

City of Healdsburg
Community Services Department



Badger Park Redevelopment Master Plan Project
Initial Study/Mitigated Negative Declaration

August 2025

Prepared by



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INITIAL STUDY

August 2025

A. OVERVIEW

1. Project Title: Badger Park Redevelopment Master Plan Project
2. Lead Agency Name and Address: City of Healdsburg
Community Services Department
1557 Healdsburg Avenue
Healdsburg, CA 95448
3. Contact Person and Phone Number: Mark Themig
Community Services Director
(707) 431-3116
4. Project Location: 750 Heron Drive
Healdsburg, CA 95488
APNs 002-221-021, 002-281-012, 088-141-012, -015, and -016
5. Project Sponsor's Name and Address: City of Healdsburg Community Services/
Park and Recreation Department
1557 Healdsburg Avenue
Healdsburg, CA 95448
6. General Plan Designation: Park/Open Space
7. Zoning Designation: Park (P)
8. Required Approvals from Other Public Agencies: None
9. Surrounding Land Uses and Setting:

The project site, identified by Assessor's Parcel Numbers (APNs) 002-221-021, 002-281-012, 088-141-012, -015, and -016, is located at 750 Heron Drive in the City of Healdsburg, California. The project site currently consists of the existing approximately 20-acre Badger Park, which is currently developed with a 37,500-square-foot (sf) turf field; play area; community garden; dog play area; picnic areas; utility infrastructure; electrical substation, and a parking lot for 46 vehicles. A large portion of the park is forested and is impacted by invasive vegetation. The project site is bounded by a multi-family apartment complex immediately to the north, single-family residences to the north and west, single-family residences and a residential neighborhood to the east, and the Russian River to the south. The City of Healdsburg General Plan designates the project site as Park/Open Space and the site is zoned P.

10. Project Description Summary:

The Badger Park Redevelopment Master Plan Project (proposed project) would include redevelopment of the existing park features and development of new park amenities, including an expanded play area, an expanded parking lot to accommodate an additional 21 spaces, a picnic area, a riverwalk trail, a new restroom building north of the community garden, new sports courts, river outlooks, and a reconstructed dog park. Additionally, the proposed project would include the removal of invasive vegetation within the park's forested area to open and thin the tree canopy, create better visual access to the river, and reduce fire fuel. Two overlook features would be developed at the existing promontory spots, providing observation areas where the river would be visible, and the existing pedestrian bridge would be replaced. The new bridge would continue to span the drainage channel, and thus avoid directly impacting the channel. The bridge is anticipated to be constructed of wood and metal and would be six feet wide. An additional and substantially similar pedestrian trail bridge would be installed further south. The project would require approval of the Master Plan and a variance to allow minor improvements within the 100-foot Russian River setback.

B. SOURCES

The following documents are referenced information sources used for the purpose of this Initial Study:

1. Bay Area Air Quality Management District. *2022 California Environmental Quality Act Guidelines*. April 2023.
2. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. April 2023.
3. CalEPA. *Cortese List Data Resources*. Available at: <https://calepa.ca.gov/sitecleanup/corteselist/>. Accessed May 2024.
4. California Department of Conservation. *California Earthquake Hazards Zone*. February 27, 2009.
5. California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/dlrp/ciff/> Accessed July 2024.
6. California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones in State Responsibility Areas*. Available at: <https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008>. Accessed July 2024.
7. California Department of Forestry and Fire Protection. *California Fire Hazard Severity Zone Viewer*. Available at: <https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones>. Accessed May 2024.
8. California Department of Resources Recycling and Recovery (CalRecycle). Facility Site Summary Details: Keller Canyon Landfill (07-AA-0032). Available at <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228>
9. California Department of Transportation. *California Scenic Highway Mapping System*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed July 2024.
10. City of Healdsburg. *2020 Urban Water Management Plan Update*, City of Healdsburg Utility Department. October 2021.
11. City of Healdsburg. *City of Healdsburg Emergency Operations Plan*. August 2021.
12. City of Healdsburg. *Healdsburg 2030 General Plan EIR, SCH No. #2007082030*. 2008.
13. City of Healdsburg. *Healdsburg 2030 General Plan*. Certified July 6, 2009.

14. City of Healdsburg. *Healdsburg Bicycle and Pedestrian Mater Plan, Sonoma County Transportation Authority*. 2013.
15. Department of Toxic Substances Control. *Hazardous Waste and Substances Site List (Cortese)*. Available at: <https://www.envirostor.dtsc.ca.gov/public/>. Accessed April 2024.
16. Evans and De Shazo Archaeology and Historic Preservation. *Cultural Resources Study for the Proposed Badger Park Master Plan Project, 750 Heron Drive, Healdsburg, Sonoma County, California*. June 13, 2024.
17. Federal Emergency Management Agency. *Flood Insurance Rate Map 06097C0051E*. Effective December 3, 2008.
18. Huffman-Broadway Group, Inc. *Aquatic Resources Delineation Badger Park Project Healdsburg, California*. April 2024.
19. Huffman-Broadway Group, Inc. *Biological Resources Assessment Badger Park Project Healdsburg, California*. June 2024.
20. Native American Heritage Commission. *Badger Park Redevelopment Master Plan Project, Sonoma County*. April 12, 2024.
21. Natural Resource Conservation Service. *Web Soil Survey*. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed May 2024.
22. Northwest Information Center. *Cultural Resources Study for the Proposed Badger Park Redevelopment Plan Project at 750 Heron Drive, Healdsburg, Sonoma County, California*. April 15, 2024.
23. Saxelby Acoustics. *Environmental Noise Assessment, Bager Park Redevelopment Master Plan, City of Healdsburg, California*. July 16, 2024.
24. State Water Resources Control Board. *GeoTracker Public Site*. Available at: <https://geotracker.waterboards.ca.gov/map/>. Accessed May 2024.
25. W-Trans. *Draft Transportation Initial Study Checklist for the Badger Park Master Plan Project*. July 9, 2024.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is “Less-Than-Significant with Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology and Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

D. DETERMINATION

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 applicant. 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” 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 pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Mark Themig, Community Services Director
Printed Name

Date

City of Healdsburg
For

E. BACKGROUND AND INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) identifies and analyzes the potential environmental impacts of the proposed project. The information and analysis presented in this document is organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures sufficient to reduce the impacts to less-than-significant levels are prescribed.

The mitigation measures prescribed for environmental effects described in this IS/MND will be implemented in conjunction with the project, as required by CEQA. The mitigation measures will be incorporated into the proposed project through project conditions of approval. The City will adopt findings and a Mitigation Monitoring and Reporting Program for the project in conjunction with approval of the project.

In 2008, the City of Healdsburg adopted the City of Healdsburg 2030 General Plan¹ and certified an Environmental Impact Report (EIR) for the updated General Plan². The General Plan EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations [CCR], Sections 15000 *et seq.*). The General Plan EIR analyzed full implementation of the General Plan and identified measures to mitigate the significant adverse impacts associated with the General Plan. The proposed project would be consistent with the land uses anticipated for the site in the General Plan; therefore, in accordance with Section 15150 of the CEQA Guidelines (Section 21083.3 of the Public Resources Code [PRC]), this IS/MND will tier from the previously certified General Plan EIR (SCH# 2007082030), as appropriate.

F. PROJECT DESCRIPTION

The following provides a description of the project site's current location and setting, as well as the proposed project components and discretionary actions required for the project.

Project Location and Setting

The project site is located at 7560 Heron Drive in the City of Healdsburg, California (see Figure 1 and Figure 2), and is identified by APNs 002-221-021, 002-281-012, 088-141-012, -015, and -016.

The existing approximately 20-acre park consists of a 114,000-sf informal recreation field, a 6,250-sf playground, a 7,500-sf dog run, and a 27,000-sf community garden, as well as picnic areas, and a 46-space parking lot. A large portion of the park is forested and impacted by dense invasive vegetation. The forested area terraces down to the Russian River and two natural promontory areas exist, with informal pathways throughout. The current Badger Park includes utility infrastructure that is managed by the City of Healdsburg, including three wells, two for drinking water and one for irrigation water, the Fitch Water Treatment Building, which provides chemical dosing, electrical distribution, and control for the Fitch well field, a 50 million volt amps (MVA) electrical substation that receives electricity from PG&E power lines, and a UV water treatment structure. The site is designated Park/Open Space pursuant to the City's General Plan and is zoned P.

The project site is bounded by a multi-family apartment complex immediately to the north, single-family residences to the north and west, single-family residences and the Riverview neighborhood, a residential development to the east; and the Russian River to the south.

¹ City of Healdsburg. *Healdsburg 2030 General Plan*. Certified July 6, 2009.

² City of Healdsburg. *Healdsburg 2030 General Plan EIR*, SCH No. #2007082030. 2008.

Figure 1
Regional Project Location



Figure 2
Approximate Project Site Boundaries Map



Note: Project site boundaries are approximate.

Project Components

The proposed project generally consists of a Master Plan to redevelop Badger Park (see Figure 3).

The goal of the proposed Master Plan includes expanding park uses for the community, reconnecting the park to the Russian River, management of invasive species, and the creation of a more resilient climate adaptive park.

The proposed Master Plan would include a variety of active and passive spaces surrounding a central field area bracketed by curvilinear promenades. A secondary path system would connect the park and the adjacent neighborhood to the riverfront through the forested areas.

The park's primary vehicular entrance and exit would remain at Heron Drive. The parking lot would be expanded to accommodate 67 vehicles, for an increase of 21 spaces, and a turn-around/drop-off loop would be added north of the existing UV treatment structure. The loop would allow vehicles to turn around and/or drop-off park visitors and human-powered watercraft such as canoes and kayaks.

Informal recreation would continue in a renovated central field area. Although the central field area is large enough to accommodate soccer play, the existing field is currently not programmed or permitted for sports practices, games, or tournaments. Due to drought, soccer programs on the existing field ceased in 2021. Games and practices have been relocated to other parks. The City of Healdsburg does not anticipate the soccer program returning to Badger Park in the future, and thus, this IS/MND does not evaluate impacts associated with organized sports games, tournaments, etc., at the park.

The existing playground would remain in approximately the same location as current conditions, and would be reconstructed and expanded to ensure the playground is up to code and meets the Americans with Disability Act (ADA) standards. The new play structures and amenities would embrace natural-universal play and river-related themes would be included.

The existing dog park would be reconstructed on the west side of the park's vehicular entrance and exit so that it is not adjacent to the electrical substation. The reconstructed dog park would be substantially similar to the existing dog park, with new amenities including water and dog play objects. The existing community garden would be expanded to the south and would approximately double in size.

A portable toilet is currently in use at the existing Badger Park. As such, the proposed project would include the construction of one new restroom building immediately north of the community garden. The restroom building would have flushing toilets and be an energy efficient structure. The restroom building would connect to the existing sewer gravity main on Heron Drive by either forced lateral or gravity flow depending on elevation changes. In addition, the existing sewer lift station, north of the project site, across from Heron Drive, would be relocated on to the northern portion of the project site, west of the access roadway at some point in the future.

The proposed project would also include the construction of new sports courts, such as three pickleball courts, volleyball courts, and a half-court for basketball south of the relocated and reconstructed dog park. The composition of the type of courts would be decided as part of the final design based on current trends and community needs, and the courts would not host any league play or be lit at night. Three small picnic areas with tables are proposed near the playground, community garden, and central field.

**Figure 3
Master Plan**



The Master Plan also highlights two areas for future utility infrastructure. A cryptosporidium treatment facility will be constructed near the existing wells and south of the community garden. The facility will include six cartridge filter housings along with ancillary piping and controls modifications, six-foot tall chain link fencing, and a gravel access road. The Master Plan also designates a potential utility expansion area south of the existing UV treatment structure and north of the cryptosporidium treatment facility. However, the future utility infrastructure is not included in the proposed project, and a Notice of Exemption for the cryptosporidium treatment facility was posted by Sonoma County on December 18, 2023.

The proposed project would also include the removal of invasive vegetation within the park's forested area to open and thin the tree canopy, create better visual access to the river, and reduce fire fuel. Two overlook features would be developed at the existing promontory spots, providing observation areas where the river would be visible (see Number 1 on Figure 3). An existing pedestrian trail bridge, that spans the drainage channel, would be replaced. The new bridge would continue to span the drainage channel, and thus avoid directly impacting the channel. The bridge is anticipated to be constructed of wood and metal and would be six feet wide. An additional and substantially similar pedestrian trail bridge would be installed further south (see Number 16 on Figure 3). Both bridges would connect the park to the adjacent neighborhood by way of a decomposed granite trail that would include stopping places with logs or boulders for adults and children to climb on and explore.

In addition, the site's existing topography and habitat along the riverfront in the park's southwest corner would be preserved. A series of bank stabilizing bioengineered vegetative walls would be installed to support an existing island, which is two feet in elevation above the river. The walls would slow the flow of water at select locations and provide erosion control to protect against flooding. Two at-grade creek crossings constructed of stones would cross the drainage channel and lead to a hidden beach nestled among willow trees with river access for swimming (see Number 17 on Figure 3).

An existing informal trail along the riverbank would be widened by approximately one foot for a total width of four feet and resurfaced with decomposed granite to make the trail more navigable and maintained. The riverbank trail would connect the vehicular drop-off loop to two river access points at the project's southeast and southwest corners, which would consist of a kayak put-in constructed of wood treads and risers and/or informal rocks (see Number 19 on Figure 3).

The operational hours of Badger Park, which are 6:00 AM to 11:00 PM, would not change with redevelopment of the park. However, the project would improve visual and physical access to the Russian River, which would likely result in increased visitors. In addition, the construction of new sports courts (pickleball, half-court basketball and volleyball), the reconstruction of the playground, and the construction of a new, permanent restroom building would likely draw more visitors as well. Peak times for river access would be summer weekends.

Discretionary Actions

The proposed project would require the following approvals from the City of Healdsburg:

- Adoption of the IS/MND;
- Adoption of a Mitigation Monitoring and Reporting Program; and
- Approval of a Master Plan.
- Approval of a Variance to allow minor improvements within the 100-foot Russian River setback.

G. ENVIRONMENTAL CHECKLIST

The following checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

I. AESTHETICS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a,b. Examples of typical scenic vistas include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project’s impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. According to the City’s General Plan, primary scenic vistas within the City of Healdsburg are wooded ridges and hillsides, and the Russian River. Pursuant to Figure IV.B-11 of the City’s General Plan EIR, the project site is not located within the vicinity of an identified scenic landscape unit (i.e., landscape of special importance to Sonoma County). The City’s General Plan EIR does identify a number of scenic ridgelines as shown in Figure 8 of the City’s General Plan. However, none of the scenic ridgelines shown therein are located in the direct vicinity of the project site. In addition, according to the California Scenic Highway Mapping System, the project site is not located within the vicinity of an officially designated State Scenic Highway³. The nearest designated highway is located 9.81 miles southwest and the nearest eligible highway is State Route (SR) 128, located 4.76 miles northeast of the project site. In addition, the proposed project consists of a Master Plan for Badger Park, which is located adjacent to the Russian River. The Master Plan calls for removal of invasive vegetation which would create better visual access to the river. In addition, while the proposed project would include the expansion of park uses at the site, such uses are consistent with the type of development currently associated with the existing Badger Park.

Based on the above, development of the proposed project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Thus, a **less-than-significant** impact would occur.

c. Currently, the project site consists of the existing Badger Park. The project site is bounded by single-family and multi-family residences to the north and west, single-family residences to the east, and the Russian River to the south. The site is designated Park/Open Space pursuant to the City’s General Plan and is zoned P. Because the site is

³ California Department of Transportation. *California Scenic Highway Mapping System*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed July 2024.

substantially surrounded by urban uses, the project site is located in an urbanized area. Pursuant to Appendix G of the CEQA Guidelines, because the project site is located in an urbanized area, the relevant threshold is whether the approved project would conflict with applicable zoning and other regulations governing scenic quality.

The proposed project would include a Master Plan for Badger Park. The proposed Master Plan would include expanding the park uses for the community, reconnecting the park to the Russian River, management of invasive species, and the creation of a more resilient climate adaptive park. As noted previously, the proposed project would be consistent with the General Plan land use designation and zoning designation for the project site. In addition, the only structure proposed for development on the project site would be the restroom building. Thus, the project site has been previously anticipated for development of park and open space uses by the City's General Plan, and impacts related to degradation of visual character and quality were analyzed in the General Plan EIR.

In addition, the proposed project would require Master Plan approval by City Council. The Master Plan would use the existing topography along the riverfront to preserve the habitat and natural features of the river. Furthermore, the proposed project would be subject to the Healdsburg Design Guidelines, which includes set design principles for the development of public infrastructure. Specifically, the Saggio Hills Area Plan within the Healdsburg Design Guidelines focuses on conserving open space in relation to parks, public trails, and resource protection. Compliance with such would help ensure that the proposed redevelopment would not conflict with applicable zoning and other regulations governing scenic quality.

Based on the above, the project site is in an urbanized area and the proposed project would be consistent with the site's current zoning designation. Thus, the proposed project would not conflict with applicable zoning and other regulations governing scenic quality, and a ***less-than-significant*** impact would occur.

- d. Currently, the existing on-site park includes lighting features in the form of pole-mounted fixtures in the parking lot. In addition, streetlights are provided along the project frontages at Heron Drive and at the electrical substation within the park. Due to the urban nature of the project area, the project area experiences light and glare from existing development in the site vicinity. The proposed park redevelopment may include the installation of new lighting features within the project site; however, the improvements would not substantially increase on-site lighting intensity relative to what currently exists. Furthermore, new sources of lighting would be required to comply with such standards set forth in Healdsburg Municipal Code Section 20.16 (General Development Standards), which include such requirements such as all illumination, including security lighting, shall be arranged so as to reflect downward and away from the night sky, adjoining properties, and right-of-ways. Compliance with such standards would help to ensure that the light and glare created by the proposed project would be consistent with the levels of light and glare currently emitted in the surrounding environment by existing residential uses. In addition, the proposed park project would be subject to the 2022 Building Energy Efficiency Standards (Title 24, Part 6 CCR), which regulates outdoor lighting characteristics of new development such as maximum power and brightness, shielding, and controls to turn lighting on and off.

Given the proposed project's consistency with the site's General Plan land use designation, implementation of the project would result in a ***less-than-significant*** impact

with respect to creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

II. AGRICULTURE AND FOREST RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

- a,e. Pursuant to the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), the entirety of the project site is characterized as “Urban and Built-Up Land.”⁴ The project site does not contain, and is not located adjacent to, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Given the designation of the site as Urban and Built-Up Land, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or otherwise result in the loss of Farmland to non-agricultural use. Therefore, **no impact** would occur as a result of the proposed project.

- b. The project site is not under a Williamson Act contract and is not zoned for agricultural uses. The project site is designated Park/Open Space and the site is zoned P. According to the General Plan EIR, parcels within the City are not subject to Williamson Act contracts. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and **no impact** would occur.

- c,d. The project site is not considered forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), and is not zoned Timberland Production (as defined by Government Code Section 51104[g]). The City of Healdsburg General Plan designates the project site as Park/Open Space and the site is zoned P. Tree removal for the proposed project is addressed in Section IV, Biological Resources, of this IS/MND. Therefore, the proposed project would have **no impact** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

⁴ California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/dlrp/ciff/> Accessed July 2024.

III. AIR QUALITY.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a,b. The City of Healdsburg is located in the North Coast Air Basin (NCAB), which is under the jurisdiction of the Northern Sonoma County Air Pollution Control District (NSCAPCD). The NCAB is in attainment or unclassified (meaning there is insufficient data to determine attainment) for all California Ambient Air Quality Standards (CAAQS). As a result, numerical thresholds of significance for air pollutants have not been established by the NSCAPCD for CEQA analysis purposes, as such thresholds of significance are typically developed based on attainment goals set forth within an air quality plan.

Based on the recommendation of the NSCAPCD,⁵ this analysis applies the thresholds of significance used for CEQA analyses within the nearby San Francisco Bay Area Air Basin (SFBAAB), formulated by the Bay Area Air Quality Management District (BAAQMD). The BAAQMD thresholds of significance are based on the SFBAAB's current nonattainment status of ozone and particulate matter (PM) emissions and the subsequent air quality attainment plans. Because the NCAB is in attainment or unclassified for all AAQS, using the BAAQMD thresholds of significance for the proposed project analysis would allow for a conservative analysis. If a project were to exceed the BAAQMD's criteria pollutant emission thresholds during construction or operations, the project could be considered to result in an adverse air quality impact.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001 and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001 for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017. The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air

⁵ Personal communication between Alex Saschin, Air Quality Engineer, Northern Sonoma County Air Pollution Control District, and Briette Shea, Senior Associate/Air Quality Technician, Raney Planning & Management, Inc., October 12, 2021.

contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM₁₀ standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 Clean Air Plan. The control strategy serves as the backbone of the BAAQMD’s current PM control program.

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD’s established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_x), as well as for PM₁₀ and PM_{2.5}, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 1. Thus, by exceeding the BAAQMD’s mass emission thresholds for emissions of ROG, NO_x, PM₁₀, or PM_{2.5}, a project would be considered to conflict with or obstruct implementation of the BAAQMD’s air quality planning efforts. Given the NSCAPCD recommends using BAAQMD’s thresholds in the absence of their own, by exceeding the mass emissions thresholds presented in Table 1, a project would also be considered to conflict with or obstruct implementation of the NSCAPCD’s air quality planning efforts.

Table 1			
BAAQMD Thresholds of Significance			
Pollutant	Construction	Operational	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀ (exhaust)	82	82	15
PM _{2.5} (exhaust)	54	54	10

Source: BAAQMD, CEQA Guidelines, May 2017.

PM can be split into two categories: fugitive and exhaust. The BAAQMD thresholds of significance for exhaust are presented in Table 1. BAAQMD does not maintain quantitative thresholds for fugitive emissions of PM₁₀ or PM_{2.5}, rather, BAAQMD requires all projects within the district’s jurisdiction to implement Basic Construction Mitigation Measures (BCMMS) related to dust suppression.

The proposed project’s construction emissions were quantified using the California Emissions Estimator Model (CalEEMod) software version 2022.1.1.25 – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, trip generation rates, vehicle mix, trip length, average speed, etc. Where project-specific information is available, such information should be applied in the model. For the proposed project, the following project-specific details were included in the modeling:

- Construction would begin in May 2025 and last for two years.

- A total of approximately 4,481 cubic yards (CY) of vegetation would be exported during remediation activities.

The proposed project’s estimated emissions associated with construction and operations are provided below. All CalEEMod results are included as Appendix A to this IS/MND.

Construction Emissions

According to the CalEEMod results, the proposed project would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 2.

Table 2			
Maximum Unmitigated Construction Emissions (lbs/day)			
Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	0.85	54	NO
NO _x	7.68	54	NO
PM ₁₀ (exhaust)	0.31	82	NO
PM _{2.5} (exhaust)	0.29	54	NO
<i>Source: CalEEMod, July 2024 (see Appendix A).</i>			

As shown in the table, the proposed project’s construction emissions would be below the applicable thresholds of significance for ROG, NO_x, PM₁₀, and PM_{2.5}.

In addition, NSCAPCD recommends that the following BAAQMD BCMMs be implemented during project construction:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a six- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.
9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

The proposed project’s required implementation of the BAAQMD’s BCMMs listed above would help to further minimize construction-related emissions. In particular, implementation of the foregoing measures would reduce fugitive dust emissions resulting from project construction.

Even without consideration of BAAQMD’s Basic Construction Mitigation Measures, as shown in Table 2, construction of the proposed project would result in emissions of criteria air pollutants below BAAQMD’s thresholds of significance. Consequently, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans during the proposed redevelopment activities.

Operational Emissions

According to the CalEEMod results, redevelopment of the existing Badger Park would result in maximum unmitigated operational criteria air pollutant emissions as shown in Table 3. As shown in the table, the proposed project’s operational emissions of ROG, NO_x, and PM_{2.5} would be below the applicable thresholds. Consequently, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans during project operation.

Table 3 Maximum Unmitigated Operational Emissions					
Pollutant	Proposed Project Emissions		Threshold of Significance		Exceeds Threshold?
	lbs/day	tons/yr	lbs/day	tons/yr	
ROG	0.72	0.11	54	10	NO
NO _x	0.24	0.02	54	10	NO
PM ₁₀ *	<0.005	<0.005	82	15	NO
PM _{2.5} *	<0.005	<0.005	54	10	NO
* Emissions from exhaust only. BAAQMD has not yet adopted thresholds for fugitive PM emissions.					
Source: CalEEMod, July 2024 (see Appendix A).					

Conclusion

Because the proposed project would not result in construction-related or operational emissions of criteria air pollutants in excess of BAAQMD’s thresholds of significance, conflicts with or obstruction of implementation of the applicable regional air quality plans would not occur. In addition, the project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State AAQS. Thus, a **less-than-significant** impact would result.

- c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest existing sensitive receptors are the single-family residences located approximately 100 feet from the project site boundary to the east.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and TAC emissions, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

In order to provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, the BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a proposed project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, underpass, etc.).

The proposed project would consist of redevelopment of an existing park; upon completion of the proposed redevelopment, the project would generate an average of 91 additional trips per day, for the pickleball courts. In addition, the project would not conflict with the Sonoma County Comprehensive Transportation Plan. As such, based on the BAAQMD screening criteria, the proposed project would result in a less-than-significant impact related to localized CO emissions concentrations and would not expose sensitive receptors to substantial concentrations of localized CO.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk.

