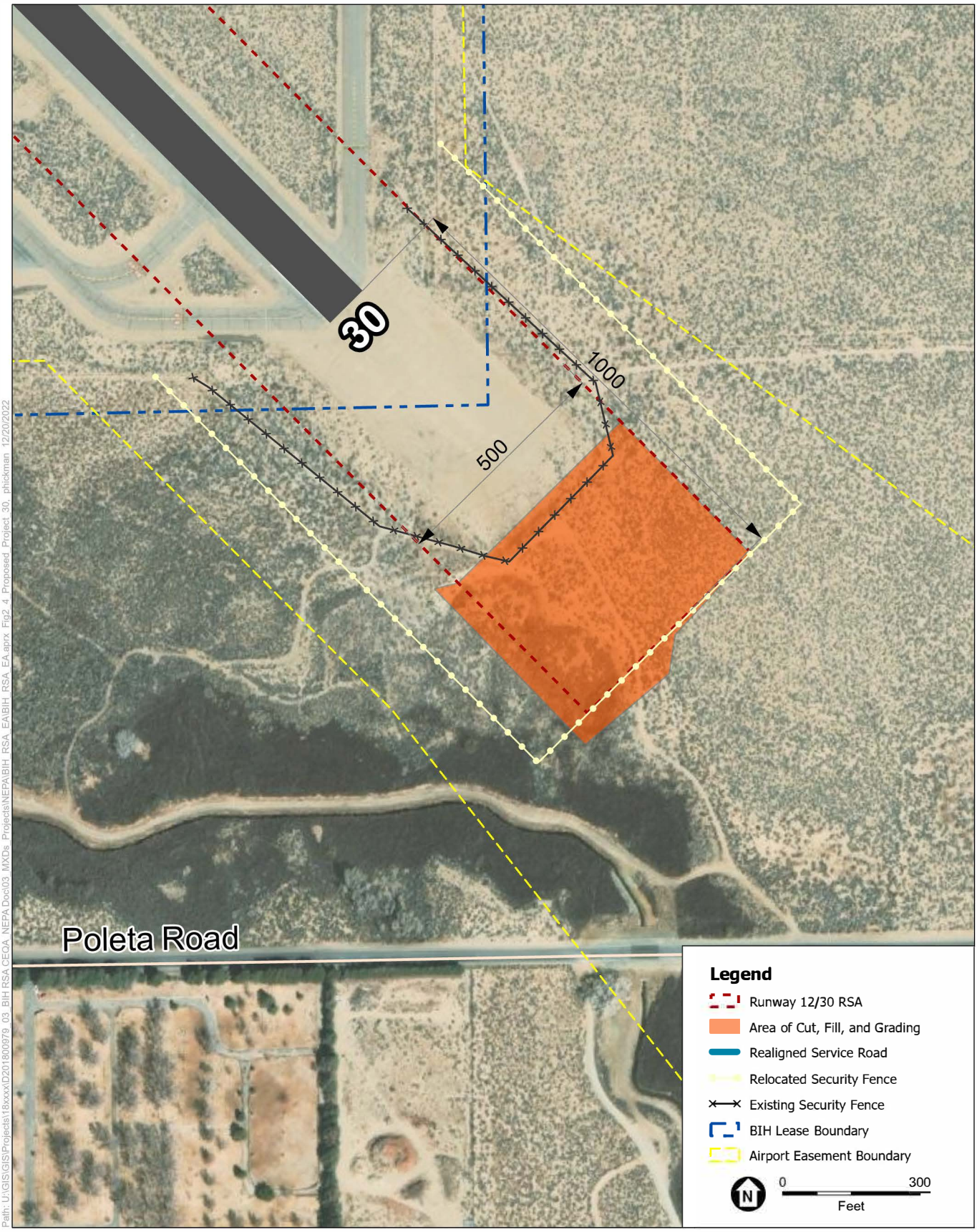


SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway Safety Area Improvement Project at Bishop Airport Draft EA

Figure 3
Proposed Project
Runway 12 End

ESA



SOURCE: ESA, 2022; Maxar, 2020; Inyo County, 2022.

Runway Safety Area Improvement Project at Bishop Airport Draft EA

Figure 4
Proposed Project
Runway 30 End

ESA