The proposed project would not involve any land uses or operations that would be considered major sources of TACs, including DPM. As such, the project would not generate any substantial pollutant concentrations during operations.

Short-term, construction-related activities could result in the generation of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed project. Health risks are typically associated with exposure to high concentrations of TACs over extended periods of time (e.g., 30 years or greater), whereas the construction period associated with the proposed project would likely be two years.

All construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation, which is intended to help reduce emissions associated with off-road diesel vehicles and equipment, including DPM. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. In addition, construction equipment would operate intermittently throughout the day and only on portions of the site at a time.

Because construction equipment on-site would not operate for long periods of time and would be used at varying locations within the site, associated emissions of DPM would not occur at the same location (or be evenly spread throughout the entire project site) for long periods of time. Due to the temporary nature of construction and the relatively short duration of potential exposure to associated emissions, the potential for any one sensitive receptor in the area to be exposed to concentrations of pollutants for a substantially extended period of time would be low. Therefore, construction associated with the proposed project would not be expected to expose any sensitive receptors to substantial pollutant concentrations.

It should be noted that redevelopment of the proposed park project would require vegetation hauling activities primarily associated with removal of invasive vegetation from the site, thereby generating temporary heavy-duty truck traffic on local roadways. However, all haul truck traffic would be confined to the City's established truck routes, as defined in Chapter 10.40 of the City's Municipal Code. Consistent with the City's established truck routes, haul trucks leaving the project site would be routed through Heron Drive. Given that the project site is located directly adjacent to an established truck route, the proposed project would not generate any haul truck traffic on roadways that were not previously anticipated for such traffic by the City. In addition, construction activities would be temporary, and hours of operation for construction equipment and haul truck traffic would be restricted pursuant to Section 9.32.070 of the Municipal Code.

Conclusion

Based on the above, the proposed project would not expose any sensitive receptors to substantial concentrations of localized CO or TACs during construction or operation. Therefore, the proposed project would result in a **less-than-significant** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

- d. Emissions of concern include those leading to odors, emission of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in sections "a" through "d" above. Therefore, the following discussion focuses on emissions of odors and dust.

Pursuant to the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.⁶ Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not introduce any such land uses.

Construction activities often involve diesel-fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, construction activities would be temporary, and hours of operation for construction equipment would be restricted per Section 9.32.070 of the Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize emissions, including emissions leading to odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

As noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's Basic Construction Mitigation Measures, as recommended by NSCAPCD. The measures would act to reduce construction-related dust by ensuring that haul trucks with loose material are covered, reducing vehicle dirt track-out, and limiting vehicle speeds within the project site, among other methods, which would ensure that the proposed ground-disturbing activities do not result in substantial emissions of dust. Following project construction, all areas of the project site would be paved or landscaped. Thus, project operations would not generate significant amounts of dust that could adversely affect a substantial number of people.

For the aforementioned reasons, the proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a ***less-than-significant*** impact would result.

⁶ Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pg. 5-16]. April 2017.

IV. BIOLOGICAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. The following discussion is based primarily on a Biological Resources Assessment (BRA) prepared by Huffman-Broadway Group, Inc. (HBG) for the proposed project. (see Appendix B).⁷

Currently, the site is developed with an existing approximately 20-acre park, which consists of a 114,000-sf informal recreation field, a 6,250-sf playground, a 7,500-sf dog run, and a 27,000-sf community garden, as well as picnic areas and a 46-space parking lot. A large portion of the park is forested and impacted by dense growth of invasive plant species which include English Ivy and Himalayan blackberry. From the maintained portion of the park’s recreational areas, a forested area transitions down to the Russian River where two natural promontory areas, situated on river terraces, and a number of informal pathways are located.

Several species of plants and animals within the State of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats the species occupy are converted to agricultural and urban uses. State and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formerly designated as threatened or endangered under state and federal endangered

⁷ Huffman-Broadway Group, Inc. *Biological Resources Assessment Badger Park Project Healdsburg, California*. June 2024.

species legislation. Others have been designated as “candidates” for such listing. Still others have been designated as “species of special concern” by CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as “special-status species.” Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. Special-status species include the following:

- Plant and wildlife species that have been formally listed as threatened or endangered, or are candidates for such listing by the USFWS or National Marine Fisheries (NMFS);
- Plant and wildlife species that have been listed as threatened or endangered or are candidates for such listing by the CDFW;
- CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue;
- CDFW Fully Protected Species; and
- Species on CNPS Lists 1 and 2, which are considered to be rare, threatened, or endangered in California by the CNPS and CDFW.

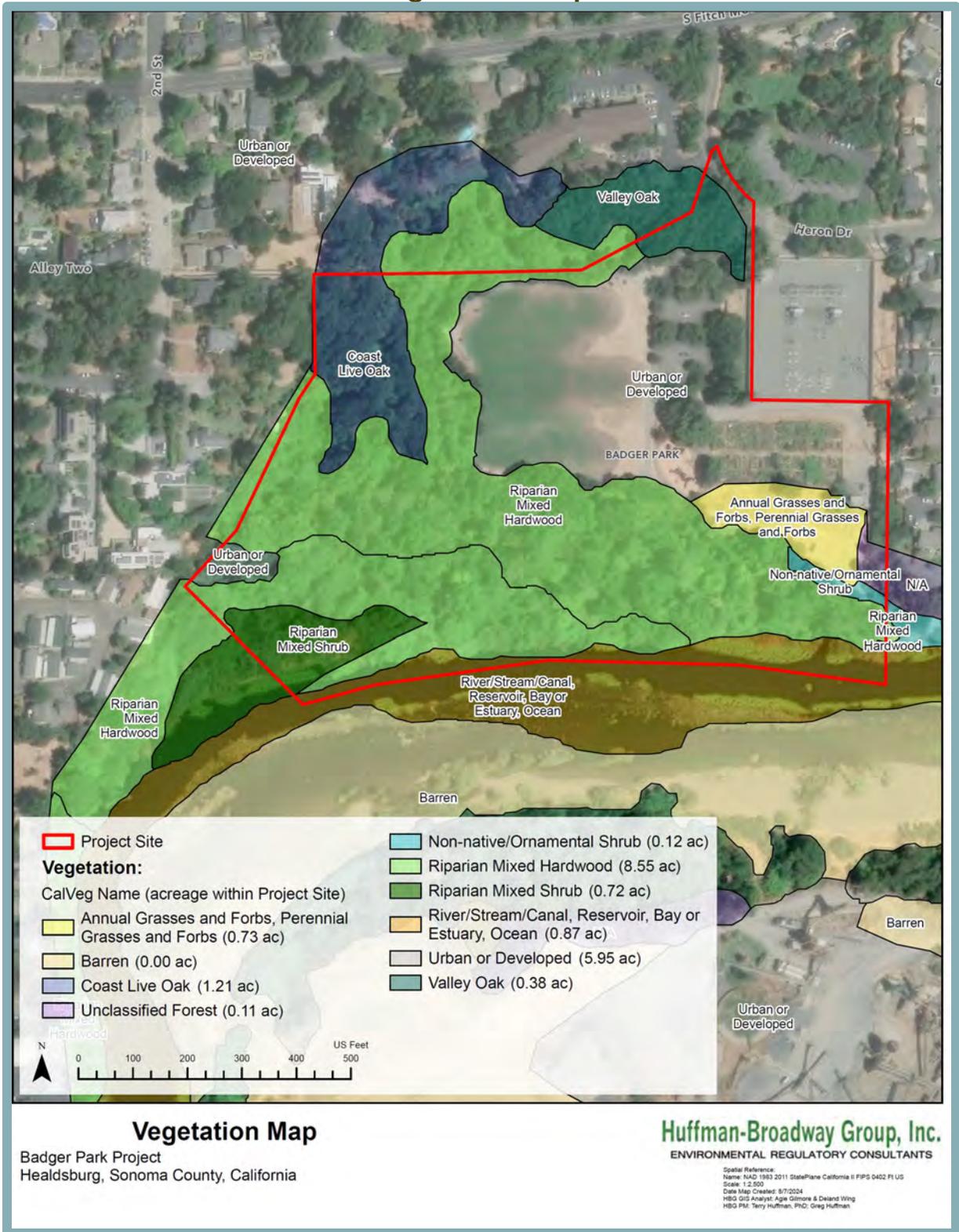
In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal.

In order to identify potential biological resource constraints and assess the suitability of habitats on the project site to potentially support State- and federally-protected species the BRA’s analysis included review of background literature to determine the potential presence of sensitive vegetation communities, aquatic communities, and special-status plant and wildlife species. Resources reviewed for sensitive vegetation and aquatic features included aerial photography, mapped soil types, the CNPS Online Databases, the CDFW’s California Natural Diversity Database (CNDDB), and the USFW’s Information for Planning and Consultation (IPC) database. Additionally, field surveys were conducted on February 28, 2024, March 21, 2024, and June 12, 2024, to identify on-site habitats which could potentially support special-status species, and to determine the likelihood of any occurrences of special-status species.

Based on the results of the database review and field surveys, on-site habitats were determined to include valley foothill riparian, coastal oak woodland, valley oak woodland, urban, non-native grasslands and riverine habitat. The study area’s vegetation communities are summarized in Table 4 and presented in Figure 4, and are discussed in further detail below.

Table 4	
Vegetation Communities Within the Study Area	
Habitat Type	Acreage of Project Site
Valley Foothill Riparian	9.5
Coastal Oak Woodland	1.21
Valley Oak Woodland	0.38
Urban	5.95
Non-Native Grasslands	0.73
Riverine	0.87
Source: Huffman-Broadway Group, 2024	

**Figure 4
Vegetation Map**



Valley Foothill Riparian

Mature riparian ecosystems include canopy trees with a canopy cover of 20 to 80 percent, a subcanopy tree layer, and an understory shrub layer. The valley foothill riparian habitat on the project site consists of the forested area between the developed portion of Badger Park and the Russian River. Dominant species in the canopy layer of the on-site riparian habitat include but are not limited to arroyo willow (*Salix lasiolepis*), black cottonwood (*Populus trichocarpa*), box elder (*Acer negundo*), and a lesser number of other native trees. The canopy layer of the valley foothill riparian habitat on the project site also includes a considerable number of non-native tree privet (*Ligustrum lucidum*) and a single Canary Island palm (*Phoenix canariensis*). The understory of the extensive valley foothill riparian habitat within the park is thick growth of mostly non-native plants that includes species such as greater periwinkle (*Vinca major*), English ivy (*Hedera helix*), poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), giant reed (*Arundo donax*), blue lily (Agapanthus praecox), and purple dead nettle (*Lamium purpureum*).

Coastal Oak Woodland

The overstory of coastal oak woodlands consists of deciduous and evergreen hardwoods (mostly oaks), and sometimes mixed with scattered conifers. The coastal oak woodland on the project site is continuous with the valley foothill riparian habitat but is found further inland from the Russian River. Tree canopy composition of coastal oak woodlands on the project site is dominated by Coast live oak, with several California buckeye (*Aesculus californica*) and a large numbers of non-native tree privet. Typical understory plants in the on-site coast live oak woodlands include California blackberry, English ivy, elderberries, poison oak (*Toxicodendron diversiloba*), and multiflora rose (*Rosa multiflora*), among others.

Valley Oak Woodland

Valley oak woodland varies from savanna-like to forest-like stands with partially closed canopies, comprised mostly of winter-deciduous, broad-leaved species. The valley oak woodland on the project site consists of a patch of the valley oak woodland habitat at the northern end of the project site between the Badger Park parking lot and Heron Drive. A small stream enters the habitat through a culvert under the park entrance road and continues west into the coastal oak woodland and then south into the riparian habitat before emptying into the Russian River near the southwest corner of the site. The dominant canopy tree in the patch of valley oak habitat on-site is valley oak, but other trees such as native Coast live oak and arroyo willow and non-native tree privet are also present, especially along the small stream. Typical understory plants include California blackberry, English ivy, and poison oak, along with grasses such as wild oat (*Avena fatua*), rattlesnake grass (*Briza maxima*), foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), and others.

Urban

The structure of urban vegetation on-site varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn and shrub cover. The urban habitat on the project site consists primarily of the developed portions of the project site (including the play fields, tot-lot, parking lot and other amenities where some remnant native trees may be present but where most vegetation consists of non-native species or plants used in landscaping), the community garden, and an adjacent small field of non-native grasses and herbaceous species that is considered a ruderal habitat.

Non-Native Annual Grassland

Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Annual Grassland habitats are open grasslands composed primarily of annual plant species. Many of these species also occur as understory plants in woodlands and other habitats. The annual grassland area on the project site consists of a ruderal field vegetated primarily with non-native weedy species in the eastern portion of the project area between the community garden and the forest habitat along the river. The ruderal field is not mowed. Vegetation includes but is not limited to the non-native grasses and forbs found in the play fields such as wild oat, ripgut brome, foxtail barley, spring vetch, dandelion, and cut-leaf geranium, but also species such as curly dock, greater periwinkle, and bedstraw.

Riverine

Intermittent or continually running water distinguishes rivers and streams. A stream originates at some elevated source, such as a spring or lake, and flows downward at a rate relative to slope or gradient and the volume of surface runoff or discharge. Velocity generally declines at progressively lower altitudes, and the volume of water increases until the enlarged stream finally becomes sluggish. Over this transition from a rapid, surging stream to a slow, sluggish river, water temperature and turbidity will tend to increase, dissolved oxygen will decrease, and the bottom will change from rocky to muddy. Riverine systems are often lacking in vegetation.

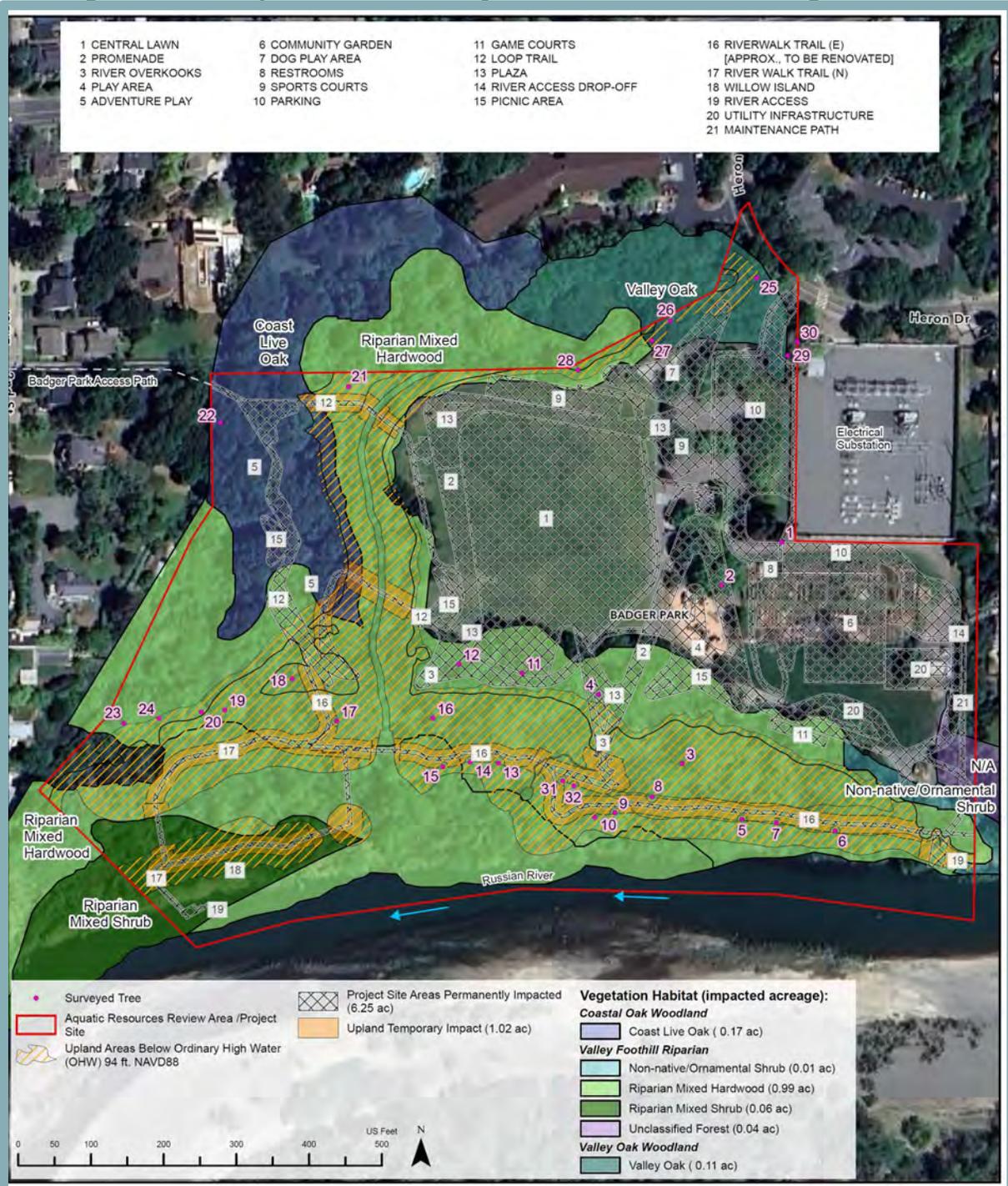
Special-Status Plants

Based on the database search, literature review, and habitat types found in the project site, 14 special-status plant species were identified as having a moderate to high potential to occur within the project site. Special-status plant species with a moderate to high potential for presence in the on-site areas of valley foothill riparian habitat with associated areas of freshwater marsh include Sonoma Alopecurus (*Alopecurus aequalis* var. *sonomensis*), thurber's reed grass (*Calamagrostis crassiglumis*), bristly sedge (*Carex comosa*), pitkin marsh paintbrush (*Castilleja uliginosa*), Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*), swamp harebell (*Eastwoodia californica*), bogg's lake hedgehyssop (*Gratiola heterosepala*), pitkin marsh lily (*Lilium pardalinum* spp. *pitkinense*), white-beaked rush (*Rhynchospora alba*), round-headed beaked rush (*Rhynchospora globularis*), kenwood march checkerbloom (*Sidalcea oregana* ssp. *valida*), and northern slender pondwood (*Stuckenia filiformis* ssp. *alpina*). All other plant species identified in the database search were determined to be absent due to the lack of potentially suitable habitat as documented by the CNDDDB database.

Field studies conducted for the BRA did not find special-status plants on-site. However, the surveys were not conducted during the flowering period of the target plant species. Given the potential for special-status plant species within the project site, on-site construction activities could result in an adverse impact to special-status plants.

Plant community impacts would result from the clearing of vegetation within the various habitats comprising the existing Badger Park. The impacts would occur within the 6.25-acre project footprint and would specifically result from the construction of trails, overlooks, a small canoe/kayak launch ramp into the river, trail improvements along the berm adjacent to the river, clearing of vegetation related to construction of picnic areas, or children's adventure play areas at the east end of the site. The impacts of the planned improvements within the various plant communities that occur within Badger Park are shown in Figure 5.

Figure 5
Vegetation Impacts From Project Ground Disturbing Activities



Vegetation Impacts as Result of Project Ground Disturbing Activities
Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 StatePlane California II FIPS 402 Feet (2011)
Scale: 1:2,000
Map Created Date: 6/25/2024
GIS Specialist: Agnė Gilmore & Deland Wing
HBG Project Manager: Greg Huffman

It should be noted that although the current trail is five feet in width, the temporary work area for improvements would include a 10-foot buffer on either side of the trail, for a total width of 25 feet.

Special-Status Wildlife

The proposed project's potential to result in adverse effects to special-status wildlife species is discussed in further detail below.

Coho Salmon, Steelhead, and Russian River Tule Perch

The Russian River, which forms the southern boundary of the project site, is a documented spawning stream for coho salmon (*Oncorhynchus kisutch*) and steelhead (*Oncorhynchus mykiss*). Russian River tule perch (*Hysterothorax traski pomis*) may also be present within the portion of the Russian River adjacent to the project site. The nearest recorded sightings of coho salmon, steelhead, and Russian River tule are located just under one mile from the project site.

A moderate potential exists that coho salmon, steelhead, and Russian River tule could occasionally pass by the project site within the Russian River. Direct impacts to listed salmonids are possible if in-water work is conducted during months when the aforementioned fish are moving through the Russian River during spawning season, generally between November and April. Off-site migration of soil leading to possible siltation of salmon streams is an important consideration as excessive siltation can result in covering spawning gravels. In addition, disruption of the soil would be required within the floodplain of the Russian River during vegetation clearing activities and the construction /installation of recreational facilities such as play equipment or picnic facilities, facilities for river access or overlooks, or trails.

Given the potential for coho salmon, steelhead, and Russian River tule to be present within the Russian River adjacent to the project site, on-site construction activities could result in an adverse impact to coho salmon, steelhead, and Russian River tule. In addition, increased outdoor lighting, traffic volumes, and noise levels associated with post construction activities on the project site could cause disruption to the behavior of coho salmon, steelhead, and Russian River tule present within the Russian River adjacent to the project site.

Foothill Yellow-Legged Frog

Foothill yellow-legged frog (*Rana boylei*) is a Species of Special Concern. The species require partly shaded, shallow streams and riffles with rocky substrate in a variety of habitats. The freshwater marsh and riparian scrub on the project site within the floodplain of Russian River may be suitable habitat for foothill yellow-legged frog.

Foothill yellow-legged frog are known to occur within approximately 2.2 miles from Badger Park. Thus, the presence of the species is possible on the project site.

As part of the proposed project, clearing of vegetation is planned, to prepare the area for construction of picnic areas, play areas, river access, overlooks, or trails. Thus, given the potential for foothill yellow-legged frog to be present within the site, on-site construction activities could result in an adverse impact to the species. In addition, increased outdoor lighting, traffic volumes, and noise levels associated with post construction activities on

the project site could cause disruption to the behavior of foothill yellow-legged frog. As such, a potentially significant impact could occur.

Western Pond Turtle

Western pond turtles (*Emys marmorata*) occupy ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The turtles prefer aquatic habitats with calm waters, vegetated banks and emergent logs or rocks to use as basking sites. Western pond turtle is known from the stretch along the Russian River extending from Alexander Valley Road east of Healdsburg downstream to approximately one mile downstream of Wohler Bridge, an area that encompasses the stretch of the Russian River adjacent to Badger Park. Pondered areas within the forested floodplain area within the western and southern portions of Badger Park could potentially provide suitable breeding habitat for western pond turtle. Additionally, suitable upland habitat for the species may be present within the coastal oak woodland that is continuous with the riparian habitat. Thus, given the potential for western pond turtle to be present within the site, on-site construction activities could result in an adverse impact to the species. Furthermore, increased outdoor lighting, traffic volumes, and noise levels associated with post construction activities on the project site could cause disruption to the behavior of western pond turtle. As such, a potentially significant impact could occur.

Osprey

Ospreys (*Pandion haliaetus*) are associated strictly with large, fish bearing waters, primarily in ponderosa pine through mixed conifer habitats. The osprey nest from late March to Late August in nests built in large snags or open trees near large bodies of water.

Osprey have been noted in the vicinity of the project site in the past and were noted flying over the project site during the March 21, 2024, field survey of the site.

In addition, suitable nest trees are present on both the project site and in the project vicinity. If osprey are found to be nesting on or near the project site during the construction period, disturbance to the nesting birds could occur. In addition, increased outdoor lighting, traffic volumes, and noise levels associated with post construction activities on the project site could cause disruption to the behavior of osprey. Thus, given the potential for osprey to be present within the site, on-site construction activities could result in an adverse impact to the species. As such, a potentially significant impact could occur.

Other Nesting Raptors and Migratory Birds

The potential exists for migratory birds and raptors to nest in the existing on-site trees. According to HBG, avian diversity within the project site was generally greatest in the riparian habitat immediately along the Russian River and along the stretch of creek that passes through the coastal oak woodland and valley foothill riparian habitats before emptying into the Russian River at the southwest corner of the site in the vicinity of the willow island.

Most birds in the U.S., including those not qualifying as special-status species, are protected by the MBTA of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal. Mechanized work and vehicle traffic associated with the proposed development activities could disturb nesting birds and result in nest abandonment if individuals are present during initiation of ground-disturbing activity. In addition, Section 3503.5 of the California Fish and Game Code (CFG) states, "It is unlawful to take,

possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the code or any regulation adopted pursuant thereto.” Furthermore, increased outdoor lighting, traffic volumes, and noise levels associated with post construction activities on the project site could cause disruption to the behavior of nesting raptors and migratory birds. Thus, if such birds are present on-site, a potentially significant impact could occur.

Bats protected by the California Fish and Game Code

Under the CFGC Section 4150, destruction of an occupied, nonbreeding, bat roost, resulting in the death of bats, or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), is prohibited. Bats have the potential to roost in existing vegetation. Suitable habitat may be present on-site for bat species primarily in the form of mature vegetation with exfoliating bark and/or cavities. The proposed project could affect special status and common roosting bat species during the removal of trees. Furthermore, increased outdoor lighting, traffic volumes, and noise levels associated with post construction activities on the project site could cause disruption to the behavior of roosting bats if they are present within the project site. Thus, the proposed project could result in adverse impacts to special status and common roosting bats, and a potentially significant impact could occur.

Conclusion

Thus, the proposed project could have an adverse effect, either directly or through habitat modifications, on species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFW, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

Special-Status Plants

IV-1 *Prior to the commencement of construction, a qualified biologist shall conduct protocol rare plant surveys within the forested riparian scrub and marsh areas of the site within the floodplain of the Russian River. Surveys shall be conducted pursuant to Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018). The surveys shall determine if special-status plant species occur within that portion of the property and vegetation clearing or construction of passive recreational uses could impact populations of the rare species. To span the varying flowering periods of multiple rare plant species that could potentially be found in on-site habitats, protocol surveys shall include a series of three survey dates between April and July of the survey year. Survey dates depend on dates at which target species are shown to be flowering, but most likely will include surveys in mid-April, mid-to-late May, and late June/early July of the survey year.*

Rare plant surveys shall be conducted within wetlands and within a zone of approximately 100 feet in adjacent uplands to determine if rare plants may be present that could be indirectly impacted by construction activity.

Rare plant surveys within these areas of wetlands should consider the following special-status plant species:

- *Sonoma alopecurus (Alopecurus aequalis var. sonomensis)*, federally listed as endangered and CRPR 1B.1;
- *Thurber's reed grass (Calamagrostis crassiglumis)*, CRPR 2B.1;
- *Bristly sedge (Carex comosa)*, CRPR 2B.1;
- *Pitkin Marsh paintbrush (Castilleja uliginosa)*, state listed and endangered and CRPR 1A (may be extinct);
- *Peruvian dodder (Cuscuta obtusiflora var. glandulosa)*, CRPR 2B.2;
- *Swamp harebell (Eastwoodia californica)*, CRPR 1B.2;
- *Bogg's Lake hedge-hyssop (Gratiola heterosepala)*, state listed endangered, CRPR 1B.2;
- *Pitkin Marsh lily (Lilium pardalinum spp. pitkinense)*, state and federally listed endangered, CRPR 1B.1 ;
- *White-beaked rush (Rhynchospora alba)*, CRPR 2B.2;
- *California beaked rush (Rhynchospora californica)*, CRPR 1B.1;
- *Brownish beaked rush (Rhynchospora capitellata)*, CRPR 2B.2;
- *Round-headed beaked rush (Rhynchospora globularis)*, CRPR 2B.1 ;
- *Kenwood Marsh checkerbloom (Sidalcea oregana ssp. valida)*, state and federally listed endangered, CRPR 1B.1; and
- *Northern slender pondweed (Stuckenia filiformis ssp. alpina)*, CRPR 2B.2.

The survey results shall be submitted to the City of Healdsburg Community Development Department for review and approval.

IV-2

If any of the rare plants are found during protocol surveys, areas planned for clearing of vegetation or construction of passive recreational uses shall avoid locations with growth of any of these species. Adjustment(s) to areas of proposed construction may be warranted to avoid populations of rare plants. If populations cannot be avoided, then transplantation is recommended as a mitigation strategy to avoid impact to any of these plant species. If any special-status plant species are observed, the City shall coordinate with the CDFW and USFWS, as appropriate, to prepare a plant salvage and mitigation plan on-site. Work shall not be conducted until the CDFW and USFWS provide written approval of the plan and its successful implementation.

Proof of compliance with the aforementioned measures shall be submitted to the City of Healdsburg Community Development Department for review and approval.

Coho Salmon, Steelhead, and Russian River Tule Perch

IV-3

The following shall be noted on project grading plans, subject to review and approval by the City of Healdsburg Community Development Department: Water work in the Russian River associated with construction of kayak/boat access at both the southwest and southeast corners of the project site shall be scheduled when water levels are low during the dry season between

July 1 and September 15 to avoid impacts to immigrating salmonids (especially steelhead and coho salmon) that spawn in the river.

IV-4

The City shall implement the following mitigation measures prior to commencement of construction activities to minimize temporary construction impacts and consequent erosion and sedimentation impacts to habitat for special status fish species (including listed species of salmonids) in the Russian River:

- Ground disturbing work shall be conducted during dry or low flow periods. If water happens to be present during the period of construction, temporary coffer dams shall be used to redirect any surface water from the interior of the coffer dam area discharged through a filter bag or straw bale siltation basin located in uplands.*
- Equipment working in streams shall work from wood or steel mats to minimize soil disturbance.*
- Post construction temporarily filled areas shall be restored to the original ground surface elevation with fill material off hauled and disposed of at a suitable upland location.*
- To prevent erosion and sediment transport coir (coconut), jute, or sterile straw erosion control blankets and logs, and/or loose sterile straw, shall be used as appropriate following seed bed preparation of bare soil areas.*
- The project shall not use erosion control materials containing plastic monofilament netting (erosion control matting) or similar material containing netting within the project area due to documented evidence of birds, amphibians, and reptiles becoming entangled or trapped in such material. Acceptable substitutions include erosion materials contained with burlap netting, burlap tubes filled with natural fiber material, rolls of coconut coirmatting or similar.*
- Hydroseeding shall follow the installation of natural fiber matting, rolls, and/or loose straw best management practices (BMPs).*

Proof of compliance with the aforementioned measures shall be submitted to the City of Healdsburg Community Development Department for review and approval.

IV-5

Sites for construction of boat access to the river shall be demarcated with orange construction flagging, and no areas beyond the defined work limits shall be disturbed. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the high-water mark of the river. Refueling of vehicles shall not be allowed in areas adjacent to the river. Where feasible, construction of boat ramps shall occur with equipment positioned on the bank of the river. During all activities associated with boat access construction, all trash shall be properly contained and disposed of on a regular basis. Proof of compliance with the aforementioned measures shall be submitted to the City of Healdsburg Community Development Department for review and approval.

Foothill Yellow-Legged Frog

IV-6 *Prior to initiation of construction activities, a qualified biologist shall conduct a survey following U.S. Fish and Wildlife Service and California Department of Wildlife guidance for foothill yellow-legged frog within all areas slated for clearing of vegetation within the forested areas of the Russian River floodplain and the Coastal Oak Woodland. Results of the survey shall be submitted to the City of Healdsburg Community Development Department. The qualified biologist shall remain on-site to serve as a Biological Monitor and to monitor any ground disturbing work necessary to establish recreational uses within this area to ensure that no foothill yellow-legged frogs are harmed. If a foothill yellow-legged frog is found on the site within an area slated for removal of vegetation, the work shall be halted until the frog either leaves the area of its own volition or can be relocated by the Biological Monitor to a safe environment.*

Western Pond Turtle

IV-7 *A qualified biologist shall conduct a survey of all areas proposed for installation of recreational facilities within 325 feet of permanently ponded areas for western pond turtles and their nests within 48 hours of the commencement of vegetation clearing or construction activities. Results of the survey shall be submitted to the City of Healdsburg Community Development Department. The qualified biologist shall remain on-site to serve as a Biological Monitor and to monitor any ground disturbing work necessary to establish recreational uses within 325 feet of permanently ponded areas to ensure that western pond turtles are not harmed. If western pond turtles or the associated nests are detected at any time on the site within an area slated for removal of vegetation, the work shall be halted until the turtle either leaves the area of its own volition or can be relocated by the Biological Monitor to a safe environment.*

Osprey

IV-8 *A qualified biologist shall conduct a preconstruction survey of the project site and adjacent areas for osprey nests if vegetation removal or construction of recreational facilities is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than seven days prior to ground disturbance or vegetation removal by walking transects through all suitable habitat within the project site (especially the Valley Foothill Riparian habitat along the Russian River). Results of the survey shall be submitted to the City of Healdsburg Community Development Department. If an active osprey nest is detected during the surveys, the nest site shall be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that osprey may have acclimated to disturbance. Construction or ground disturbance activity shall not occur within the established buffer zone until*

it is determined by the qualified biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist/Biological Monitor.

Nesting Bird Species

IV-9

A preconstruction nesting bird survey shall be conducted by a qualified biologist if construction occurs during the bird nesting season (February 1st to August 31st). The survey shall be conducted within seven days prior to the start of work. The survey shall include the entire project footprint and areas immediately adjacent to the project work area. The survey shall include the trees and shrubs on and immediately adjacent to the project work area to the extent the areas are accessible. Other large trees in the project vicinity are on the opposite sides of major roads; birds nesting in these trees are unlikely to be impacted by the proposed project. However, the qualified biologist conducting surveys shall determine the appropriate survey area. Survey results shall be submitted to the City of Healdsburg Community Development Department.

If the survey indicates the presence of nesting birds, a buffer shall be placed around the nest and marked with orange construction fencing within which work shall not be allowed until the young have successfully fledged or the nest has otherwise become inactive. The size of the nest buffer shall be determined by the qualified biologist and shall be based to a large extent on the nesting species, its sensitivity to disturbance, and the context of the nest location. In general, typical buffer widths range from 500 feet for large raptors such as buteos, 250 feet for small raptors such as accipiters, and 100 feet for passerines (songbirds) and other bird species. Buffers may be increased or decreased, as appropriate, with approval from CDFW. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest. A copy of the nesting bird survey report shall be provided to the City of Healdsburg Community Development Department prior to construction.

Special-Status and Common Roosting Bats

IV-10

Prior to any tree removal, a qualified bat biologist shall conduct a habitat assessment for bats. The habitat assessment shall be conducted a minimum of 30 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, or exfoliating bark for colonial species, and suitable canopy for foliage-roosting species). Results of the habitat assessment shall be submitted to the City of Healdsburg Community Development Department. Trees without suitable habitat for bats can be removed. If suitable habitat trees are found, they shall be flagged or otherwise clearly marked and tree trimming or removal shall not proceed without approval in writing from CDFW. These trees with suitable habitat may be removed only if: a) presence of bats is presumed or documented during the surveys described below, and removal using the two-step removal process detailed below occurs only during seasonal periods of bat activity from approximately

March 1 through April 15 and September 1 through October 15, or b) after a qualified bat biologist conducts night emergence surveys or complete visual examination of roost features that establish absence of roosting bats.

If a two-step removal is used, two-step tree removal shall be conducted over two consecutive days, as follows: 1) the first day (in the afternoon), under direct supervision and instruction by a qualified bat biologist with experience conducting a two-step methodology, limbs and branches shall be removed by a tree cutter using chainsaws only; limbs with cavities, crevices or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed.

Post Construction

IV-11

Artificial light causes disruption of the behavior of insects, amphibians, mammals, and invertebrates. Unnecessary outdoor lighting shall be turned off from dusk to dawn. If outdoor lighting is necessary, amber lighting along all outdoor areas including roadways shall be used (Amber/Orange nm range 587 - 592 Peak Wavelength 590). Where practicable, fixtures shall be used that shield lamps or glowing lenses from being directly visible.

No off-road event vehicle parking and driving is allowed. All parking will be within established parking lots. Oil or mineral salts shall not be applied to roadway or parking areas for dust control. Maximum vehicle speed limits are restricted to 10 mph. A mowed 30-foot margin, where feasible, shall be maintained along both sides of the access road for visibility and fire control. Vehicles shall stop if animals are observed until the animal clears the area. Speed limit and informational species protection signs shall be posted along roadways.

Where feasible, electric power-driven equipment and vehicles shall be used. Maximum vehicle speed shall be restricted to 10 mph on all roads.

To avoid the potential for sediment being transported into aquatic resource areas, including the Russian River, Mitigation Measure IV-4 intended to protect special status fish species in the river should be implemented. Any areas that are barren of vegetation resulting from construction, pedestrian or vehicle access, or animal use shall be restored by seeding with a blend of native erosion control grass seed. Seeded areas shall be mulched. Landscape fabric shall not be used. Revegetation shall be completed as soon as possible if bare soil area(s) are discovered. Seeding placed after October 15 shall be covered with broadcast straw, jute netting, coconut fiber blanket or similar erosion control blanket.

Because the on-site stream flows on either side of the willow island before emptying into the Russian River and the willow island portion of the site has been identified as an area of generally high species diversity, proposed land uses in the access, and the remainder of the willow island portion of the project site shall be treated as a protected habitat area set aside for conservation purposes which visitors shall not access.

- b, e. Within the project footprint, impacts to approximately 4.49 acres of Urban habitat (previously disturbed areas of the existing Badger Park) and approximately 0.73 acres of the non-native annual grassland area near the community garden would not be considered significant pursuant to CEQA guidelines, as the aforementioned areas have limited ecological value. The project would also impact limited areas within the approximately 11.09 acres of more sensitive forested habitat consisting of approximately 9.5 acres of valley foothill riparian habitat mostly along the Russian River, approximately 1.21 acres of coastal oak woodland in the western portion of the site, and approximately 0.38 acres of valley oak woodland in the northeast portion of the site near Heron Drive. Improvements in these forested areas may result in impacts within the valley foothill riparian forest (see Figure 5). Many locations within the forested areas of the site contain extensive growth of non-native trees and other vegetation. Large areas of the coastal oak woodland, for instance, are vegetated with a combination of tree privet and English ivy.

A Heritage Tree Survey was completed by HBG for the proposed project. As defined in the City of Healdsburg Heritage Tree Ordinance, a heritage tree is any tree that has a diameter of 30 inches or more, measured two feet above the level ground. According to the Heritage Tree Survey a total of 32 heritage trees were identified within the project site. Tree diameters ranged from 30 to 64 inches as measured 24 inches above the ground. Tree species include Black cottonwood, Coast redwood, Coast live oak, tree privet, Oregon ash, and Valley oak. In addition, a multitrunked Bay laurel and a multitrunked tree privet were inventoried. The multitrunked trees are likely deep rooted given the size and the nature of the sandy soils which both are grown within as neither have fallen during flooding by the Russian River.

Conceptual plans developed to date for the proposed project suggest that several heritage trees may need to be removed within the valley foothill riparian habitat during construction of the river access trail. Other heritage trees would not need to be removed to accommodate the proposed recreational improvements, including clearing of vegetation prior to the installation of picnic areas, children's adventure play areas, or other facilities within the project site. Although a particular heritage tree may not need to be removed, grading or construction activity in close proximity to a tree's root system may impact the long-term survivability of the tree if the tree's root system is damaged during construction. The City's Heritage Tree Protection and Tree Report Requirements (Land Use Code Chapter 20.24, Article II) require permits for removal of heritage trees and require the preparation of a plan for the replacement of removed trees and tree protection guidelines to "protect and preserve heritage trees to the fullest extent possible."

Based on the above, the proposed project could have an adverse effect related to riparian habitat or other sensitive natural community identified in local regional plans, policies, and regulations, or by the CDFW or UFWS, or related to conflicting with local policies or ordinances protecting biological resources and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- IV-12 *The design-level drawings for the Master Plan shall show all improvements within forested portions of the Project Site (e.g., trails, river access and overlooks, picnic areas, children's adventure play areas, etc.) to be placed*

within areas specifically vegetated with an abundance of non-native vegetation. Such areas for these facilities shall include areas that are currently overrun with tree privet and English ivy rather than with native trees and understory of California blackberries. Prior to finalizing the designated drawings, areas of extensive growth of non-native vegetation composed primarily of tree privet and English ivy shall be defined using GPS to allow the areas to be mapped so that play areas and picnic areas, etc. can be planned in environmentally benign locations to the extent possible.

IV-13

Prior to the initiation of construction activities, locations within the valley foothill riparian and coastal oak woodland habitats with a preponderance non-native vegetation (e.g., tree privet and English ivy) shall be staked in the field prior to any vegetation removal for development of picnic areas, play areas, river access or overlooks, or trails. Locations for development of picnic area, play area, river access/overlooks, and trails shall be field engineered by the architect and qualified biologist working with the construction crew so that these features can be implemented within areas of non-native vegetation, avoiding areas of native vegetation to the maximum extent possible.

Proof of compliance with the aforementioned measures shall be submitted to the City of Healdsburg Community Development Department for review and approval.

IV-14

The following shall be noted on project improvement plans, subject to review and approval by the City of Healdsburg Community Development Department: If loss of oak trees and other native trees cannot be avoided for development of picnic area, play area, river access/overlooks, and trails, to ensure no net loss of oak trees and other native trees the following replacement ratios shall be followed:

- 1:1 for removal of non-native trees;*
- 1:1 for removal of native trees up to 3 inches DBH*
- 3:1 for removal of native trees greater than 3 inches to 6 inches DBH;*
- 6:1 for removal of native trees greater than 6 inches DBH;*
- 1:1 for removal of oak trees up to 3 inches DBH;*
- 4:1 for removal of oak trees up to 6 inches DBH;*
- 8:1 for removal of oak trees greater than 6 inches to 15 inches DBH;*
- 10:1 for removal of oak trees greater than 15 inches DBH.*

Where invasive species are removed, oak trees and other native trees shall be used to restore functioning oak woodland of similar composition, density, structure, and function to the selected oak woodland that was impacted. Replacement tree plantings shall consist of a minimum of five-gallon size plantings and shall be native species to the area adapted to the lighting, soil, and hydrological conditions at the replanting site. Replacement oaks shall come from nursery stock grown from locally sourced acorns, or from acorns gathered locally, preferably from the same

watershed in which they are planted. All plantings shall be certified by the source as *phytophthora* free.

Single tree planting shall be a minimum of 30 feet from adjacent tree planting site or existing tree. Shrub planting if in groups should be a minimum 10 feet apart and a minimum of 20 feet from a tree planting site or existing tree. All plantings shall occur within a soil pit dug to a minimum of two times diameter and depth of five-gallon container. A mycorrhizal inoculant and slow-release fertilizer shall be added to a tree and shrub planting mix placed around each five-gallon planting. A protective double walled grow tube (Grow Tubes — OrchardValleySupply.com) shall be placed around each planting.

- IV-15 To ensure a successful revegetation effort as required by Mitigation Measure IV-13, all plants shall be monitored and maintained as necessary for five years. At the end of the five years of monitoring, with at least three years without supplemental irrigation, each category of plantings (e.g., oaks, other trees, shrubs, etc.) shall have a minimum of 85 percent survival at the end of the minimum monitoring period and plantings shall attain 70 percent cover after three years and 75 percent cover after five years. Survival and cover criteria shall both be required unless the herbaceous or spreading plants cannot be differentiated by individual, in which case only cover success criteria are required.

Proof of compliance with the aforementioned measures shall be submitted to the City of Healdsburg Community Development Department for review and approval.

- IV-16 Prior to any ground-disturbing activities which remove oaks and other native trees, the City shall develop and implement of a Native Tree Mitigation Program with the following components:

1. An inventory of all oak trees removed or encroached upon during project activities, separated by species and DBH;
2. Acres of oak habitat impacted, and density, coverage, and abundance of understory vegetation species impacted by life form (i.e., grass, forb, shrub, subshrub, vine);
3. Mitigation ratios applied and total number and/or area of replacement trees and vegetation;
4. Location of restoration areas and a discussion of the adequacy of the location(s) to serve as mitigation (e.g., would support oak trees/oak woodlands; avoid habitat type conversion);
5. The location and assessment of appropriate reference site(s) to inform the appropriate planting rate to recreate the pre-project function, density, percent basal, canopy, and vegetation cover of oak woodland impacted;
6. Scientific names [Genus and species (subspecies/variety if applicable)] of all plants being used for restoration;
7. Location(s) of propagule source. Propagules should be collected or grown from on-site sources or adjacent areas within the same watershed and should not be purchased from a supplier. Seeds

- must originate from plants/trees of the same species (i.e., Genus, species, subspecies, and variety) as the species impacted;*
- 8. Species-specific planting methods (i.e., container or bulbs);*
 - 9. Planting schedule;*
 - 10. Measures to control exotic vegetation and protection from herbivory;*
 - 11. Measurable goals and success criteria for establishing self-sustaining populations (e.g., percent survival rate, absolute cover). Measurable success criteria should be based on present site/habitat conditions and/or functional local native oak woodlands as reference sites;*
 - 12. Contingency measures should the success criteria not be met;*
 - 13. Long-term monitoring for at least 10 years;*
 - 14. Adaptive management techniques, including replacement plants if necessary; and*
 - 15. Annual reporting criteria and requirements.*

The final Native Tree Mitigation Program shall be submitted to the City of Healdsburg Community Development Department for review and approval.

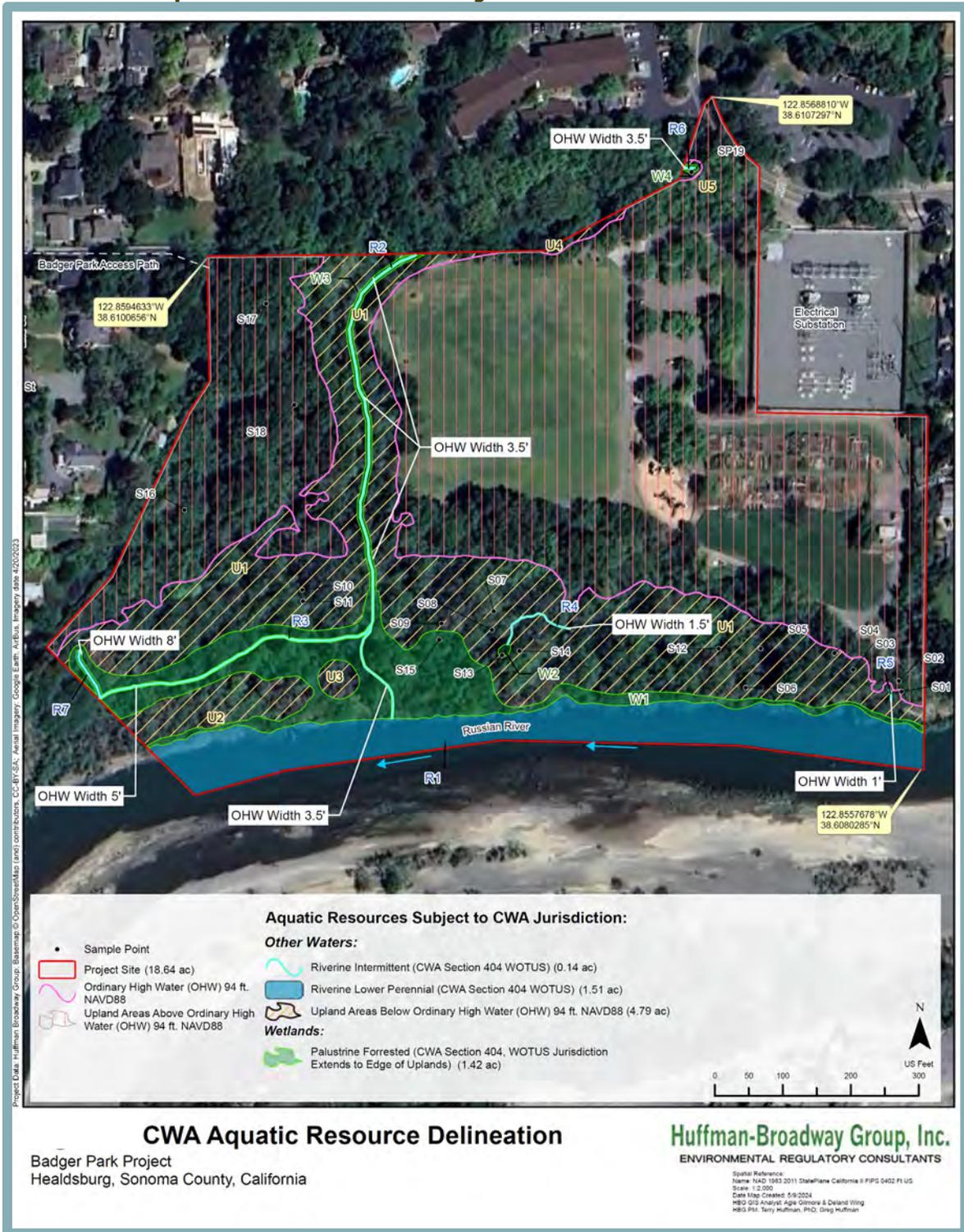
IV-17

The alignment of the river access trail in the final design-level designated drawings for the Master Plan shall be designed to avoid heritage trees and their root systems. In addition, the construction of the river access trail shall be field engineered by the architect and a qualified arborist working with the construction crew so that heritage trees and their root systems can be avoided. Trail construction shall be no closer than three feet from the base of a tree. To avoid impacts to tree root systems, trail construction shall consist of overlaying with porous trail material such as gravel, decomposed granite, or coarse sand. The arborist shall work with the City to prepare the Tree Replacement Plan and tree protection guidelines, as necessary to comply with the City Code Chapter 20.24. Proof of compliance shall be submitted to the City of Healdsburg Community Development Department for review and approval.

- c. An Aquatic Resources Delineation (ARD) was prepared by HBG for the proposed project. (see Appendix C).⁸ Aquatic resources including wetlands and tributary drainages were identified and delineated during field surveys within the forest areas of the project site (see Figure 6). The wetlands and other waters are potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW. Based on plans developed to date, construction may need to be completed within wetlands/waters potentially subject to regulation by the USACE or RWQCB and could involve disturbance to streams regulated by CDFW. Work would not be conducted until the RWQCB, CDFW, and USACE provide authorizations for work in the aquatic resource areas that include wetlands and other waters.

⁸ Huffman-Broadway Group, Inc. *Aquatic Resources Delineation Badger Park Project Healdsburg, California*. April 2024.

Figure 6
Aquatic Resources Subject to CWA Jurisdiction



The project as currently proposed would result in permanent impacts to approximately 0.40 acres of wetlands and other waters as a result of the placement of fill material to construct a pedestrian trail system; a total of approximately 1.20 acres of temporary fill impacts to wetlands and other waters as a result of pedestrian trail and footbridge construction; and a total of approximately 0.032 acres of permanent impact and approximately 0.037 acres of temporary impact associated with construction of a canoe/kayak launch ramp into the river. The extent of such impacts is presented in Figure 7, Figure 8, and Figure 9.

However, it should be noted that while the areas of impact presented in the figures below were determined based on the professional judgement of Huffman-Broadway, the extent of the impacts to wetlands and other waters potentially subject to the jurisdiction of the USACE, RWQCB, and CDFW would ultimately be determined by the aforementioned agencies. As such, the impact areas presented in the figures are approximate.

It should also be noted that according to Section 20.24.090 of the Healdsburg Municipal Code, no building, structure, or permanent or temporary improvement shall be allowed within 100 feet of the Russian River, 35 feet within Foss Creek, or 25 feet within all other streams and creeks. Mitigation Measure IV-14, below, would ensure that the proposed project would comply with the 25-foot setback to the unnamed creek located within the project site. In addition, Foss Creek is not located within the project vicinity. With respect to Russian River, the minor improvements related to invasive species removal and soft surface trails would be anticipated to be exempt from the setback requirements, but construction of the two river access points would require a variance. As noted in Section 20.24.095 of the Healdsburg Municipal Code, variances to the standards set forth in Healdsburg Municipal Code Section 20.24.090 may be granted where the provision of the required setback is infeasible. As such, the proposed project would require approval of a variance to allow such minor improvements within the 100-foot Russian River setback. Approval of the variance would require the preparation of a riparian mitigation plan to ensure no net loss of acreage or of functional value of riparian habitat occurs.

Nonetheless, based on the above, the proposed project could have an adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

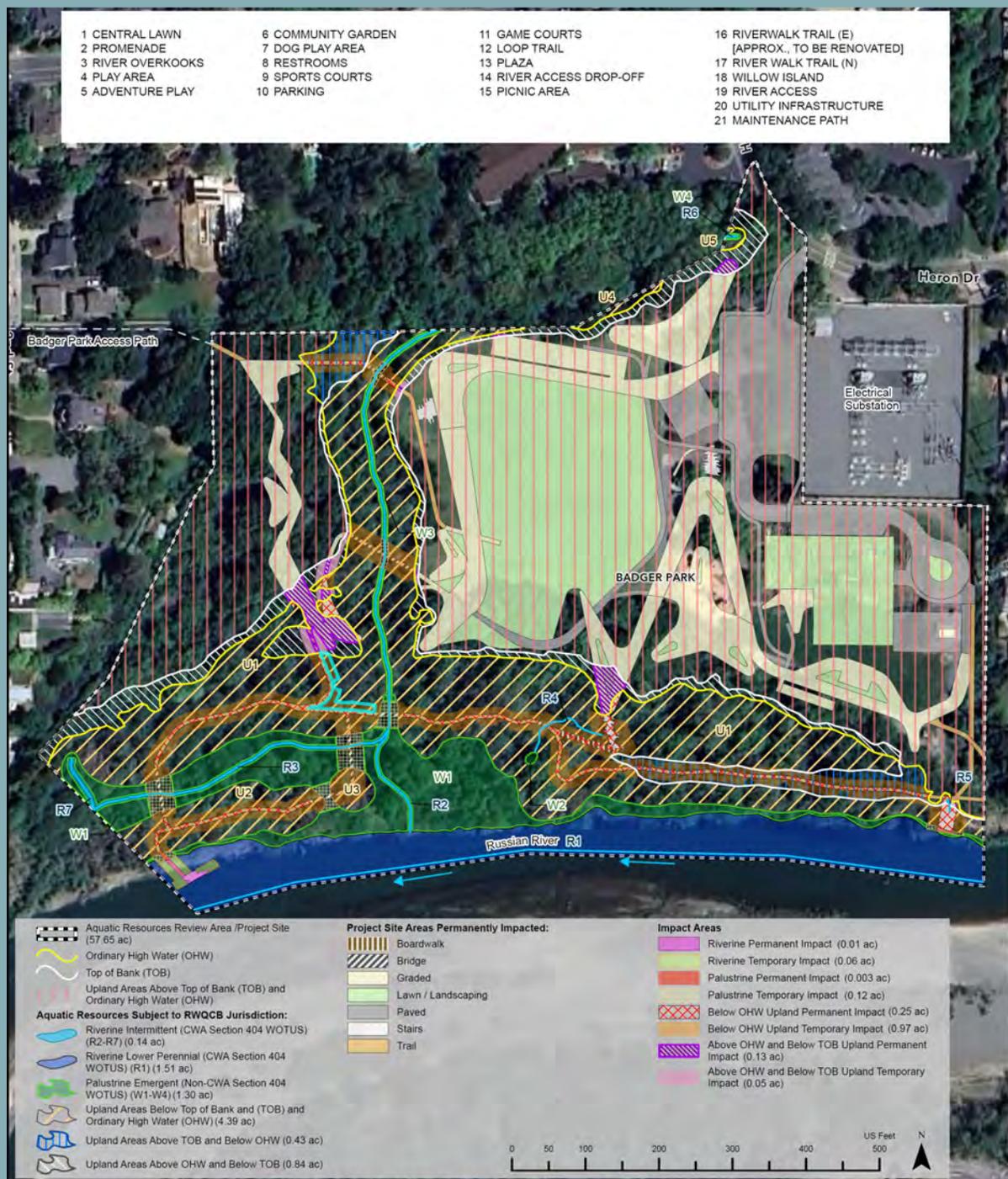
Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- IV-18 When preparing the final design-level drawings for the Master Plan, the City Community Services Department shall consider the need to avoid USACE and/or RWQCB wetlands. In addition, to the extent feasible as determined by a qualified biologist in coordination with the project architect, an undisturbed vegetated buffer shall be established and maintained between ground-disturbing activities (including vegetation removal) and adjacent wetland areas.*

Figure 7
Impacts to Existing Land Use/Cover and Aquatic Resources Subject to U.S. Army Corps of Engineers



Figure 8
Impacts to Existing Land Use/Cover and Aquatic Resources Subject to North Coast Bay Regional Water Quality Control Board Jurisdiction



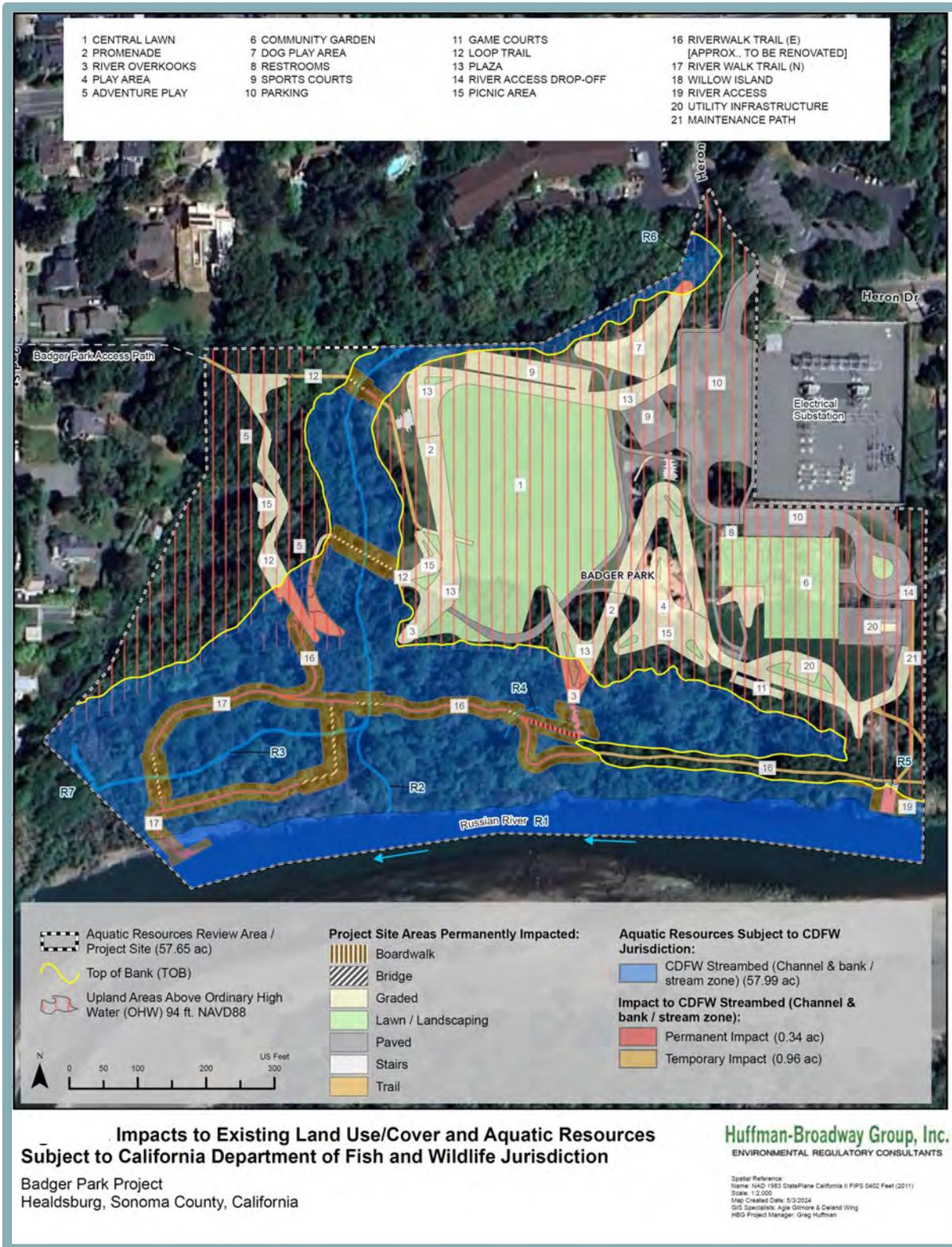
Impacts to Existing Land Use/Cover and Aquatic Resources Subject to North Coast Bay Regional Water Quality Control Board Jurisdiction

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Speller Reference:
Name: NAD 1983 StatePlane California II FIPS 5402 Feet (2011)
Scale: 1:2,000
Map Created Date: 5/15/2024
GIS Specialist: Angie Gilmore & Deland Wing
HBG Project Manager: Greg Huffman

Figure 9
Impacts to Existing Land Use/Cover and Aquatic Resources Subject to CDFW Jurisdiction



The final design-level drawings for the Master Plan shall also show the top of both banks of the unnamed creek that enters the park from the north and traverses the western portion of the project site through the areas of coastal oak woodland and valley foothill riparian habitat before emptying into the Russian River. In addition to the location of the top of both banks of this unnamed creek, the final design-level drawings for the Master Plan shall also show the 25-foot setback from the top of both banks of the stream (City Code Section 20.24.090) where ground disturbance or vegetation removal would not be allowed.

- IV-19 The final design-level drawings for the Master Plan, all areas determined to be subject to regulatory jurisdiction of either USACE or the RWQCB in the western and southern portions of the park shall be staked in the field, including vegetation removal for picnic areas, play areas, river access/overlooks, or trails. The aforementioned areas shall be avoided during vegetation removal or construction of park facilities to preserve wetlands in the areas. Locations for development of picnic area, play area, river access/overlooks, and trails shall be field engineered by the architect and qualified biologist/Biological Monitor working with the construction crew so that the features can be implemented in a way that they avoid or minimize impacts to wetlands.*
- IV-20 The final design-level drawings for the Master Plan shall include the following language: where impacts to wetlands resulting from construction of new trails or improvements to existing trails are unavoidable, minimize wetland impacts through the use of a boardwalk created by establishing decking supporting by footings in wetland areas or through other measures that preserve some wetland functions.*
- IV-21 The final design-level drawings for the Master Plan shall include the following language: where pedestrian crossings of the unnamed stream are planned as part of Master Plan improvements, the crossings shall be accomplished through the construction of a free-span pedestrian bridge over the stream and footings for the bridge shall not be placed between or on the banks of the stream.*
- IV-22 The applicant (City of Healdsburg) shall apply for and obtain necessary authorizations for placement of fill material within waters of the United States (WOTUS) and waters of the State (WOTS). Such authorizations shall include federal Clean Water Act (CWA) Section 404 nationwide permits from the USACE, CWA 401 water quality certification and Porter-Cologne Act Waste Discharge Requirements from the RWQCB, and one or more Fish and Game Code Section 1602 Streambed Alteration Agreements from CDFW. A Mitigation and Monitoring Plan may need to be prepared and submitted to these agencies for review as part of the process for obtaining project authorization. At a minimum the City shall ensure there is no net loss of wetland or stream habitat areal extent and associated function(s). Opportunities may be present for on-site mitigation of wetland impacts to include wetland restoration and enhancement (i.e., removal of exotic/invasive vegetation). On-site mitigation shall be a priority.*

- d. Wildlife corridors are segments of land that provide a link between different habitats while also providing cover. Habitat loss, fragmentation, and degradation have the potential to alter the use and viability of wildlife movement corridors (i.e., linear habitats that naturally connect and provide passage between two or more otherwise distinct larger habitats or habitat fragments). The suitability of a habitat as a wildlife movement corridor is related to, among other factors, the habitat corridor's dimensions (length and width), topography, vegetation, exposure to human influence, and the species in question.

The Valley Foothill Riparian habitat in the southern portion of the project site is part of a wildlife corridor extending along the Russian River. The unnamed creek traversing the western portion of the site through the coastal oak woodland and valley foothill riparian before emptying into the Russian River is also a wildlife corridor but on a smaller scale. Avian diversity within the project site was generally greatest in the riparian habitat immediately along the Russian River and along the stretch of creek that passes through the coastal oak woodland and valley foothill riparian habitats before emptying into the Russian River at the southwest corner of the site in the vicinity of the willow island. Both areas provide a movement corridor for local insects, and amphibian, reptile, bird, and mammal species. The Master Plan provides for protection of the area adjacent to the Russian River and the length of the unnamed creek in the western portion of the project site (including a 25-foot setback), so the integrity of the aforementioned wildlife corridors would be maintained and impacts associated with the use of the corridors by wildlife would be minimal. However, wildlife species were observed on the project site during winter/early spring and summer season field surveys by an HBG wildlife biologist, including 50 bird species, and significant impacts to wildlife species could occur without implementation of mitigation measures.

Mitigation measures that would protect wildlife species include mitigation to minimize impacts to riparian areas, wetlands, native vegetation, and heritage trees (Mitigation Measures IV-13 through IV-19), mitigation measures to protect any populations of special status plant and animal species (Mitigation Measures IV-1 through IV-7 and Mitigation Measures IV-11 and IV-12), and measures to protect any on-site populations of nesting birds (Mitigation Measures IV-8) or bats (Mitigation Measure IV-9). Even with implementation of these mitigation measures, some impacts to wildlife in the forested portions of the project site are possible; therefore, additional mitigation is required.

Thus, the proposed project could interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

IV-23 A qualified biologist shall be retained to serve as a Biological Monitor to provide environmental training to the work crew and monitor the construction activities during periods of ground disturbance or vegetation removal.

The Biological Monitor shall conduct an education program for all persons employed on the proposed project prior to performing ground-disturbing activities or vegetation removal. Instruction shall include a discussion of the

biology and general behavior of any sensitive species that may be in the area, how they may be encountered within the work area, and procedures to follow when they are encountered. Training shall include such information about coho salmon, steelhead, Russian River tule perch, foothill yellow-legged frog, western pond turtle, and osprey. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site project activity. The Biological Monitor shall prepare and distribute wallet-sized cards or a factsheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program, which shall be available to the City.

The qualified biologist/Biological Monitor shall remain on-site during work involving vegetation clearing and ground disturbance within the Valley Foothill Riparian and Coastal Oak and Valley Oak Woodland portions of the project site, including areas adjacent to the Russian River or along the unnamed drainage through the northern and western portions of the project site to provide biological monitoring. The Biological Monitor will (1) assist in demarcation of buffer zones to protect habitats or sensitive species (including active bird nests), (2) to ensure impacts to sensitive animal species do not occur, (3) to ensure the relocation of any sensitive animal species encountered according to agency protocols, and (4) to help ensure facilities are implemented in the least environmentally sensitive locations.

- f. The project site is not located in an area that has an approved Habitat Conservation Plan, Natural Community Conservation Plan, or local, regional, or state habitat conservation plan. Therefore, the proposed project would not conflict with a Habitat Conservation Plan, Natural Conservation Community Plan, and **no impact** would occur.

V. CULTURAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The following is based on a Cultural Resources Study prepared for the proposed project by Evans and De Shazo Archeology and Historic Preservation.⁹

- a. Historical resources are features that are associated with the lives of historically-important persons and/or historically-significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics.

The Cultural Resources Study consisted of a literature review to identify any previously recorded historical resources and a field survey, conducted on May 13, 2024, of the entire project site. On May 1, 2024, a records search of the California Historic Resources Information System (CHRIS) was performed by the Northwest Information Center (NWIC) for cultural resource site records and survey reports within the project area. The NWIC concluded that portions of the project site have been previously surveyed for cultural resources as part of five studies. In addition, twelve additional studies have been completed with 0.25-mile of the project site. According to the records search, previously recorded historic resources are not located within the project site. In addition, historic resources were not found during the field survey. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, and a **less-than-significant** impact would occur.

- b,c. Based on the results of CHRIS records search conducted as part of the Cultural Resources Study, the NWIC concluded that the project site does not contain any recorded archaeological resources. In addition, cultural resources, including precontact or historic-period artifacts or other indications of archaeological resources, were not discovered on-site during the field survey. However, while precontact period archeological sites have not been recorded within 0.25-mile of the project site, a lithic scatter on the property adjacent to and east of the project site was identified in a previous cultural resources survey of the project area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was also conducted as part of the Cultural Resources Study and returned positive results for the presence of Tribal Cultural Resources within the project site. The site has been subject to extensive disturbance associated with the current use of the site

⁹ Evans and De Shazo Archeology and Historic Preservation. *Cultural Resources Study for the Proposed Badger Park Master Plan Project, 750 Heron Drive, Healdsburg, Sonoma County, California.* June 13, 2024.

as a park. Any subsurface resources would likely have been uncovered as part of the previous site disturbance.

Nonetheless, according to the Cultural Resources Study, the project site has a high potential/sensitivity for archeological resources. Thus, previously unrecorded archaeological resources, including human remains, have the potential to exist on-site, and such resources could be encountered during ground-disturbing activity related to project construction. As a result, the proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of formal cemeteries, should any such resources be encountered during construction. Consequently, impacts could be considered **potentially significant**.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- V-1 *Prior to initiation of ground-disturbing activities, a qualified archaeologist shall conduct a short awareness training session for all construction workers and supervisory personnel. The course shall explain the importance of, and legal basis for, the protection of significant archaeological resources. Each worker shall also learn the proper procedures to follow in the event cultural resources or human remains/burials are uncovered during construction activities, including work curtailment or redirection and to immediately contact their supervisor and the archaeological monitor. The worker education session shall include visuals of artifacts (prehistoric and historic) that might be found in the project vicinity and take place on the construction site immediately prior to the start of construction. Documentation of the training (i.e., a sign-in sheet) shall be retained at the site and shall be submitted with applicable reports to the City of Healdsburg Community Development Department.*
- V-2 *During all construction activities taking place within the forested portions of the project site a Secretary of Interior (SOI) qualified archaeologist, or an archaeologist working under the direct supervision of a SOI-qualified archeologist, shall conduct spot monitoring of project-related ground disturbing activities within the forested portions of the project area, including during the removal of invasive vegetation and the development of overlook structures, trails, bridges, at-grade creek crossings, bank-stabilizing bioengineered vegetative walls, vehicular drop-off loop, and river access points. Spot monitoring shall consist of the archaeologist conducting regular visits to the project area to monitor the progress of excavation, during which, all excavated material, open excavation, recently grubbed areas, and other soil disturbances shall be inspected by the archeological monitor. The archeological monitor shall have the authority to halt construction in the area of a discovery to ensure that an archeological resource is protected from further impact. If a potentially significant archeological resource is identified, the SOI-qualified archeologist shall notify the City of Healdsburg and the contractor, and Mitigation Measure V-3 shall be implemented.*

V-3 *In the event a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find(s) shall cease and workers shall avoid altering the materials until an archaeologist who meets the Secretary of Interior's Professional Qualification Standards for archaeology has evaluated the find(s). The City shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The qualified archeologist shall make recommendations to the Lead Agency on the measures that shall be implemented to protect the discovered resources, including but not limited to, culturally appropriate temporary and permanent treatment, which may include avoidance of cultural resources, in-place preservation, and/or re-burial on project property so the resource(s) are not subject to further disturbance in perpetuity. If avoidance is determined to be infeasible, pursuant to CEQA Guidelines Section 15126.4(b)(3)(C), a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. If necessary, excavation and evaluation of the find(s) shall comply with Section 15064.5 of the CEQA Guidelines.*

Potentially significant cultural resources include, but are not limited to, stone, bone, glass, wood, or shell artifacts or features, including hearths, structural remains, or historic dumpsites. Any previously undiscovered resources found during construction within the project site shall be recorded on appropriate Department of Parks and Recreation (DPR) 523 forms and will be submitted to the City of Healdsburg, the NWIC, and the State Historic Preservation Office (SHPO), as required.

V-4 *In the event of the accidental discovery or recognition of any human remains, further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur until the County Coroner has been notified to determine if an investigation into the cause of death is required. If the coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. The potential exists that the Native American Heritage Commission may be unable to identify a most likely descendant, the most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner. In such a case, the landowner or his authorized representative shall rebury the human remains and grave goods*

with appropriate dignity at a location on the property not subject to further disturbances. Should human remains be encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the City's Community Development Department.

VI. ENERGY.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a,b. The main forms of available energy supplies are electricity, natural gas, and oil. Through existing infrastructure, electrical services are provided by the City’s Electric Utility Department. During construction, the proposed park project would be subject to regulations regulated by CARB. During operations, the proposed park project would be subject to the 2022 Building Energy Efficiency Standards, the 2022 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), and the Healdsburg Reach code, as applicable. Discussions related to the proposed project’s potential effects regarding energy demand during construction and operations are provided below.

Construction Energy Use

Construction of the proposed project would involve on-site energy demand and consumption related to the use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and material delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the site where energy supply cannot be met via a hookup to the existing electricity grid. Project construction would not involve the use of natural gas appliances or equipment.

All construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. In addition, as a means of reducing emissions, construction vehicles are required to become cleaner through the use of renewable energy resources. The In-Use Off-Road Diesel Vehicle Regulation would therefore help to improve fuel efficiency for equipment used in construction. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and limit emissions associated with redevelopment and construction.

Operational Energy Use

The proposed park project would consume a relatively small amount of electricity during operations associated with the restroom building and outdoor lighting. Maintenance activities, such as landscape and field maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed park project would result in transportation energy use associated with vehicle trips generated by park

users. The restroom building would be subject to all relevant provisions of the most recent update of the California Building Code Standards (CBCS) including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards would ensure that the proposed structure would consume energy efficiently through the incorporation of such features as door interlocks and high efficiency outdoor lighting.

Based on the above, the temporary increase in energy use during project redevelopment and construction activities would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. The proposed project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

Conclusion

Based on the above, implementation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

ai-aii The project site is not located within the boundaries of an Earthquake Fault Zone, as designated pursuant to the Alquist-Priolo Earthquake Fault Zoning Act.¹⁰ As noted in the City's General Plan, the City is located within the vicinity of the San Andreas fault system, located 19 miles to the east of the planning area. Other, more distinct, active faults in the region include the West Napa, Green Valley, Hayward, San Gregorio, Calaveras, Concord, and Greenville faults. However, pursuant to Figure IV.G-1 of the General Plan, the project site is not underlain by any active faults or trace lines. Thus, fault rupture hazard is not a significant geologic hazard at the site.

Based on the proximity of the project site to local and regional faulting, as well as historical seismic activity, the project site is considered subject to relatively high ground shaking risk and related effects. The proposed park redevelopment would not include construction of any habitable structures. Construction of features such as the new pedestrian bridges, a new restroom building, new play structures would be properly engineered in accordance with the CBSC, which includes engineering standards appropriate for the seismic area in which the project site is located. Projects designed in accordance with the CBSC should be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural, as well as non-structural, damage. Although conformance with the CBSC does not guarantee that substantial structural

¹⁰ California Department of Conservation. *California Earthquake Hazards Zone*. February 27, 2009.

damage would not occur in the event of a maximum magnitude earthquake, conformance with the CBSC can reasonably be assumed to ensure that the proposed structures would be survivable, allowing park users to safely evacuate in the event of a major earthquake.

Thus, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death associated with seismic-related ground failure, including rupture of a known earthquake fault or strong seismic ground shaking. Therefore, a **less-than-significant** impact would occur.

- b. Issues related to erosion and degradation of water quality during construction are discussed in further detail in Section X, Hydrology and Water Quality, of this Initial Study. As noted therein, the proposed project would not result in substantial soil erosion or the loss of topsoil. Thus, a **less-than-significant** impact would occur.

- a.iii,a.iv, The proposed project's potential effects related to liquefaction, landslides, lateral spreading, and subsidence are discussed in detail below.

Liquefaction

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. Additionally, loose unsaturated sandy soils have the potential to settle during strong seismic shaking. As noted in the City's General Plan, soils in and around the Russian River, especially near the banks, are susceptible to liquefaction during a seismic event. Therefore, the proposed project could be subject to risk from liquefaction.

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Given that the project site does not contain any free faces, the potential for lateral spreading to pose a risk to the proposed park redevelopment is negligible.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. Lateral spreading or lurching is a situation in which soil mass deforms laterally toward a free face, such as an excavation, channel, or open body of water, during a seismic event. The failure occurs along a liquefiable or weak subsurface layer. The City has determined the potential for seismically induced land sliding to occur would depend on a number of factors, such as the type of bedrock, type and depth of soils, angle and direction of the slope, and moisture content. The project site does not feature varying degrees of slope commonly associated with areas at risk for earthquake-induced landslides. Thus, landslides would not occur on-site as a result of the proposed project.

Subsidence/Settlement

Subsidence is the settlement of soils of very low density generally from either oxidation of organic material, desiccation and shrinkage, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. According to the City of Healdsburg's General Plan EIR, subsidence is not likely to occur within the City. Additionally, compliance with General Plan polices would ensure future developments would be required to employ structurally sound building practices. Therefore, the potential for subsidence/settlement to pose a risk to the proposed development is relatively low.

Expansive Soils

According to the City of Healdsburg General Plan EIR, portions of the City are underlain by expansive soils. Such soils occur most frequently in areas underlain by rocks of the Great Valley Sequence or Sonoma Volcanics. Expansive soils can undergo significant volume change with changes in moisture content. Specifically, such soils shrink and harden when dried and expand and soften when wetted. Expansive soils can shrink or swell and cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundation. Pursuant to the Natural Resource Conservation Service (NRCS) Web Soil Survey, the soils underlying the project site are made up of approximately 12.4 acres of Yolo sandy loam content, with the remainder of the project site being a mix of riverwash, Pleasanton loam, and Pleasanton gravelly loam.¹¹

Soils with a linear extensibility rating of between three and six percent and a clay content of 25 to 35 percent are characterized by a moderate shrink-swell class (i.e., moderate expansive potential). Soils with a linear extensibility rating of between six and nine percent with a clay content of 35 to 45 percent are characterized by a high shrink-swell class. According to the NRCS Web Soil Survey, the Yolo sandy loam soils on-site have a linear extensibility rating of 1.5 percent, the Pleasanton loam has a linear extensibility rating of 3.6, and Riverwash 1.5. In addition, the on-site Yolo sandy loam soil has a clay content of 21.4 percent. Therefore, the project site contains soil types that are considered to be moderate to highly expansive.

Based on the above, the proposed project has the potential to create substantial direct or indirect risks to life or property related to being located on expansive soil.

Conclusion

Based on the above discussion, the proposed project would not result in potential hazards or risks related to landslides, lateral spreading, or subsidence/settlement. However, the potential exists for liquefaction and soil expansion to occur on-site. Therefore, the proposed project could create substantial direct or indirect risks to life or property and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

VII-1 *Prior to final design-level drawings, a Geotechnical Analysis shall be conducted by a California Registered Civil Engineer or Geotechnical*

¹¹ Natural Resource Conservation Service. *Web Soil Survey*. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed May 2024.

Engineer to characterize the subsurface conditions of the project site. The report shall address and make recommendations on the following:

- *Road, pavement, and parking area design;*
- *Structural foundations, including retaining wall design (if applicable);*
- *Grading practices;*
- *Erosion/winterization;*
- *Special problems discovered on-site, (i.e., groundwater, expansive/unstable soils, etc.); and*
- *Slope stability.*

The design-level drawings for the Master Plan shall be reviewed and approved by the Director of Public Works/City Engineer, Chief Building Official, and a qualified Geotechnical Engineer prior to issuance of grading and building permits to ensure that all geotechnical recommendations specified in the Geotechnical Analysis are properly incorporated and utilized in the project design.

- e. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the project. The proposed bathroom would connect to the City sewer system. Therefore, **no impact** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.
- f. The City's General Plan EIR indicates that rocks of the Franciscan Assemblage, which have been known elsewhere to contain paleontological remains, underlie a small area in the northern portion of the City of Healdsburg. However, the Franciscan Assemblage rocks are located approximately 1.4 miles south of the project site and would not have the potential to be impacted by the proposed project. As further noted in the City's General Plan, the City is underlain by alluvium, which consists mainly of unconsolidated gravel, sand, silt, and clay deposits. Such soil types are not considered unique geologic features and are common within the geographic area of the City. Furthermore, the City's General Plan does not note the existence of any unique geologic features within the City. Consequently, implementation of the proposed project would not be anticipated to have the potential to result in direct or indirect destruction of unique geologic features. In addition, the project site has been subject to previous disturbance associated with the current use of the site as a park. Nonetheless, the proposed project would include thinning areas of forest which have not been previously disturbed. As such, previously undiscovered paleontological resources could be present in such undisturbed areas. However, if any subsurface resources are discovered during project construction activities, the proposed project would implement Mitigation Measures V-1 through V-4, which would reduce all impacts to unknown paleontological resources.

Therefore, the proposed project would not result in the direct or indirect destruction of a unique paleontological resource, and a **less-than-significant** impact would occur.

VIII. GREENHOUSE GAS EMISSIONS.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a,b. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. An individual project’s GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to the project would be primarily associated with increases of carbon dioxide (CO₂) and, to a lesser extent, other GHG pollutants, such as methane (CH₄) and nitrous oxide (N₂O) associated with area and mobile sources. The primary source of GHG emissions for the project would be associated with the construction equipment and haul trucks to be used for the proposed remediation activities. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO₂ equivalents (MTCO₂e/yr).

Similar to the discussion of criteria pollutant emissions included in Section III, Air Quality, of this IS/MND, the NCAB has not adopted thresholds of significance for GHG emissions for CEQA analyses purposes. Thus, this analysis applies the thresholds of significance used for CEQA analysis within the nearby SFBAAB, formulated by the BAAQMD.

The most recent BAAQMD Air Quality Guidelines were released in April 2023.¹² The updated GHG thresholds address more recent climate change legislation, including Senate Bill (SB) 32 (signed into law on September 8, 2016), and provide qualitative thresholds related to Buildings and Transportation.

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Neither the City nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. Nonetheless, the proposed project’s construction GHG emissions, as well as operational emissions, have been estimated using CalEEMod under the same assumptions discussed in Section III, Air Quality, of this IS/MND (see Appendix A). The emissions estimates prepared for the proposed project determined that construction of the project would result in total unmitigated GHG emissions of 300 MTCO₂e over the entire construction period.

¹² Bay Area Air Quality Management District. 2022 California Environmental Quality Act Guidelines. April 2023.

In addition, operational GHG emissions are presented in Table 5. However, as noted previously, the BAAQMD’s applicable threshold of significance for GHG emissions are qualitative, and the foregoing information is provided for disclosure purposes only. Potential impacts related to GHG emissions resulting from implementation of the proposed project are considered in comparison with BAAQMD’s adopted thresholds of significance below.

Table 5	
Unmitigated Operational GHG Emissions	
Source	Project Emissions (MTCO₂e/yr)
Mobile	324
Area	–
Energy	28.7
Water	61.9
Waste	3.31
Total Operational GHG Emissions	418
<i>Source: CalEEMod, May 2024 (see Appendix A).</i>	

Operational GHG Thresholds of Significance

According to the BAAQMD thresholds of significance, a project must either include specific project design elements (e.g., exclude use of natural gas, achieve a specific reduction in project-generated vehicle miles traveled (VMT) below the regional average) or be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).¹³

The City of Healdsburg adopted their Climate Mobilization Strategy (CMS) in October 2023 which meets the criteria under State CEQA Guidelines Section 15183.5(b). As such, the analysis of the proposed project’s operational GHG emissions discussed below is based on consistency with the City’s Climate Mobilization Strategy.

City of Healdsburg CMS Consistency

The City of Healdsburg CMS is intended to create a roadmap to achieve emissions reductions of 40 percent below 1990 levels by 2030, and carbon neutrality (i.e., net zero carbon emissions) by 2045. The CMS contains reduction strategies and measures, consistent with State climate mitigation targets, which were developed to reduce the City’s GHG emissions to reach its adopted reduction targets for 2030 and 2045.

The reduction measures included within the City’s CMS are targeted for implementation at the City level, are related to implementation of future citywide policies and programs that have not yet been developed within the City, or are otherwise only applicable to projects which include the development of new residential or commercial uses, and, therefore, are not directly applicable to the proposed project. However, implementation of the project would be consistent with the overarching goal of the CMS, which is to ensure that future GHG emissions comply with the State’s climate mitigation goals. In addition, the proposed project would include redevelopment of an existing park. The projections and GHG reduction targets included in the CMS anticipated use of the site as a park, and, therefore, the proposed project would not result in an increase in GHG emissions beyond what has already been anticipated by the City for the site. In fact, as discussed throughout this IS/MND, one of the main goals of the redevelopment project is to create a more

¹³ Bay Area Air Quality Management District. 2022 California Environmental Quality Act Guidelines. April 2023.

resilient climate adaptive park. Given that the proposed project would be built in compliance with the requirements of the 2022 Building Energy Efficiency Standards, the 2022 CALGreen standards, and the Healdsburg Reach Code, the proposed project is anticipated to be built more efficient than the existing park uses. For example, as discussed previously, the 2022 Building Energy Efficiency regulates outdoor lighting characteristics of new development such as maximum power and brightness, shielding, and controls to turn lighting on and off, which would help to reduce GHG emissions related to energy usage. The proposed park project would also include a new path system, which would connect the park and the adjacent neighborhood to the riverfront through the forested areas, and would include widening and resurfacing of an existing informal trail along the riverbank to make the trail more navigable and maintained. Such improvements would encourage walkability and would generally result in the reduction of mobile source GHG emissions associated with the park. In addition, as discussed in Section XVII, Transportation, of this IS/MND, while the proposed project is anticipated to result in an increase in 91 trips per day associated with the proposed pickleball courts, such an increase in trips is not anticipated to substantially increase VMT. The proposed project would also comply with all applicable regulations associated with vehicle and fuel economy.

Conclusion

Based on the above, the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, a ***less-than-significant*** impact would occur.

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a. Park uses are not typically associated with the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Upon completion of the proposed redevelopment, the proposed project may involve the use of herbicides and/or fertilizers on-site associated with the proposed landscaping, either of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions, and use would be consistent with what currently occurs on-site. Due to the regulations governing use of such products and the amount anticipated to be used on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a **less-than-significant** impact would occur.

b. The proposed project’s potential effects related to the likely release of hazardous materials through existing site conditions and/or construction activities are discussed in detail below.

The project site is currently developed with the existing approximately 20-acre Badger Park, which consists of a 114,000-sf informal recreation field, a 6,250-sf playground, a 7,500-sf dog run, and a 27,000-sf community garden, as well as picnic areas and a 46-space parking lot. Hazardous materials, with the exception of fertilizers, are not associated with the current park use.

Construction Activities

Construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes regulating the handling, storage, and transportation of hazardous and toxic materials. Pursuant to California Health and Safety Code Section 25510(a), except as provided in subdivision (b), the handler or an employee, authorized representative, agent, or designee of a handler, shall, upon discovery, immediately report any release or threatened release of a hazardous material to the unified program agency (in the case of the proposed project, the Sonoma County Department of Environmental Health) in accordance with the regulations adopted pursuant to Section 25510(a). The handler or an employee, authorized representative, agent, or designee of the handler shall provide all State, city, or county fire or public health or safety personnel and emergency response personnel with access to the handler's facilities. In the case of the proposed project, the contractors are required to notify the Sonoma County Department of Environmental Health in the event of an accidental release of a hazardous material, who would then monitor the conditions and recommend appropriate remediation measures.

Conclusion

Based on the above, the proposed project would result in a **less-than-significant** impact related to creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.

- c. The nearest schools relative to the project site are Healdsburg Elementary School and St. John the Baptist Catholic School, located 0.50-mile and 0.70-mile from the project site, respectively. Therefore, schools are not located within one-quarter mile of the project site, and the proposed project would result in **no impact** related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- d. Government Code Section 65962.5 requires the California Environmental Protection Agency to annually develop an updated Cortese List. The components of the Cortese List include the Department of Toxic Substances Control (DTSC) Hazardous Waste and Substances Site List, the list of leaking underground storage tank (UST) sites from the State Water Resources Control Board's (SWRCB) GeoTracker database, the list of solid waste disposal sites identified by the SWRCB, and the list of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO) from the SWRCB. The project site is not included on the DTSC Hazardous Waste and Substances Site List,¹⁴ or the list of solid waste disposal sites.¹⁵ Additionally, the SWRCB's GeoTracker database does not identify the project site as containing any Leaking Underground Storage Tanks (LUSTs), which is another portion of the Cortese List.¹⁶ Finally, the project site is not on the list of

¹⁴ Department of Toxic Substances Control. *Hazardous Waste and Substances Site List (Cortese)*. Available at: <https://www.envirostor.dtsc.ca.gov/public/>. Accessed April 2024.

¹⁵ CalEPA. *Cortese List Data Resources*. Available at: <https://calepa.ca.gov/sitecleanup/corteselist/>. Accessed May 2024.

¹⁶ State Water Resources Control Board. *GeoTracker Public Site*. Available at: <https://geotracker.waterboards.ca.gov/map/>. Accessed May 2024.

active CDO and CAO from the SWRCB. Thus, the proposed project would not create a significant hazard to the public or the environment, and **no impact** would occur.

- e. The nearest airport to the project site is the Healdsburg Municipal Airport, located approximately 5.5 miles northwest of the site. The site is not covered by an airport land use plan. Therefore, **no impact** would occur related to a safety hazard or excessive noise for people working in the project area.
- f. The proposed project would not alter the existing circulation system in the surrounding area. During operation, the proposed project would provide adequate access for emergency vehicles and would not interfere with potential evacuation or response routes used by emergency response teams. During construction of the proposed project, all construction equipment would be staged on-site so as to prevent obstruction of local and regional travel routes in the City that could be used as evacuation routes during emergency events.

The City of Healdsburg adopted the City of Healdsburg Emergency Operations Plan (EOP) in August 2021.¹⁷ The plan provides a basis for future responses to a wide range of citywide hazards and vulnerabilities. The plan provides a description of the emergency management organization and how it is activated. Additionally, the EOP establishes the foundational policies and procedures that define how the City would respond to, recover from, and mitigate against natural or human-caused disasters. Implementation of the proposed project would not result in any substantial modifications to the existing roadway system and, thus, would not physically interfere with the EOP, particularly with any emergency evacuation routes. Furthermore, the proposed project would be consistent with what has been planned for the site and would not include land uses or operations that could impair implementation of the plan. Therefore, the proposed project would not interfere with an emergency evacuation or response plan, and a **less-than-significant** impact would occur.

- g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this Initial Study. As noted therein, the project site is not located within a Very High Fire Hazard Severity Zone.¹⁸ In addition, the project site is located within a central area of the City of Healdsburg and is surrounded by existing development. The developed nature of the area surrounding the project site would help to reduce the potential spread of wildfire to the site, and the Master Plan includes removal of invasive vegetation within the park's forested area to open and thin the tree canopy and reduce fire fuel. Thus, the potential for wildland fires to reach the project site would be relatively limited. Furthermore, the project would not include the construction of any housing or habitable structures. Therefore, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands, and a **less-than-significant** impact would occur.

¹⁷ City of Healdsburg. City of Healdsburg *Emergency Operations Plan*. August 2021.

¹⁸ California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones in State Responsibility Areas*. Available at <https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008>. Accessed July 2024.

X. HYDROLOGY AND WATER QUALITY.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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;	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

- a. The following discussion provides a summary of the proposed project’s potential to violate water quality standards/waste discharge requirements or otherwise degrade water quality during redevelopment/construction and operation.

Construction

During the early stages of construction activities, topsoil would be exposed in portions of the site due to excavation of the areas of the site proposed for redevelopment, such as the development of structures at the river’s edge. After completion of groundwork and prior to overlaying the ground surface with pavement and landscaping, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality downstream.

The SWRCB regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres. The City’s National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State’s General Construction Permit prior to receipt of any construction permits. Because the disturbance area associated with the proposed project would over one acre, the proposed project would be subject to the requirements of the State’s General Construction Permit. The State’s General Construction Permit requires a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the site. A SWPPP describes BMPs to control or minimize pollutants from

entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development project. Additionally, the project would be required to comply with Chapter 13.28, Urban Stormwater Quality Management and Discharge Controls, of the City's Municipal Code, which includes standards for managing stormwater runoff during construction and operation, and the requirement to test or monitor for prohibited discharges. Furthermore, Mitigation Measure IV-4, from Section IV, Biological Resources, of this IS/MND, would ensure erosion control measures are being met. Compliance with the aforementioned requirements would ensure that the proposed project would not discharge sediment or urban pollutants through soil erosion, violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality during the proposed remediation and construction activities.

Operation

The proposed Master Plan would include a variety of active and passive spaces, consisting of natural open space, as well as new pervious surfaces (i.e., grass sports fields, dog park, landscaping, etc.) and impervious surfaces (i.e., parking lot, playground, sports courts, bathroom, etc.). As such, the proposed park project would be required to include on-site stormwater facilities to provide storm water quality treatment and volume capture in accordance with the current Low Impact Development Technical Design Manual pursuant to the City's municipal separate storm sewer systems (MS4) permit requirements, as well as peak management at pre-project levels for on-site runoff. Consistent with State requirements, the on-site stormwater system would be required to be sufficient to adequately handle the project's stormwater runoff, which would ensure that the proposed park project would not have the potential to violate any storm water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. All projects within the City of Healdsburg must comply with Chapter 13.28 of the City of Healdsburg Municipal Code which would help reduce pollutants in storm water discharges to the maximum extent practicable and by prohibiting non-storm water discharges to the public storm drain system. Additionally, implementation of Mitigation Measures IV-4 and IV-10 would avoid the potential for sediment being transported into aquatic resources areas, including the Russian River.

Conclusion

Based on the above, the proposed project would not result in the violation of water quality standards or degradation of water quality, and a **less-than-significant** impact would occur.

- b,e Water supplies in the central and southern portions of the City of Healdsburg, including the project site, are provided by the City of Healdsburg Utility Department. Pursuant to the 2020 Urban Water Management Plan (UWMP) for the City of Healdsburg, the City does not currently pump from groundwater basins or aquifers.¹⁹ As noted previously, two drinking wells and one irrigation well are currently located on-site. However, as discussed in the 2020 UWMP the water wells located on the project site are supplied water through Russian River surface water rights dating back to 1949,²⁰ as water from the Russian River is diverted into the wells.

¹⁹ City of Healdsburg Utility Department. *2020 Urban Water Management Plan Update*. [pg. 31]. October 2021.

²⁰ City of Healdsburg Utility Department. *2020 Urban Water Management Plan Update*. [pg. 62]. October 2021.

The proposed project would involve water demand associated with irrigation of the proposed landscaping elements and sports field. However, such demand would not represent a substantial increase from existing conditions at the site. In addition, given that the proposed project would be consistent with the site's current General Plan land use and zoning designations, the project would not result in increased use of groundwater supplies beyond what has been generally anticipated for the site by the City and accounted for in the UWMP. Per the 2020 UWMP, water supplies are projected to meet expected demand for normal year, single dry year, and multiple dry year scenarios through 2040. In addition, the proposed project would not result in a substantial increase in impervious surfaces relative to existing conditions and, thus, would not substantially alter groundwater recharge conditions at the project site.

Therefore, the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management. In addition, the project would not conflict with or obstruct implementation of a water quality control plan. Thus, a ***less-than-significant*** impact would occur.

- c.i-iii. The proposed project would include a variety of active and passive spaces, consisting of natural open space, as well as new pervious surfaces (i.e., grass sports fields, dog park, landscaping, etc.) and impervious surfaces (i.e., parking lot, playground, sports courts, bathroom, etc.).

As discussed above, the proposed park project would be required to include on-site stormwater facilities to provide storm water quality treatment and volume capture in accordance with the current Low Impact Development Technical Design Manual pursuant to the City's MS4 permit requirements, and peak management at pre-project levels for on-site runoff. Flows would be allowed to percolate or outflow off-site at such a rate that downstream stormwater would not be overwhelmed ensuring that the proposed park project would not have the potential to violate any storm water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Additionally, implementation of Mitigation Measures IV-4 and IV-10 would avoid the potential for erosion.

Therefore, the proposed project would not 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 result in substantial erosion, siltation, or flooding on- or off-site, 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. Consequently, the proposed project would result in a ***less-than-significant*** impact.

- c.iv. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 06097C0551E, the project site is located within Zone A, Zone V, and Zone A99, which are considered Special Flood Hazard Zones (SFHZs).²¹

Because the proposed project is an expansion of an existing use, implementation of the proposed project is not anticipated to substantially affect flood flows. In addition, Chapter 17.28 of the City of Healdsburg Municipal Code, specifically Section 17.28.160, includes

²¹ Federal Emergency Management Agency. *Flood Insurance Rate Map 06097C0051E*. Effective December 3, 2008.

standards of construction for all areas of special flood hazards. For example, all new construction and substantial improvements of structures shall be constructed with flood-resistant materials, and utility equipment resistant to flood damage for areas below the base flood elevation. The proposed project includes construction of only one building, the bathroom, which would be subject to the standards established in the aforementioned City Municipal Code section.

Therefore, implementation of the proposed project would not impede or redirect flood flows and a ***less-than-significant*** would result.

- d. As discussed under question 'c.iv' above, the project site is located within a SFHZ. However, compliance with the aforementioned requirements would ensure that the proposed project would not be subject to substantial flooding risks. Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. Due to the project site's substantial distance from the coast, the proposed project would not be exposed to flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to any closed body of water. Therefore, the proposed project would not pose a risk related to the release of pollutants due to project inundation due to flooding, tsunami, or seiche, and a ***less-than-significant impact*** would occur.

XI. LAND USE AND PLANNING.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
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?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. A project risks dividing an established community if the project would introduce infrastructure or alter land uses so as to change the land use conditions in the surrounding community, or isolate an existing land use. The proposed project would include redevelopment of the existing on-site park, and would result in the continuation of current site conditions. In addition, the proposed park project would also include a new path system, which would connect the park and the adjacent neighborhood to the riverfront through the forested areas, and would include widening and resurfacing of an existing informal trail along the riverbank to make the trail more navigable and maintained, which would increase connectivity of the park with the surrounding neighborhood. As such, the proposed project would not physically divide an established community, and **no impact** would occur.

- b. The project site is designated Park/Open Space pursuant to the City’s General Plan and is zoned P. The project site is currently developed as a public park, which would be redeveloped as part of the proposed project. Thus, the project would be consistent with the site’s current land use and zoning designations.

As discussed throughout this IS/MND, the proposed project would not result in any significant environmental effects that cannot be mitigated to a less-than-significant level by the mitigation measures provided herein. In addition, the proposed project would not conflict with City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect, including, but not limited to, the City’s noise standards and applicable SWRCB regulations related to stormwater, and the City’s Heritage Tree Protection and Tree Report Requirements. In addition, as discussed in Section IV, Biological Resources, of this IS/MND, Mitigation Measure IV-14 would ensure that the proposed project would comply with the 25-foot setback to the unnamed creek located within the project site, as required by Section 20.24.090 of the Healdsburg Municipal Code. With respect to Russian River, the minor improvements related to invasive species removal and soft surface trails would be anticipated to be exempt from the setback requirements, but construction of the two river access points would require a variance. As noted in Section 20.24.095 of the Healdsburg Municipal Code, variances to the standards set forth in Healdsburg Municipal Code Section 20.24.090 may be granted where the provision of the required setback is infeasible. As such, the proposed project would require approval of a variance to allow such minor improvements within the 100-foot Russian River setback. Approval of the variance would require the preparation of a riparian mitigation plan to ensure no net loss of acreage or of functional value of riparian habitat occurs.

Therefore, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental impact. Thus, a **less-than-significant** impact would occur.

XII. MINERAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

a,b. Pursuant to the City’s General Plan, a State-designated Mineral Resource Zone-2 (MRZ-2) is located in the southeastern portion of the City of Healdsburg, primarily located along the banks of the Russian River. Classification of an area as a MRZ-2 indicates the existence of a deposit that meets certain criteria for value and marketability. One gravel extraction site, Syar Industries, is currently located within the City limits southeast of the Russian River and north of the intersection of Healdsburg Avenue and Bailhache Avenue. The proposed project is located adjacent to the Russian River. However, the General Plan EIR concluded that buildout of the Planning Area would result in a less-than-significant impact to mineral resources with implementation of applicable General Plan policies, including Policy NR-G-1, which allows for continued operation of existing sand and gravel mines on the Russian River as long as environmental regulations are being met. In addition, the site is currently developed with the existing Badger Park, and is not used for mineral resource extraction. Therefore, impacts to a known mineral resource that is of value to the region and residents of the state would be ***less than significant***.

XIII. NOISE.

Would the project result in:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

The following discussion is based on an Environmental Noise Assessment prepared for the project by Saxelby Acoustics (see Appendix D).²²

- a. The following sections present information regarding sensitive noise receptors in proximity to the project site, the existing noise environment, and the potential for the proposed project to result in noise impacts during project construction and operation. The following terms are referenced in the sections below:
- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to decibels (dB) in this analysis are A-weighted unless noted otherwise.
 - Average, or equivalent, sound level (L_{eq}): The L_{eq} corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually on hour).
 - Day-Night Average Level (L_{dn}): The average sound level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 AM to 7:00 AM) hours.
 - Maximum Sound Level (L_{max}): The maximum sound level over a given time-period.
 - Median Sound Level (L₅₀): The sound level exceeded 50 percent of the time over a given time-period.
 - The 10th percentile value (L₁₀): The sound level exceeded 10 percent of the time during the monitoring period.
 - Community Noise Equivalent Level (CNEL): The 24-hour average noise level with noise occurring during evening (7:00 PM to 10:00 PM) hours weighted by a factor of three and nighttime hours weighted by a factor of ten prior to averaging.

City Noise Standards

Section 9.32.060 of the City of Healdsburg Municipal Code exempts noise sources associated with or vibration created by construction, repair, remodeling, or grading,

²² Saxelby Acoustics. *Environmental Noise Assessment, Bager Park Redevelopment Master Plan, City of Healdsburg, California*. June 7, 2024.

provided such activities do not take place between the nighttime hours of 6:00 PM and 7:30 AM daily, or at any time on Sunday or a legal holiday, and provided the noise level created by such activities does not endanger the public health, welfare, and safety.

The City of Healdsburg noise level standards, established in Section 9.32.060 of the Municipal Code, require that new projects in the vicinity of existing sensitive receptors generate noise levels not greater than 60 dBA L₁₀ during daytime (7:00 AM to 10:00 PM) hours at residential-zoned properties.

Additionally, the City of Healdsburg General Plan includes policies, such as Policy S-25, which would require construction that would result in a potentially significant impact on noise sensitive uses to use noise-reducing measures.

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. In the vicinity of the project site, the nearest existing noise sensitive land uses are single-family and multi-family residences to the north, east, and west of the site with the nearest residence located approximately 450 feet away, as measured from the center of the site.

Existing Noise Environment

The existing noise environment in the project area is primarily defined by traffic on Matheson Street, activity at the existing park, and natural sounds such as birds and insects.

To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hour) noise level measurements at three locations on the project site, as well as two short-term noise level measurements (see Figure 10). A summary of the noise level measurement survey results is provided in Table 6.

Project Construction Noise

During the proposed park redevelopment activities, heavy equipment would be used for excavation, grading, and paving which would temporarily increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks would be used in association with the proposed activities.

Table 7 shows maximum noise levels associated with typical construction equipment. Based on the table, activities involved in typical construction would generate maximum noise levels up to 90 dB at a distance of 50 feet. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources. The noise levels from a source decrease at a rate of approximately 6 dB per every doubling of distance from the noise source.

Figure 10
Noise Measurement Sites

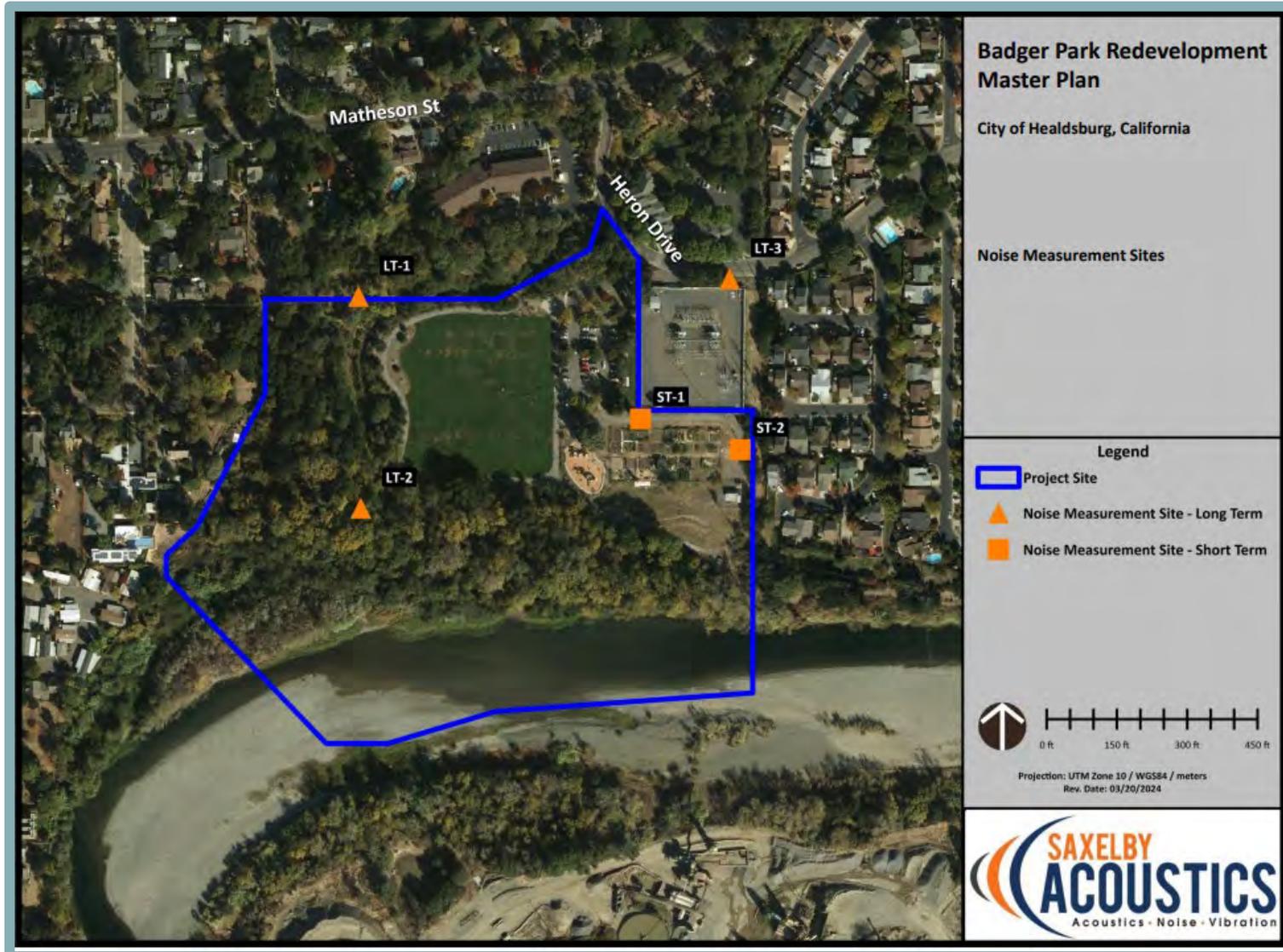


Table 6
Summary of Existing Background Noise Measurement Data

Location	Date	L _{dn}	Daytime L _{eq}	Daytime L ₅₀	Daytime L _{max}	Nighttime L _{eq}	Nighttime L ₅₀	Nighttime L _{max}
LT-1: Northwestern Project Boundary	Saturday 3/16/24	47	47	48	61	38	39	49
	Sunday 3/17/24	46	45	47	62	38	38	53
	Monday 3/18/24	46	46	46	62	37	38	48
LT-2: Southwest of Proposed Central Lawn	Saturday 3/16/24	47	46	47	61	38	40	50
	Sunday 3/17/24	46	46	47	65	37	37	52
	Monday 3/18/24	46	47	47	65	37	38	48
LT-3: Northeast of the Project Site	Saturday 3/16/24	55	55	57	74	47	44	67
	Sunday 3/17/24	55	51	56	73	47	43	66
	Monday 3/18/24	55	55	57	73	47	43	66

Notes:
All values shown in dBA
Daytime hours: 7:00 AM to 10:00 PM.
Nighttime Hours: 10:00 PM to 7:00 PM.

Source: Saxelby Acoustics, Environmental Noise Assessment, 2024.

Table 7 Construction Equipment Noise	
Type of Equipment	Maximum Level, dB at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85
Source: Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.	

The City of Healdsburg has not adopted a formal standard for evaluating temporary construction noise which occurs within allowable hours. However, Caltrans defines a significant increase due to noise as an increase of 12 dBA over existing ambient noise levels. In absence of City standards, Saxelby Acoustics used the Caltrans 12 dBA criterion to evaluate increases due to construction noise associated with the proposed project.

Construction equipment is predicted to generate noise levels of up to 90 dBA L_{max} at 50 feet. Construction noise is evaluated as occurring at the center of the site to represent average noise levels generated over the duration of construction across the project site. The nearest noise-sensitive residential uses are located approximately 450 feet from the center of the project site. At such distance, maximum construction noise levels would be up to 71 dBA. Daytime maximum noise levels in the vicinity of the sensitive receptors were measured to range from 49 to 71 dBA. Therefore, project construction would not cause an increase of greater than 12 dBA over existing ambient noise levels.

It should be noted that in addition to on-site construction noise sources, noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration and would occur during daytime hours.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related activities could result in sleep interference at existing noise-sensitive land uses in the vicinity of construction if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction could be potentially significant.

Project Operational Noise

The project would result in the redevelopment of the existing Badger Park. Parks are not typically associated with the generation of substantial noise. Based on the noise level measurements conducted by Saxelby, the existing ambient noise level in the project vicinity was measured to be 55 dBA L_{dn} . According to the Federal Interagency Committee on Noise (FICON) noise level criteria, the significance threshold for ambient noise

environments less than 60 dBA L_{dn} is +5.0 dBA L_{dn} . Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that the recommendations are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as L_{dn} . Based on the projected addition of 91 daily project trips for the pickleball courts, as determined in the Transportation Initial Study Checklist prepared for the proposed project by W-Trans,²³ Saxelby Acoustics predicted an increase in traffic noise level of 0.3 dB. A 0.3 dB increase is well below the +5.0 dBA L_{dn} threshold for significance. Therefore, impacts resulting from increased traffic noise would be considered to be less than significant.

The primary noise sources associated with operation of the proposed project would be outdoor recreational noise associated with the proposed athletic amenities, such as the pickleball courts and parking lot traffic circulation. Project operational noise is assumed to occur during daytime (7:00 AM to 8:00 PM) hours only. The City of Healdsburg noise level standards require that new projects in the vicinity of existing sensitive receptors generate noise levels not greater than 60 dBA L_{10} during daytime hours at residential-zoned properties. Figure 11 shows noise level contours generated by the project during a peak hour of use. Inputs to the model included sound power levels for the proposed amenities, such as the pickleball courts, existing and proposed buildings, terrain type, and locations of sensitive receptors. The predicted noise exposure of 61 dBA L_{10} at the northeast and southeast boundaries of the site would exceed the City's noise level standard. To mitigate this impact, Saxelby Acoustics recommended the construction of a six-foot-tall sound wall along the northern boundary of the project site. Figure 12 shows the location of the proposed wall and the resulting noise level contours. With the wall, project noise levels would be reduced from 61 dBA L_{10} to 55 dBA L_{10} at the property boundary, which is less than the City's 60 dBA L_{10} standard. Therefore, without inclusion of the sound wall, impacts resulting from project operational noise levels exceeding the threshold of significance could be potentially significant.

Conclusion

Based on the above, construction and operation of the proposed project could result in an increase ambient noise levels in the vicinity of the project in excess of the City's noise standards if construction activities were to occur outside the normal daytime hours and during project operation without implementation of a sound wall. Therefore, the proposed project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the City's Noise Ordinance, and a **potentially significant** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- XIII-1 If pickleball courts are included in the final design-level drawings, the proposed project shall include the construction of a six-foot-tall barrier at the northern boundary of the project site in the vicinity of the pickleball courts. The barrier height shall be relative to the residential building pads or the pickleball courts/dog park, whichever is greater. Noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials that achieve the required total height.*

²³ W-Trans. *Draft Transportation Initial Study Checklist for the Badger Park Master Plan Project*. July 9, 2024.

Figure 12
Project Noise Levels With Sound Wall



Wood is not recommended due to eventual warping and degradation of acoustical performance. Proof of compliance shall be submitted to the City of Healdsburg Community Development Department prior to issuance of building permits.

XIII-2 Prior to approval of grading and/or building permits, the City shall establish the following as conditions of approval for any permit that results in the use of construction equipment:

- Construction shall be limited to 7:30 AM to 6:00 PM Monday through Saturday.*
- All construction equipment powered by internal combustion engines shall be properly muffled and maintained.*
- Quiet construction equipment, particularly air compressors, are to be selected whenever possible.*
- All stationary noise-generating construction equipment such as generators or air compressors are to be located as far as practical from existing residences. In addition, the project contractor shall place such stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.*
- Unnecessary idling of internal combustion engines is prohibited.*
- The construction contractor shall, to the maximum extent practical, locate on-site equipment staging areas to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.*

Proof of compliance shall be submitted to the City of Healdsburg Community Development Department for review and approval.

- b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception, as well as damage to structures, have been developed for vibration levels defined in terms of PPV.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 8, which was developed by Caltrans, shows the vibration levels that would normally be required to result in damage to structures. As shown in the table, the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

The proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial groundborne vibration. Although noise and vibration associated with the construction phase of the project would add to the noise and vibration environment in the immediate project vicinity, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours, consistent with Section 9.32.070 of the City’s Municipal Code.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. Table 9 shows the typical vibration levels produced by construction equipment at various distances. As shown in the table, the most substantial source of groundborne vibrations associated with project construction would be the use of vibratory compactors/rollers.

Table 8 Effects of Vibration on People and Buildings			
PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 to 0.30	0.006 to 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10 to 15	0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage
Source: Caltrans. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.			

Type of Equipment	PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)	Peak Particle Velocity at 100 Feet (in/sec)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/Drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/Roller	0.210 (less than 0.20 at 26 feet)	0.074	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.

However, as shown in the table, construction vibration levels are less than 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction related vibrations, especially compactors/rollers, are located further than 26 feet from construction activities. At distance greater than 26 feet construction vibrations are not predicted to exceed acceptable levels.

Based on the above, development of the proposed project would not expose people to or generate excessive groundborne vibration or groundborne noise levels, and a **less-than-significant** impact would occur.

- c. The nearest airport to the project site is the Healdsburg Municipal Airport, located approximately 5.5 miles northwest of the site. The site is not covered by an airport land use plan. Given that the project site is not located within two miles of a public airport or public use airport, the proposed project would not expose people working in the project area to excessive noise levels associated with such. Thus, **no impact** would occur.

XIV. POPULATION AND HOUSING.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

- a. The proposed project would include redevelopment of an existing public park. Given that the project would not include any residential, commercial, or industrial development, the project would not directly or indirectly induce population growth. In addition, the project would not include extension of any major infrastructure. Thus, the proposed project would not induce substantial unplanned population growth in an area, either directly or indirectly, and **no impact** would occur.

- b. The project site does not currently include existing housing or other habitable structures. As such, the proposed project would not displace existing housing or people and would not necessitate the construction of replacement housing elsewhere. Therefore, **no impact** would occur.

XV. PUBLIC SERVICES.

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 public services:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
e. Other Public Facilities?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

a-e. The proposed project would include redevelopment of Badger Park, which would include improvements to the existing park and new park amenities such as two adventure play areas, a picnic area, a riverwalk trail, two new sports courts, an expanded dog park, and an expanded community garden. Generally, the proposed project would not result in increased demand for fire or police protection services relative to what currently occurs associated with the existing park use. In addition, the project would not include construction of any housing or development of new businesses. Thus, the project would not result in population growth such that demand for schools, parks, or other public facilities would increase. Therefore, the proposed project would have a **less-than-significant** impact related to the need for new or physically altered fire protection facilities, police protection facilities, schools, parks, or other public facilities, the construction of which could cause significant environmental impacts.

XVI. RECREATION.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a,b. The proposed project would include redevelopment of the existing Badger Park. The proposed project would not result in population growth that could result in increased demand on existing recreational facilities or cause the construction of new or expansion of existing recreational facilities. Thus, a ***less-than-significant*** impact would occur related to recreation.

XVII. TRANSPORTATION.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

- a. The following discussions are based on the Transportation Initial Study Checklist prepared for the proposed project by W-Trans (see Appendix E).²⁴

The law has changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used level of service (LOS) to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Enacted as part of SB 743 (2013), PRC Section 21099, subdivision (b)(1), directed the Governor’s Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing “criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.”

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that “[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, ‘vehicle miles traveled’ refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project’s effect on automobile delay shall not constitute a significant environmental impact.”

Please refer to Question ‘b’ for a discussion of VMT.

Pedestrian and Bicycle Facilities

Currently, pedestrian and bicycle facilities are present in the project area. Specifically, paved sidewalks are located within the project vicinity on Heron Drive with sidewalks on the south side for its entire length and on the north side from 400 feet south of the intersection of South Fitch Mountain Road/Heron Drive to the eastern terminus of Heron Drive. The City of Healdsburg maintains three classes of bicycle facilities (Class I, Class II, and Class III). In the project area, a Class II bike lane exists on the north side of South Fitch Mountain Road between Greens Street and 650 feet east of Latimer Road. Bicycle facilities and pedestrian facilities are not planned in the study area according to the

²⁴ W-Trans. *Draft Transportation Initial Study Checklist for the Badger Park Master Plan Project*. July 9, 2024.

Healdsburg Bicycle and Pedestrian Master Plan.²⁵ Therefore, the project would not conflict with the existing or proposed facilities. However, the proposed project would provide additional trails through the park and connection to the Russian River.

Based on the above, the proposed project would not conflict with a program, plan, ordinance, or policy addressing pedestrian or bicycle facilities.

Transit Service and Facilities

Transit service in the City of Healdsburg is provided by Sonoma County Transit (SCT). The SCT provides fixed route bus service in Healdsburg. Route 67 provides loop service to destinations throughout the City of Healdsburg and stops adjacent to the project site on Heron Drive and Riverside Club House. Route 67 operates Monday through Saturday from 8:40 AM to 4:10 PM with headways that range from one hour to one-and-one-half hours. Two or three bicycles can be carried on most SCT buses. Bike rack space is on a first come, first served basis. In addition, the proposed project does not propose any features which could conflict with existing or planned transit facilities. The SCT bus route serving the project site and the existing access to the transit route is adequate to accommodate project generated facilities, as local parks typically serve local residents. Therefore, the transit access to the project site is adequate and would not result in any significant impacts to the nearby transit network.

Conclusion

Based on the above, the project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and a **less-than-significant** impact would occur.

- b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Pursuant to Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts. Pursuant to Section 15064.3(b)(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

The potential for the project to conflict or be inconsistent with CEQA Guidelines Section 15064.3, was evaluated based on the project's anticipated VMT and the City's VMT Policy. The City of Healdsburg has adopted guidelines for the analysis of VMT. The City's policy identifies several criteria that may be used to identify certain types of projects that are unlikely to have a VMT impact and can be "screened" from further VMT analysis. One of these screening criteria pertains to small projects, which the City identifies as generating fewer than 110 vehicle trips per day. According to the Transportation Initial Study Checklist, the proposed project is anticipated to generate approximately 91 daily vehicle trips for the pickleball courts, which falls below the City's threshold. As a result, it is reasonable to conclude that the project can be presumed to have a less-than-significant impact on VMT.

Based on the above, the proposed project would not substantially increase VMT relative to existing conditions. Therefore, the proposed project would not conflict or be inconsistent

²⁵ City of Healdsburg. *Healdsburg Bicycle and Pedestrian Mater Plan*, Sonoma County Transportation Authority. 2013.

with CEQA Guidelines Section 15064.3(b), and a ***less-than-significant*** impact would occur.

- c,d. The project site is currently served by a driveway on Heron Drive and the proposed project would not result in any changes to the driveway or trip generation that would affect the site access, safety, or sight distance. Emergency response vehicles would be able to access the site by way of the project driveway on Heron Drive. The existing 27-foot driveway meets the 20-foot driveway access requirement for emergency vehicles. Therefore, the proposed project would not substantially increase hazards due to design features or incompatible uses, and emergency access to the site would be adequate. The proposed project would result in a ***less-than-significant*** impact.

XVIII. TRIBAL CULTURAL RESOURCES.

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:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. 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).	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>
b. 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.	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

a,b. As discussed in Section V, Cultural Resources, of this IS/MND, a Cultural Resources Study was prepared for the proposed project by Evans and De Shazo Archeology and Historic Preservation. As part of the Cultural Resources Study, a record search of the NAHC Sacred Lands File was completed and the results were positive, indicating a potential presence of tribal cultural resources in the project area.²⁶ Additionally, pursuant to the records search of the CHRIS conducted by the NWIC, the potential for unrecorded Tribal Cultural Resources to occur in the project area is high.²⁷

In compliance with AB 52 (PRC Section 21080.3.1), project notification letters were distributed to the Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria of Pomo Indians, Federated Indians of Graton Rancheria, Guildville Rancheria of California, Kashia Band of Pomo Indians of the Stewarts Point Rancheria, Lytton Rancheria, Middletown Rancheria of Pomo Indians, Mishewal-Wappo Tribe of Alexander Valley, Pinoleville Pomo Nation, and Robinson Rancheria of Pomo Indians. The letters were distributed on May 3, 2024. One response was received by the Lytton Rancheria on May 23, 2024 confirming receipt of the notification letter; however, the tribe did not request further consultation. Additional requests to consult were not received within the mandatory 30-day response period.

While known Tribal Cultural Resources do not exist within the site, based on the Cultural Resources Study, the potential presence/sensitivity of the site for tribal cultural resources is high. Therefore, the possibility exists that the proposed project could result in a substantial adverse change in the significance of a Tribal Cultural Resource if previously unknown Tribal Cultural Resources are uncovered during ground-disturbing activities. Thus, a **potentially significant** impact to Tribal Cultural Resources could occur.

²⁶ Native American Heritage Commission. *Badger Park Redevelopment Master Plan Project, Sonoma County*. April 12, 2024.

²⁷ Northwest Information Center. *Cultural Resources Study for the Proposed Badger Park Redevelopment Plan Project at 750 Heron Drive, Healdsburg, Sonoma County, California*. April 15, 2024.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XVIII-1 Implement Mitigation Measures V-1, V-2, V-3 and V-4.

XIX. UTILITIES AND SERVICE SYSTEMS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

- a. Existing water, sewer, stormwater, and electric utility infrastructure is provided in the project vicinity, and the existing on-site park currently includes connections to water, stormwater, and electrical infrastructure. The project would not include any substantial modifications to existing utilities in the site vicinity. The proposed park would include the construction of a new bathroom building immediately north of the community garden. The bathroom building would connect to the existing sewer gravity main on Heron Drive by either forced lateral or gravity flow depending on elevation changes. In addition, the existing sewer lift station, north of the project site, across from Heron Drive, would be relocated on to the northern portion of the project site, west of the access roadway.

Given that the proposed project is consistent with the site's General Plan land use and zoning designations, standard utility improvements associated with the proposed park redevelopment have been generally anticipated by the City, and associated environmental effects have been analyzed in the General Plan EIR. Therefore, the project would result in a **less-than-significant** impact related to 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. Water supplies in the central and southern portions of the City of Healdsburg, including the project area, are derived from surface water primarily through water rights as well as a backup supply of contracted water from Sonoma County Water Agency (SCWA). Pursuant to the Healdsburg 2020 UWMP, the City's combined projected water supplies are sufficient to meet projected demands during normal water supply conditions. Under single-year and multiple-dry year conditions, there is a need for mandatory conservation

ranging from as little as five percent to as high as 40 percent or higher.²⁸ To lessen the negative affects of future droughts the City must continue efforts towards water conservation, water supply contingency planning, and investigate the development of new and more resilient water supplies. The City of Healdsburg's 2020 UWMP addresses vulnerabilities to the City's water supply due to climate change, including droughts, floods, and wildfires. In recent years, the City has seen curtailments of its water diversions in response to extended drought conditions. The City is planning for future curtailments by improving and adding water supply infrastructure, gaining new water rights, and educating the public about the need for water conservation to ease the negative impacts associated with future droughts. Local measures to address water supply limitations include requiring the use of drought-resistant landscaping and enforcing mandatory conservation requirements as dictated by the severity of water supply shortages. The UWMP provides water supply and demand projections for periods of prolonged drought (five years) and concludes that the level of conservation needed to address annual deficits ranges from less than five percent to roughly 12 percent. The UWMP establishes City protocols for accessing and determining water supply reliability on an annual basis to help forecast and calibrate shortage response actions. The proposed park would be subject to demand reduction measures identified in the City's Water Shortage Contingency Plan that are implemented by the City in response to water shortages and emergencies.

The proposed project would include redevelopment of the existing on-site park, which currently includes water demands associated with irrigation of landscaping features. The proposed project would require additional water usage associated with new site improvements such as landscaping and the proposed sports fields. The proposed project would also include the construction of one new restroom building immediately north of the community garden. The restroom building would have flushing toilets and would connect to the existing water main on Heron Drive. Upon completion of the proposed redevelopment, the park would not involve substantially increased water demand relative to what currently exists. All landscaping improvements would be consistent with Section 20.16.105, Water Efficient Landscape, of the City's Municipal Code which protects local water supplies through the implementation of a whole systems approach to design, construction, installation, and maintenance of the landscape resulting in water conserving climate-appropriate landscapes, improved water quality and the minimization of natural resource inputs. Based on these factors, Healdsburg would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years, and a ***less-than-significant*** impact would occur.

- c. Collected wastewater flows from the project site would ultimately be transported to the City of Healdsburg wastewater treatment plant (WWTP) for treatment and disposal. The City's existing WWTP has a permitted capacity of 4.0 million gallons per day (mgd) of average daily water flow (ADWF), and the estimated ADWF is approximately 1.6 mgd. Therefore, a remaining unused capacity of 2.4 mgd ADWF is available to accommodate development and growth within the City. The addition of the bathroom building would create an increase in wastewater generation; however, the generation would not exceed the WWTP's capacity. With respect to wastewater, implementation of the Badger Park redevelopment would not result in increased generation of wastewater which would require construction of new on-site collection and conveyance facilities or the extension of

²⁸ City of Healdsburg. *2020 Urban Water Management Plan Update*, City of Healdsburg Utility Department. October 2021.

existing off-site lines. Thus, the project would not affect the City’s wastewater treatment capacity, and **no impact** would occur.

- d,e. Solid waste, recyclable materials, and compostable material collection within the City of Healdsburg is provided by Recology Sonoma Marin through an exclusive franchise agreement. Once collected, solid waste is hauled to the Healdsburg Transfer Station. The Healdsburg Transfer Station serves the unincorporated areas of northern Sonoma County, Cloverdale, Healdsburg, Windsor, and Geyserville. The transfer station is permitted to accept 435 tons per day (TPD) of solid waste. From the transfer station, solid waste is transported to any of four landfills, depending on the size of the loads, time of day, and season. The four landfills are Redwood Sanitary Landfill, Potrero Hills Landfill, Vasco Road Sanitary Landfill, and Keller Canyon Landfill.²⁹ The current disposal facilities capacities are shown in Table 10.

Table 10			
Current Disposal Facility Capacities			
Facility Name	Permitted Daily Throughout	Permitted Capacity	Remaining Capacity
Redwood Sanitary Landfill	2,300	19,100,000	26,000,000
Potrero Hills Landfill	4,330	83,100,000	13,872,000
Vasco Road Sanitary Landfill	2,518	40,207,100	11,560,000
Keler Canyon Landfill	3,500	75,018,280	63,408,410
Source: CalRecycle 2024			

As shown in the table, the landfills would all have sufficient remaining capacity to serve the proposed project. In addition, given the proposed park uses, the proposed project would result in a relatively small waste generation as compared to the residential or commercial uses within the City. Furthermore, because the proposed project is consistent with the project site’s current General Plan land use and zoning designations, the project would not result in increased solid waste generation beyond what has been previously anticipated for the site by the City and analyzed in the General Plan EIR. The proposed project would be required to comply with all applicable provisions of Chapter 8.08, Solid Waste Management, of the City’s Municipal Code, including Section 8.08.580 related to construction and demolition waste.

Therefore, the proposed project would not 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 and would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. A **less-than-significant** impact related to solid waste would occur as a result of the proposed project.

²⁹ California Department of Resources Recycling and Recovery (CalRecycle). *FacilitySite Summary Details: Keler Canyon Landfill (07-AA-0032)*. Available at <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228>. Accessed July 2024.

XX. WILDFIRE.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a-d. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is not located within or near a Very High Fire Hazard Severity Zone or State Responsibility Area.³⁰ In addition, the Master Plan includes removal of invasive vegetation within the park’s forested area to open and thin the tree canopy and reduce fire fuel. The project site is currently developed with the existing approximately 20-acre Badger Park, which consists of a 114,000-sf informal recreation field, a 6,250-sf playground, a 7,500-sf dog run, and a 27,000-sf community garden, as well as picnic areas and a 46-space parking lot. The generally open nature of the project site and surrounding area could serve as a firebreak and reduce the spread of fire. Based on the above, the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a **less-than-significant** impact would occur.

³⁰ California Department of Forestry and Fire Protection. *California Fire Hazard Severity Zone Viewer*. Available at: <https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones>. Accessed May 2024.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, with implementation of Mitigation Measures IV-1 through IV-19, the proposed project would not result in any significant impacts to special-status plant or wildlife species. The project site is currently disturbed and does not contain any known historic or precontact resources. Thus, implementation of the proposed project is not anticipated to have the potential to result in impacts related to historic or precontact resources. Nevertheless, Mitigation Measures V-1 through V-4 would ensure that in the event that historic or precontact resources are discovered within the project site during construction activities, such resources would be protected in compliance with the requirements of CEQA.

Considering the above, the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, a **less-than-significant** impact would occur.

b. The proposed project in conjunction with other development within the City of Healdsburg could incrementally contribute to cumulative impacts in the area. However, as demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project implementation would be reduced to a less-than-significant level through compliance with the mitigation measures included in this IS/MND, as well as applicable General Plan policies, Municipal Code standards, and other applicable local and State regulations. In addition, the proposed project would be limited to redevelopment of the existing on-site park; upon completion of such activities, the project site would continue to function as a public park, consistent with the site's existing land use and zoning designations.

Therefore, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, the proposed project would not result in a cumulatively considerable contribution to cumulative impacts in the City of Healdsburg, and the project's incremental contribution to cumulative impacts would be ***less than significant***.

- c. As described in this IS/MND, the proposed project would comply with all applicable General Plan policies, Municipal Code standards, other applicable local and State regulations, and mitigation measures included herein. In addition, as discussed in the Air Quality, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, and Noise sections of this IS/MND, the proposed project would not cause substantial effects to human beings, which cannot be mitigated to less-than-significant levels, including effects related to exposure to air pollutant and GHG emissions, geologic hazards, hazardous materials, and excessive noise. Therefore, the proposed project's impact would be ***less than significant***.

APPENDIX A

AIR QUALITY AND GREENHOUSE GAS MODELING RESULTS

Badger Park Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Badger Park
Construction Start Date	5/1/2025
Operational Year	2028
Lead Agency	City of Healdsburg
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	11.8
Location	750 Heron Dr, Healdsburg, CA 95448, USA
County	Sonoma-North Coast
City	Healdsburg
Air District	Northern Sonoma County APCD
Air Basin	North Coast
TAZ	891
EDFZ	2
Electric Utility	City of Healdsburg Electric Department
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.25

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
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City Park	20.4	Acre	20.4	0.00	888,624	888,624	—	—
Parking Lot	67.0	Space	0.60	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.15	3.50	37.1	32.0	0.07	1.44	20.8	22.3	1.33	10.4	11.8	—	9,400	9,400	0.28	0.68	7.87	9,617
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.50	1.25	11.3	14.2	0.03	0.46	0.00	0.46	0.42	0.00	0.42	—	2,531	2,531	0.10	0.02	0.00	2,540
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.02	0.85	7.68	10.0	0.02	0.31	1.48	1.79	0.29	0.64	0.93	—	1,803	1,803	0.07	0.03	0.14	1,809
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	0.15	1.40	1.83	< 0.005	0.06	0.27	0.33	0.05	0.12	0.17	—	299	299	0.01	0.01	0.02	300

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.15	3.50	37.1	32.0	0.07	1.44	20.8	22.3	1.33	10.4	11.8	—	9,400	9,400	0.28	0.68	7.87	9,617
2026	1.43	1.19	10.7	14.1	0.03	0.40	0.00	0.40	0.37	0.00	0.37	—	2,531	2,531	0.10	0.02	0.00	2,539
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.50	1.25	11.3	14.2	0.03	0.46	0.00	0.46	0.42	0.00	0.42	—	2,531	2,531	0.10	0.02	0.00	2,540
2026	1.43	1.19	10.7	14.1	0.03	0.40	0.00	0.40	0.37	0.00	0.37	—	2,531	2,531	0.10	0.02	0.00	2,539
2027	0.14	0.11	0.83	1.13	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	—	134	134	0.01	< 0.005	0.00	134
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.00	0.84	7.68	8.54	0.02	0.31	1.48	1.79	0.29	0.64	0.93	—	1,755	1,755	0.07	0.03	0.14	1,767
2026	1.02	0.85	7.63	10.0	0.02	0.29	0.00	0.29	0.26	0.00	0.26	—	1,803	1,803	0.07	0.01	0.00	1,809
2027	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	—	3.40	3.40	< 0.005	< 0.005	0.00	3.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.18	0.15	1.40	1.56	< 0.005	0.06	0.27	0.33	0.05	0.12	0.17	—	291	291	0.01	0.01	0.02	292
2026	0.19	0.15	1.39	1.83	< 0.005	0.05	0.00	0.05	0.05	0.00	0.05	—	299	299	0.01	< 0.005	0.00	300
2027	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	—	0.56	0.56	< 0.005	< 0.005	0.00	0.56

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.73	0.72	0.21	1.52	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	0.95	420	421	0.12	0.02	1.14	430

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.73	0.71	0.24	1.51	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	0.95	408	409	0.12	0.02	0.03	418
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.62	0.62	0.12	0.78	< 0.005	< 0.005	0.15	0.16	< 0.005	0.04	0.04	0.95	259	260	0.11	0.01	0.26	266
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.11	0.11	0.02	0.14	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.16	42.9	43.1	0.02	< 0.005	0.04	44.0

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	0.21	0.21	1.52	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	—	330	330	0.01	0.02	1.14	336
Area	0.51	0.51	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Waste	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.73	0.72	0.21	1.52	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	0.95	420	421	0.12	0.02	1.14	430
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.22	0.21	0.24	1.51	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	—	318	318	0.02	0.02	0.03	324
Area	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Waste	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.73	0.71	0.24	1.51	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	0.95	408	409	0.12	0.02	0.03	418
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	0.12	0.78	< 0.005	< 0.005	0.15	0.16	< 0.005	0.04	0.04	—	169	169	0.01	0.01	0.26	172
Area	0.51	0.51	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Waste	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.62	0.62	0.12	0.78	< 0.005	< 0.005	0.15	0.16	< 0.005	0.04	0.04	0.95	259	260	0.11	0.01	0.26	266
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.14	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.04	28.5
Area	0.09	0.09	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	10.2	10.2	< 0.005	< 0.005	—	10.3
Waste	—	—	—	—	—	—	—	—	—	—	—	0.16	0.00	0.16	0.02	0.00	—	0.55
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.11	0.11	0.02	0.14	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.16	42.9	43.1	0.02	< 0.005	0.04	44.0

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement:	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.87	0.83	< 0.005	0.04	—	0.04	0.03	—	0.03	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement:	—	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement:	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.08	1.08	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	153	153	0.01	0.01	0.66	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	0.09	5.41	0.79	0.03	0.07	0.99	1.06	0.07	0.28	0.36	—	3,952	3,952	< 0.005	0.63	7.22	4,148
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.05	4.05	< 0.005	< 0.005	0.01	4.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.15	0.02	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	108	108	< 0.005	0.02	0.09	114
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	17.9	17.9	< 0.005	< 0.005	0.01	18.8

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622

Dust From Material Movement:	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.31	2.85	2.71	0.01	0.12	—	0.12	0.11	—	0.11	—	633	633	0.03	0.01	—	635
Dust From Material Movement:	—	—	—	—	—	—	0.88	0.88	—	0.35	0.35	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	105	105	< 0.005	< 0.005	—	105
Dust From Material Movement:	—	—	—	—	—	—	0.16	0.16	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.09	1.24	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	0.01	0.01	0.75	178
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.2	16.2	< 0.005	< 0.005	0.03	16.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.68	2.68	< 0.005	< 0.005	0.01	2.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.15	3.93	0.01	0.13	—	0.13	0.12	—	0.12	—	723	723	0.03	0.01	—	725
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.57	0.72	< 0.005	0.02	—	0.02	0.02	—	0.02	—	120	120	< 0.005	< 0.005	—	120
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.02	9.24	0.02	0.27	—	0.27	0.25	—	0.25	—	1,708	1,708	0.07	0.01	—	1,713
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	0.93	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	131	131	0.01	0.01	0.56	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.94	6.94	< 0.005	< 0.005	0.01	7.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.15	1.15	< 0.005	< 0.005	< 0.005	1.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.24	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.6	36.6	< 0.005	< 0.005	—	36.7

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.06	6.06	< 0.005	< 0.005	—	6.08	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.61	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.40	3.40	< 0.005	< 0.005	—	3.41
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.56	0.56	< 0.005	< 0.005	—	0.56
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.23	0.21	0.21	1.52	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	—	330	330	0.01	0.02	1.14	336
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.23	0.21	0.21	1.52	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	—	330	330	0.01	0.02	1.14	336
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.22	0.21	0.24	1.51	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	—	318	318	0.02	0.02	0.03	324
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.22	0.21	0.24	1.51	< 0.005	< 0.005	0.30	0.30	< 0.005	0.08	0.08	—	318	318	0.02	0.02	0.03	324
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.02	0.02	0.02	0.14	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.04	28.5

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.02	0.02	0.14	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	—	28.0	28.0	< 0.005	< 0.005	0.04	28.5

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00	
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	28.6	28.6	< 0.005	< 0.005	—	28.7	
Total	—	—	—	—	—	—	—	—	—	—	—	—	28.6	28.6	< 0.005	< 0.005	—	28.7	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00	
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	28.6	28.6	< 0.005	< 0.005	—	28.7	
Total	—	—	—	—	—	—	—	—	—	—	—	—	28.6	28.6	< 0.005	< 0.005	—	28.7	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00	
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	4.73	4.73	< 0.005	< 0.005	—	4.75	
Total	—	—	—	—	—	—	—	—	—	—	—	—	4.73	4.73	< 0.005	< 0.005	—	4.75	

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
--------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.51	0.51	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.09	0.09	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	61.7	61.7	< 0.005	< 0.005	—	61.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	10.2	10.2	< 0.005	< 0.005	—	10.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	10.2	10.2	< 0.005	< 0.005	—	10.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.95	0.00	0.95	0.09	0.00	—	3.31
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.16	0.00	0.16	0.02	0.00	—	0.55
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.16	0.00	0.16	0.02	0.00	—	0.55

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	5/1/2025	5/14/2025	5.00	10.0	—
Grading	Grading	5/15/2025	7/2/2025	5.00	35.0	—
Building Construction	Building Construction	7/31/2025	12/30/2026	5.00	370	—
Paving	Paving	7/3/2025	7/30/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	8/14/2025	1/13/2027	5.00	370	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	56.1	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	4,481	15.0	0.00	—
Grading	—	—	105	0.00	—

Paving	0.00	0.00	0.00	0.00	0.60
--------	------	------	------	------	------

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
City Park	0.00	0%
Parking Lot	0.60	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	453	0.03	< 0.005
2026	0.00	453	0.03	< 0.005
2027	0.00	453	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VM/Weekday	VM/Saturday	VM/Sunday	VM/Year
City Park	15.9	40.0	44.7	8,563	147	370	413	79,231
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
—	—	—	—	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	453	0.0330	0.0040	0.00
Parking Lot	23,010	453	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	17,060,491
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	1.75	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
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5.17. User Defined

Equipment Type	Fuel Type
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5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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APPENDIX B

BIOLOGICAL RESOURCES ASSESSMENT

**BIOLOGICAL RESOURCES ASSESSMENT
BADGER PARK PROJECT
HEALDSBURG, CALIFORNIA**



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1.0 INTRODUCTION

At the request of Raney Planning & Management, Inc., Huffman-Broadway Group, Inc. (HBG) conducted a Biological Resources Assessment (BRA) related to the redevelopment of Badger Park (Project), in Healdsburg, Sonoma County, California.

1.1 Project Location

The Project Site is located at 7560 Heron Drive in the City of Healdsburg, California. The site is identified by APNs 088-141-012 and -016.

Badger Park is an existing 21-acre park consisting of a 114,000-sf informal recreation field, a 6,250-sf playground, a 7,500-sf dog run, and a 27,000-sf community garden, as well as picnic areas and a 46-space parking lot. A large portion of the park is forested and impacted by dense growth of invasive plant species which include English ivy and Himalayan blackberry. From the maintained portion of the park's recreational areas, a forested area transitions down to the Russian River where two natural promontory areas, situated on river terraces, and a number of informal pathways can be found. The site is designated Park/Open Space per the City's General Plan and is zoned P (Public).

The project site is bounded by single-family residences to the north and west, single-family residences and an electrical substation to the east; and the Russian River to the south.

The regional location of the Project Site is shown in Appendix A, Figure 1. Appendix A, Figure 2a shows the location of the site on 7.5-minute USGS quadrangle mapping. Appendix A, Figure 3a shows an aerial photo of the Project Site and the surrounding area.

Note: Appendix H of the Aquatic Resources Delineation (Appendix D of this document) provides representative photos of the Project Site.

1.1 Project Description

The proposed project consists of a Master Plan to redevelop Badger Park (see Appendix C). The goal of the proposed Master Plan includes expanding park uses for the community, reconnecting the park to the Russian River, management of invasive species, and the creation of a more resilient climate adaptive park.

The proposed Master Plan would include a variety of active and passive spaces which surround a central field area bracketed by curvilinear promenades. A secondary path system would connect the park and the adjacent neighborhood to the riverfront through the forested areas.

The park's primary vehicular entrance and exit would remain at Heron Drive. The parking lot would be expanded to accommodate 67 vehicles, for an increase of 21 spaces, and a turn-around/drop-off loop would be added north of the existing UV treatment structure. The loop would allow vehicles to turn around and/or drop-off park visitors and human-powered watercraft such as canoes and kayaks.

Informal recreation would continue in an expanded central field area. Although the central field area is large enough to accommodate soccer play, the existing field is currently not programmed or permitted

for sports practices, games, or tournaments. Due to drought, soccer programs on the existing field ceased in 2021. Games and practices have been relocated to other parks. The City of Healdsburg does not anticipate the soccer program returning to Badger Park in the future, and thus, this IS/MND does not evaluate impacts associated with organized sports games, tournaments, etc., at the park.

The existing playground would remain in approximately the same location as current conditions and would be reconstructed and expanded to ensure the playground is up to code and ADA standards. The new play structures and amenities would embrace natural-universal play and river-related themes would be included.

The existing dog park would be reconstructed on the west side of the park's vehicular entrance and exit so that it is not adjacent to the electrical substation. The reconstructed dog park would be substantially similar to the existing dog park, with new amenities including water and dog play objects.

The existing community garden would be expanded to the south and would approximately double in size.

A portable toilet is currently in use at the existing Badger Park. As such, the proposed project would include the construction of one new restroom building immediately north of the community garden. The restroom building would have flushing toilets and be an energy-efficient structure with passive ventilation and solar power. The restroom building would connect to the existing sewer gravity main on Heron Drive by either forced lateral or gravity flow depending on elevation changes.

The proposed project would also include the construction of new sports courts and a half-court for basketball south of the relocated and reconstructed dog park. The courts would not host any league play or be lit at night. Three small picnic areas with tables are proposed near the playground, community garden, and central field.

The Master Plan also highlights two areas for future utility infrastructure. A cryptosporidium treatment facility will be constructed near the existing wells and south of the community garden. The facility will include six cartridge filter housings along with ancillary piping and controls modifications, six-foot tall chain link fencing, and a gravel access road. The Master Plan also designates a potential utility expansion area south of the existing UV treatment structure and north of the cryptosporidium treatment facility. However, the future utility infrastructure is not included in the proposed project, and a Notice of Exemption for the cryptosporidium treatment facility was posted by Sonoma County on December 18, 2023.

The proposed project would also include the removal of highly and moderately invasive vegetation within the park's forested area to open and thin the tree canopy, create better visual access to the river, and reduce fire fuel (Appendix B, Table 1). Two simple, elevated, overlook structures would be constructed at the existing promontory spots, where the river would be visible. An existing pedestrian trail bridge, that spans the drainage channel, would be replaced. The new bridge would continue to span the drainage channel, and thus avoid directly impacting the channel. The bridge is anticipated to be constructed of wood and metal and would be six feet wide. An additional and substantially similar

pedestrian trail bridge would be installed further south. Both bridges would connect the park to the adjacent neighborhood by way of a decomposed granite trail that would include stopping places with logs or boulders for adults and children to climb on and explore.

In addition, the site's existing topography and habitat along the riverfront in the park's southwest corner would be preserved. A series of bank stabilizing bioengineered vegetative walls would be installed to support an existing island, which is two feet in elevation above the river. The walls would slow the flow of water at select locations and provide erosion control to protect against flooding. Two at-grade creek crossings constructed of stones would cross the drainage channel and lead to a hidden beach nestled among willow trees with river access for swimming.

An existing informal trail along the riverbank would be widened by approximately one foot for a total width of four feet and resurfaced with decomposed granite to make the trail more navigable and maintained. The riverbank trail would connect the vehicular drop-off loop to two river access points, one at the southeast corner of the site and one in the southwest corner along the Russian River, which would consist of a kayak put-in constructed of wood treads and risers and/or informal rocks.

The operational hours of Badger Park, 6:00 AM to 11:00 PM, would not change with redevelopment of the park. However, the project would improve visual and physical access to the Russian River, which would likely result in increased visitors. In addition, the construction of new sports courts (pickleball, half-court basketball and volleyball), the reconstruction of the playground, and the construction of a new, permanent restroom building would likely draw more visitors as well. Peak times for river access would be summer weekends.

The proposed project would require the following approvals from the City of Healdsburg:

- Adoption of the IS/MND;
- Adoption of a Mitigation Monitoring and Reporting Program; and
- Master Plan approval.

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to: (1) assess within the Project Site the potential for the occurrence of special-status plant and animal species and their habitats and sensitive natural communities, (2) analyze the potential for substantial adverse Project effects to special-status species and sensitive natural communities following the *California Environmental Quality Act (CEQA) Check List* questions regarding biological resources, and (3) provide mitigation recommendations based on a review of existing literature, the results of the site reconnaissance, an aquatic resources delineation, pedestrian wildlife and rare plant surveys, and an evaluation of the impacts of the proposed project. It is understood that this document will serve as a technical resource document to be used by the City of Healdsburg in their evaluation of the project pursuant to requirements of the California Environmental Quality Act (CEQA).

2.0 REGULATORY SETTING

The following is a description of relevant federal, state, and local environmental regulations and policies designed to protect sensitive plants and animals, their habitats, and sensitive natural communities that may impact development planning and ultimate Project approval.

2.1 Federal Regulations

Clean Water Act-Section 404. The U.S. Army Corps of Engineers (USACE or Corps) regulates discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). “Discharge of fill material” is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The Corps and the U.S. Environmental Protection Agency (US EPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States (WOTUS). Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, known as the Section 404(b)(1) Guidelines. Specifically, Section 404(b)(1) guidelines require that the Corps only authorize the “least environmentally damaging practicable alternative” (LEDPA) and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Waters of the U.S. include both wetlands and “other waters of the U.S.” Wetlands and other waters of the U.S. are described by US EPA and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). US EPA and the Corps define wetlands 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” (US EPA regulations at 40 CFR § 230.3(t); Corps’ regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the Corps’ 1987 Wetlands Delineation Manual (1987 Manual); the Corps’ 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional

Supplement); and supporting guidance documents. The geographic extent of other waters of the U.S. is defined by an ordinary high-water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)). The OHWM is defined by the Corps as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 C.F.R. §328.3(e)). Tidal waters are also under the jurisdiction of the Corps. The landward limits of jurisdiction in tidal waters extend to the high tide line...“or, when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters” (33 C.F.R. §328.4(b)) High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 C.F.R. §328.3(d)).

Clean Water Act-NPDES Requirements. In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related stormwater discharges under the NPDES Program. On November 16, 1990, the US EPA published final regulations that establish stormwater permit application requirements for specified categories of industries. The regulations provide that discharges of stormwater from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit.

The California State Water Resource Control Board (State Water Board) has developed a general construction stormwater permit to implement the requirements for the federal NPDES permit. The permit requires the submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan that specifies Best Management Practices (BMPs) that will prevent construction pollutants from entering stormwater and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that site design provides no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development (“LID”) design features. The Construction General Permit is implemented and enforced by California’s nine Regional Water Quality Control Boards (Water Boards).

The Water Boards have also adopted requirements for NPDES stormwater permits for medium and large municipalities, and the State Water Resources Control Board has adopted a General Permit for the discharge of stormwater from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan (SWMP) to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act. The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to be in danger of extinction, requires the

development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

The FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term “harm” in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Additionally, FESA prohibits the destruction or adverse modification of designated critical habitat. In the Service’s regulations at 50 CFR 402.2, destruction or adverse modification is defined as a “direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species”.

Critical Habitat is defined in Section 3 of ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and
2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features essential to the conservation of the species (16 USC 1533). Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

1. Space for individual and population growth and for normal behavior
2. Food, water, air, light, minerals, or other nutritional or physiological requirements
3. Cover or shelter
4. Sites for breeding, reproduction, or rearing (or development) of offspring
5. Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. If listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service, (NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating

whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the ESA provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

U.S. Fish and Wildlife Service Birds of Conservation Concern. The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA.” To meet this requirement, USFWS published a list of Birds of Conservation Concern (BCC) (USFWS 2008) for the United States. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS’ highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the U.S. Department of Interior’s Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or “incidental” taking or killing of migratory birds. In response to the Trump Administration’s attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on incidental take. Just days before leaving office, the Trump Administration finalized its pullback of MBTA regulations, despite the ruling of the federal court, and the elimination of protections pursuant to the MBTA went into effect in January of 2021. On his first day in office, new President Joe Biden placed the Trump Administration’s changes to the MBTA on hold, pending further review. The Biden Administration announced the repeal of the January 2021 changes and the reinstatement of protections for migratory birds in December of 2021.

Fish and Wildlife Coordination Act. The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state’s wildlife agency (California Department of Fish and Wildlife, CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and

Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

2.2 State Regulations

Section 401 of the Federal Clean Water Act/Porter-Cologne Water Quality Control Act. Pursuant to section 401 of the federal Clean Water Act, projects that require a Corps permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the State Water Board and its nine Regional Water Boards. A water quality certification from a Water Board must be consistent with not only the Clean Water Act, but with the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the SWRCB's requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States"; all surface waters that are not "waters of the United States, e.g., non-jurisdictional wetlands; groundwater; and the territorial seas.

The State Water Resources Control Board's State Wetland Definition and Procedures for Discharges of Dredge or Fill Material to Waters of the State adopted April 2, 2019 (the Procedures) along with the Implementation Guidance for the Procedures dated April 2020 (the Implementation Guidance) defines a wetland as an area that under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, states that the permitting authority (e.g. State Water Board or Regional Water Boards) shall rely on any wetland area delineation from a final aquatic resource report verified by the Corps. If the Corps does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters to Water Board staff during application review.

The Procedures, along with the Interim Guidance, also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any Waters of the State and include elements of the Clean Water Act Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to SWCQB's regulation of discharges of dredged or fill material to all waters of the state. Typically, the Corps requires a Clean Water Act 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.20 acres. The Procedures require an alternatives analysis to be completed in accordance with a three-tier system. The level of effort

required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The California State Water Resource Control Board has also developed a general construction storm water permit to implement the requirements of the federal National Pollution Discharge Elimination System (NPDES) permit. Projects approved by a Water Board must, therefore, include the preconstruction requirement for a Stormwater Pollution Prevention Plan and the post-construction requirement for a Stormwater Management Plan.

California Endangered Species Act. The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify “reasonable and prudent alternatives” to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that “overriding considerations” exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

The CESA generally prohibits the taking of state listed endangered or threatened plant and wildlife species, however, for projects resulting in impacts to state listed species, CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires that such projects implement an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy. CDFW requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures to fully mitigate impacts to State listed species. CDFW exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in state statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. CDFW cannot issue an ITP until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

California Department of Fish and Wildlife-Lake and Streambed Alteration Agreement. Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. CDFW cannot issue a Streambed Alteration Agreement

until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically defined by the Fish and Game Code but CDFW takes jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

California Fish and Game Code Special Protections for Birds. In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a number of sections that specifically protect certain birds.

- Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.
- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.
- Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.
- Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

California Department of Fish and Wildlife-Fish and Game Code Section 4150. Bats and other non-game mammals are protected in California. Section 4150 of the Fish and Game Code states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the Fish and Game Commission. Thus, destruction of an occupied, nonbreeding, bat roost, resulting in the death of bats, or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), is prohibited.

California Department of Fish and Wildlife Sensitive Plant Communities. CDFW has designated special status natural communities which are considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. Documentation pertaining to these communities, and special status species (including species of special concern), is kept by CDFW as part of the California Natural Diversity Data Base (CNDDDB). All known occurrences of sensitive habitats are mapped onto 7.5-minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDDB. Sensitive plant communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife- Species of Special Concern. CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of “Species of Special Concern” developed by the CDFW. Even though these species may not be formally listed under FESA or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife- Fully Protected Animal Species. The classification of Fully Protected was an effort by the State of California in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Species classified as Fully Protected Species by the CDFW may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

Native Plant Protection Act. The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to “preserve, protect and enhance rare and endangered plants in this state.” The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as “endangered” or “rare”. The NPPA prohibits the take of plants listed under the NPPA, but the NPPA contains a number of exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA.

2.3 Local Regulations

City of Healdsburg. The Healdsburg 2030 General Plan was adopted in 2009 and includes amendments through January 2015. It guides the physical development of the city and land outside city limits, and identifies the community’s environmental, social, and economic goals. The pertinent goals, policies and implementation measures of the Healdsburg General Plan that pertain to biological resources are listed below.

2.3.1 Natural Resources Goals and Policies.

The Natural Resources Element provides goals, policies, and implementation measures directed towards protecting and improving the City's water, agricultural, mineral, air, plant, wildlife, and scenic resources.

Goal NR-A: Improve water quality and flows in the Russian River, Dry Creek, and Foss Creek to protect the city's water supply, recreation, fish, and wildlife.

- Policy NR-A-2: The City will seek to minimize siltation, sedimentation, and pollution discharge into receiving waterways from construction activities and ongoing operations.
- Policy NR-A-3: The City strongly supports the maintenance of maximum summer flows in the Russian River to protect water quality and the recreational values of the Russian River.
- Policy NR-A-4: Land with important watershed values shall be designated for open space or very low-intensity uses.

GOAL NR-B Conservation and restoration of Healdsburg's native plants and wildlife, ecosystems, and waterways.

- Policy NR-B-1: Channel improvements to, and tree and brush clearance activities along Foss Creek shall not unnecessarily disturb riparian vegetation, shall seek to maintain and provide a sufficient shade canopy over the creek, and shall use plants and natural materials to the extent feasible in bank stabilization projects.
- Policy NR-B-2: Large, mature trees that contribute to the visual quality of the environment or provide important wildlife habitat shall be protected.
- Policy NR-B-3: New development shall be sited to maximize the protection of native tree species, riparian vegetation, important concentrations of native plants, and important wildlife habitat.
- Policy NR-B-4: The use of native tree species in landscaping and in the replanting of cut slopes is encouraged.

Goal NR-C: Preservation and enhancement of Healdsburg's natural setting.

- Policy NR-C-3: Development shall be allowed only in a manner that protects important views and landmarks such as Fitch Mountain, Russian River, and the foothills to the north, west and east of the city.
- Policy NR-C-6: Protection of distinctive natural vegetation such as oak woodlands, riparian corridors, and mixed evergreen forest is encouraged.

Goal NR-E: Reduce greenhouse gas emissions and increase energy efficiency communitywide.

- Policy NR-E-5: The City will encourage the use of large-scale trees in new development to lessen heat build-up from solar radiation.

2.3.2 Natural Resources Implementation Measures

Riparian Resources Protection

- Policy NR-1: Develop and apply standard mitigation measures and conditions of approval on development permits to reduce siltation, sedimentation and pollution discharge into receiving waterways, both pre- and post-construction.
- Policy NR-2: Continue to require Storm Water Pollution Plans (SWPPP) for development projects with a land disturbance of one acre or more that incorporate best management practices to preserve natural drainage systems; provide source control of construction site materials, wastes and chemicals; and control and treat runoff, both during and after construction.
- Policy NR-3: Prepare and distribute to the community guidelines that encourage the use of low impact development techniques to maintain or restore the natural hydrologic functions of a site by detaining water onsite, filtering out pollutants and facilitating the infiltration of water into the ground.
- Policy NR-4: Continue to enforce the riparian setback requirements of the Zoning Ordinance.
- Policy NR-5: Include the locations of identified wetlands in the City GIS database.
- Policy NR-6: Continue to promote the use of native plant species and the use of appropriate species in and adjacent to riparian habitat areas through implementation of Zoning Ordinance regulations and adopted design guidelines.
- Policy NR-9: Use native plant species in City landscaping projects to the maximum feasible extent.

2.3.3 City of Healdsburg Heritage Tree Ordinance.

The City of Healdsburg has an Ordinance protecting Heritage Trees. Such trees include any tree with a trunk that measures a diameter of 30 inches or greater measured at 24 inches above ground level (Land Use Code Chapter 20.24 § 2). A tree permit must be obtained from the City which authorizes the removal, relocation or specific work to be performed within the protected zone of a heritage tree, before performing any such tasks.

2.3.4 City of Healdsburg Zoning Ordinance- Riparian Setbacks.

The requirements for setbacks to protect rivers, creeks, and streams in the City of Healdsburg are defined in City Land Use Code Sections 20.24.085, 20.24.090, and 20.24.095:

Section 20.24.085 Applicability. These requirements apply to any structure or other form of development located on property adjacent to or near the Russian River, Foss Creek, or other stream or creek, except as provided in this section.

The requirements of this article shall not apply to public streets or utilities, flood control facilities, erosion control structures or creek bank stabilization improvements that have been approved as required by governmental agencies having jurisdiction over them.

Section 20.24.090 Riparian setback standards. No building, structure or permanent or temporary improvement, including, but not limited to, buildings of any type, garages, swimming pools and spas, parking lots (paved or unpaved), patios, platforms, decks, fences, liquid storage tanks, trash enclosures, mobile homes, retaining walls, debris, fill or trash shall be allowed within the following setbacks:

- Russian River: 100 feet
- Foss Creek: 35 feet
- All other streams and creeks: 25 feet

Setbacks shall be measured from the top of the existing bank. Where channel improvements are proposed, subject to the approval of a variance pursuant to this section, setbacks shall be measured from the top of the finished bank. Existing riparian vegetation within setback areas shall be maintained and protected from disturbance.

Section 20.24.095 Variances. Variances to the standards set forth in HMC 20.24.090 may be granted pursuant to Chapter 20.28 HMC, Article VI, where the provision of the required setback is infeasible. Where a variance is granted, and where creeks or other riparian habitats are impacted by proposed activities subject to the California Environmental Quality Act (CEQA), detailed riparian mitigation plans shall be prepared. Such plans shall be prepared by a licensed landscape architect or qualified field biologist and shall be based on guidelines maintained by the planning and building director. The goal of such mitigation plan is to ensure no net loss of acreage or of functional value of riparian habitat.

2.4 Other

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS 2024: <https://www.cnps.org/cnps/rareplants/inventory/>).

Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review, especially for those plant species included in California Rare Plant Ranks 1 and 2 (see below).

CNPS Rank	Status
California Rare Plant Rank 1A	Plants presumed extirpated in California and either rare or extinct elsewhere.
California Rare Plant Rank 1B	Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A	Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3	Plants about which more information is needed – a review list.
California Rare Plant Rank 4	Plants of limited distribution – a watch list.
Threat Code Extensions	
.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2	Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

The following link identifies the definitions of the CNPS listings:

<https://www.cnps.org/cnps/rareplants/ranking.php>

3.0 METHODS

Both desktop and field surveys were conducted. The following describes how special-status species and sensitive natural communities are defined, and methods used to assess their potential to be present on the Project Site.

3.1 Definitions

3.1.1 Special Status Species

CEQA requires that impacts to special status species be considered and evaluated under CEQA. Special status species include plants or animals that:

1. are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA).
2. are listed or are candidates for future listing as threatened or endangered under the California ESA.
3. meet the definitions of endangered or rare under § 15380 of the CEQA Guidelines.
4. are plants listed as rare under the California Native Plant Protection Act (NPPA) (California Fish and Game Code, § 1900 et seq.).
5. are considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California", "plants about which more information is needed", or "plants of limited distribution – a watch list" (i.e., species with a California Rare Plant Rank [CRPR] of 1A,1B, 2A, or 2B).
6. are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).
7. are identified as a species of special concern (SSC) by the California Department of Fish and Wildlife (CDFW).
8. are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS).

3.1.2 Sensitive Natural Communities

CEQA requires that impacts to sensitive natural communities be considered and evaluated under CEQA. Sensitive natural communities are plant communities which CDFW designates as sensitive which are considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities also include those plant communities identified in local or regional plans, policies, ordinances, regulations, or by CDFW as those communities that provide special functions or values. CDFW identifies sensitive plant communities on their *List of California Natural Communities* and records their mapped presence as part of the information documented within the CNDDDB. The mapped information in the CNDDDB provides a general location of sensitive plant communities and sensitive natural community types.

3.2 Desktop Review

The following information sources were reviewed to develop relevant environmental and biological information for determining if special-status species, critical habitat, and sensitive natural communities that had been previously documented on or within a 10-mile vicinity of the Project Site:

- Aerial imagery available online from Google Earth Pro
- Watershed mapping National Hydrography Dataset (NHD) HUC 8 and HUC 12 available online from the US Geological Survey (USGS)
- National Wetlands Inventory mapping available online from the US Fish and Wildlife Service (USFWS)
- Custom Soil Resources Report available online from Natural Resources Conservation Service (NRCS)
- Flood Insurance Rate Map available online from the Federal Emergency Management Agency (FEMA)
- 1:24,000 scale topographic mapping available online from the USGS
- LIDAR data based topographic mapping for the Project Site available online from Sonoma County
- Vegetation Mapping available online from Sonoma County
- California Wildlife Habitat Relationship System (CHWR)
- Precipitation and temperature data from NRCS *Climate Analysis for Wetlands Tables* based on the nearest NRCS WETS Station
- California Natural Diversity Database (CNDDDB) search for the Project Site 7.5-minute quadrangle and the eight surrounding USGS quadrangles available online from the California Department of Fish and Wildlife (CDFW)
- Information for Planning and Consultation (IPaC) data base available online from the USFWS
- National Marine Fisheries Service (NMFS) list of species and other resources under NMFS jurisdiction that are known or expected to be on or near the Project area
- Electronic Inventory of Rare and Endangered Plants of California for the Project Site 7.5-minute quadrangle and the eight surrounding USGS quadrangles available online from the CNPS.

3.3 Field Surveys

The Project Site was visited on several occasions by professional biologists to develop information regarding general ecological conditions and potential presence/absence of special status plant and animal species and sensitive natural communities to include aquatic resources. These studies/biological surveys are summarized below.

Plant and Wildlife Surveys. Plant and wildlife species and habitat surveys were conducted on the Project Site by Gary Deghi of HBG on February 28, March 21, and June 12, 2024. In addition, Greg Huffman and Agie Gilmore of HBG conducted a tree survey at the site on February 27 and 28, 2024. To determine if sensitive natural communities occur within the Project Area, a detailed floristic inventory was prepared based on CNPS relevé plot sampling. Wildlife observations in the Project Area were

based on visual sightings and observations of tracks, dens, and scat. Trees surveyed in the Project Site were measured at a height of 24 inches above ground level. Any tree having a diameter of 30 inches or more was considered a Heritage Tree and was mapped utilizing ESRI Field Maps in conjunction with a Trimble DA2 GPS receiver.

Aquatic Resources Survey. Wetland Scientist Greg Huffman and Environmental Scientist Agie Gilmore of HBG conducted field investigations on February 27 and 28, 2024 to identify and map aquatic resources meeting the definition of Waters of the United States (WOTUS) (33 CFR § 328.3 (a)), including wetlands (33 CFR § 328.3 (a)(4)), potentially regulated by the Corps and USEPA under Section 404 of the CWA. Potential WOTUS were identified and delineated using the Corps' *1987 Wetlands Delineation Manual* (Corps Delineation Manual) and the Corps' *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Regional Supplement) and supporting guidance documents. The Regional Supplement was followed when determining the presence or absence of vegetation, soil, and hydrology indicators. Ordinary High Water Mark identification and delineation followed the methods described in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual*.

HBG also assessed the Project Area on February 27 and 28, 2024 to determine the presence of Waters of the State (WOTS) in accordance with the April 2, 2019, *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, also referred to as the "Procedures" and, therefore, potentially regulated under the Porter-Cologne Water Quality Control Act by the North Coast Water Regional Water Quality Control Board (Water Board). Additionally, HBG evaluated the Project Area to determine the presence or absence of lakes or streams potentially subject to regulation under Fish and Game Code Section 1602 by CDFW's Lake and Streambed Alteration Agreement Program (LSAA Program).

The findings of these biological surveys have been incorporated into this BRA in Section 4.0.

3.4 Potential Presence Assessment

Based on species occurrence information provided by the CNDDDB and IPaC databases, special plant and animal species were summarized in table format (Appendix B) with listing status information together with descriptions of macro and micro habitat requirements. Using the criteria listed below, each plant and animal species and community listed was then evaluated as to its potential for being present on the Project Site (Section 4.2). The evaluation was based on an assessment of information obtained relevant to the Project Site and vicinity which included: (1) general ecological information regarding land use, climate, topographic, soils, hydrology, and vegetation type and animal species typically associated with the existing Project Site; and (2) specific technical information regarding listed plant and animal species distribution range, habitat, and known threats together with onsite general level plant, wildlife, and aquatic resource surveys (Section 4.2.1 and 4.2.2). Sensitive natural communities mentioned in the CNDDDB are also discussed in Section 4.2.3.

No Potential: Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology,

plant community, site history, disturbance regime).

Unlikely: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present: Species is observed on the site or has been recorded (i.e., CNDDDB, other reports) on the site recently.

If determined potentially present, the plant species, animal species, and/or sensitive natural community was evaluated to determine if the Project would have a substantial adverse effect, either directly or through habitat modifications and, if necessary, recommend action(s) either before or after proposed project approval, but prior to ground-disturbing activities (also provided in Section 5.0).

4.0 RESULTS

4.1 Site Characteristics

4.1.1 Land Use

The proposed Project Site is Badger Park, a park owned and operated by the City of Healdsburg. Adjacent land uses to the west, north, and east of the Badger Park Project Site consist of single-family residential land uses. The Project Site is bordered to the south by the Russian River. Current land uses within the Project Site consist of a variety of recreational uses including play fields, sports courts, a children’s tot-lot, a dog play area, a community garden, picnic areas, and ad hoc trails into the woodlands.

4.1.2 Topography and Soils

The Project Site, and the intermediate surrounding area, consists of relatively flat to gently rolling landscapes. The topography, which varies at elevations between approximately 78 to 100 feet NAVD 88, is shown in the Healdsburg USGS 7.5-minute quadrangle topographic map in Appendix A, Figure 2b and 3b.

Soil survey information for the Review Area was obtained from the National Resources Conservation Service Web Soil Survey (NRCS 2023) (Appendix A, Figure 5). Four (4) different soil types are mapped by NRCS within the Project Site as described in the table below.

Table 1. Summary of Pertinent Characteristics of Soils Mapped Onsite by NRCS					
Soil Name	Landform/Parent Material	Typical Profile (inches)	Natural Drainage Class/Runoff Class	Depth to Water Table	Frequency of Flooding/Ponding
Pleasanton loam, 0 to 2 percent slopes, MLRA 14	Alluvial fans / Alluvium derived from sedimentary rock	Ap - 0 to 5 inches: loam A - 5 to 18 inches: loam Bt1 - 18 to 23 inches: clay loam Bt2 - 23 to 44 inches: fine gravelly clay loam Bt3 - 44 to 66 inches: fine gravelly sandy clay loam	Well drained / n/a	More than 80 inches	None/None
Pleasanton gravelly loam, 2 to 5 percent slopes	Terraces, alluvial fans / Alluvium derived from sedimentary rock	H1 - 0 to 27 inches: gravelly loam H2 - 27 to 72 inches: gravelly clay loam	Well drained / low	More than 80 inches	None/None
Riverwash	Flood plains / Sandy and gravelly alluvium	H1 - 0 to 6 inches: very gravelly sand H2 - 6 to 60 inches: stratified very gravelly coarse sand to very gravelly sand	Excessively drained / Negligible	~ 0 inches	Frequent / n/a
Yolo sandy loam, 0 to 2 percent slopes	Alluvial fans / Alluvium derived from sedimentary rock	H1 - 0 to 15 inches: sandy loam H2 - 15 to 60 inches: loam	Well drained/ Low	More than 80 inches	None/ None

4.1.3 Climate

Based on WETS Station “HEALDSBURG, CA” precipitation and temperature data for the period of record (1971 – 2022), the average annual precipitation amount received approximately 6.5 miles from the site is 41.67 inches received as rainfall and 0.00 inch received as snow. The average minimum and maximum precipitation amount ranges between 0.05 and 8.08 inches. The wettest months, in which average monthly rainfall exceeds 7.00 inches, are January, February, and December (8.01, 7.78, and 8.08 inches) with the lowest average amount occurring in July and August (0.05 and 0.09 inches). Record data also indicates that the annual average daily temperature is 60.6 ° F. Average high and low temperatures range between 74.1 ° F and 47.0 ° F with the coldest months typically including January and December where temperatures are in the upper 30s and the hottest months being July and August where temperatures are in the lower 70s. The annual growing season with a 50% probability of having days above 32° F is 302 days (February 7 to December 6), and, with a 70% probability of having days above 32° F, is 321 days (January 29 to December 16).

4.1.4 Hydrology

Watersheds. A review of the US Geological Survey (USGS) National Hydrography Dataset (NHD) Hydrologic Unit Code (HUC) data shows that the Project Site lies within the 10-digit HUC (1801011006) (Appendix A, Figure 6) “Middle Russian River” watershed and the 12-digit HUC (180101100605) “Brooks Creek-Russian River” subwatershed (Appendix A, Figure 7).

Direction of Surface Water Flow. Surface water that flows within the Project Site is the direct result of precipitation and associated stormwater runoff. This stormwater is collected by an incised natural drainage which directs flows to the southern edge of the Project Site. Streamflow from the Project Site travels south-southwesterly towards and into the Russian River. Russian River surface flows run into the Pacific Ocean.

FEMA. FEMA Flood Insurance Rate Map for “Sonoma County” 06097C0551E (Effective Date: 12/2/2008) indicates the Project Site is within FEMA zoning associated with an annual chance flood hazard (AE: 1% Annual Chance Flood Hazard; and Regulatory Floodway) (Appendix A, Figure 8).

4.1.5 Plant Communities

General Classification. Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Vegetation communities and habitats at the Project Site were identified based on the currently accepted List of Natural Communities (CDFW 2010). The list is based on A Manual of California Vegetation, Second Edition (Sawyer et al 2009), which is the National Vegetation Classification applied to California. Vegetation communities and habitats at the project site were also identified using the California Wildlife Habitat Relationships (CWHR) classification (Mayer and Laudenslayer 1988), which defines aquatic as well as terrestrial habitats including urban areas. The CWHR habitat classification scheme was developed to provide a systematic method for describing how habitats and structures support California's regularly occurring birds, mammals, reptiles, and amphibians. At present, there are 59 wildlife habitats in the CWHR System: 27 trees, 12 shrubs, 6 herbaceous, 4 aquatic, 8 agricultural, 1 developed, and 1 non-vegetated.

Wetland habitats potentially subject to federal or state jurisdiction were further classified using the U.S. Fish and Wildlife Service's (USFWS) Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979, see wetland delineation discussion in Section 4.1.7).

Based on Sonoma County vegetation mapping and results of field surveys conducted by HBG, the Project Site contains six plant communities or habitat types: (1) Valley Foothill Riparian, (2) Coastal Oak Woodland, (3) Valley Oak Woodland, (4) Non-native Annual Grassland, (5) Urban, and (6) Riverine (the portion of the site that is within the Russian River). . Summary descriptions of these plant communities/habitat types on the Project Site follows.

A list of plant species observed on the Project Site during field reviews conducted in February, March, and June of 2024 is included in Appendix B, Table 1. A general map of plant communities on the project site based on mapping by Sonoma County and available online is shown in Appendix A, Figure 4.

Valley Foothill Riparian (9.5 acres)

Structure. Mature riparian ecosystems include canopy trees with a canopy cover of 20 to 80 percent, a subcanopy tree layer and an understory shrub layer. Generally, the understory is impenetrable and includes fallen limbs and other debris. In the CDFW List of Natural Communities, the area mapped as Valley Foothill Riparian within the floodplain of the Russian River and dominated by willow trees would be referred to as North Coast Riparian Scrub.

Composition. The Valley Foothill Riparian habitat on the Project Site consists of the forested area between the developed portion of Badger Park and the Russian River. Dominant species in the canopy layer of the on-site riparian habitat include arroyo willow (*Salix lasiolepis*), black cottonwood (*Populus trichocarpa*), box elder (*Acer negundo*), and a lesser number of other native trees such as California bay (*Umbellularia californica*), Coast live oak (*Quercus agrifolia*), bigleaf maple (*Acer macrophylla*), Oregon ash (*Fraxinus latifolia*), and blue elderberry (*Sambucus cerulea*). The canopy layer of this habitat on the project site also includes a considerable number of non-native tree privet (*Ligustrum lucidum*) and a single Canary Island palm (*Phoenix canariensis*).

The understory of the extensive Valley Foothill Riparian habitat within the park is thick growth of mostly non-native plants that includes species such as greater periwinkle (*Vinca major*), English ivy (*Hedera helix*), poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), giant reed (*Arundo donax*), blue lily (*Agapanthus praecox*), purple dead nettle (*Lamium purpureum*), curly dock (*Rumex crispus*), and sour grass (*Oxalis pes-caprae*), but also native species such as Witch grass (*Panicum capillare*), California blackberry (*Rubus ursinus*), common bedstraw (*Gallium aparine*), California bee plant (*Scrophularia californica*), and water sedge (*Carex aquatilis*). Plant species growing along the edge of the riparian habitat closest to the mowed play fields included fruit trees (*Prunus* sp.), tree privet, French broom (*Genista monspessulana*), California blackberry, and lemon balm (*Melissa officinalis*).

An unnamed creek enters the site near the northeast corner of the site within the Valley Oak Woodland, runs along the northern border of Badger Park (between Badger Park and Heron Drive), and traverses south through the Coastal Oak Woodland and Valley Foothill Riparian areas of the site before emptying into the Russian River near a large clump of arroyo willows at the southwest corner of the

site. Tree canopy within and along the banks of this stream is mainly arroyo willow, tree privet, blue elderberry, Coast live oak, and a few Valley oak (*Quercus lobata*), and with an understory consisting mainly of California blackberry.

Coastal Oak Woodland (1.21 acres)

Structure. The overstory of Coastal Oak Woodlands consists of deciduous and evergreen hardwoods (mostly oaks), sometimes mixed with scattered conifers. In mesic sites, the trees are dense and form a closed canopy. In drier sites, the trees are widely spaced, forming an open woodland or savannah. The understory is equally variable. In some instances, it is composed of shrubs from adjacent chaparral or coastal scrub which forms a dense, almost impenetrable, understory. More commonly, shrubs are scattered under and between trees. Where trees form a closed canopy, the understory varies from a lush cover of shade-tolerant shrubs, ferns, and herbs to sparse cover with a thick carpet of litter. When trees are scattered and form an open woodland, the understory is grassland, sometimes with scattered shrubs. The interrelationships of slope, soil, precipitation, moisture availability, and air temperature cause variations in the structure of Coastal Oak Woodlands. These factors vary along the latitudinal, longitudinal, and elevational gradients over which Coastal Oak Woodlands are found.

Composition. The Coastal Oak Woodland on the Project Site is continuous with the Valley Foothill Riparian habitat but is found further inland from the Russian River. Tree canopy composition of Coastal Oak Woodlands on the Project Site is dominated by Coast live oak, with several California buckeye (*Aesculus californica*) and a large numbers of non-native tree privet. Typical understory plants in the onsite Coast Live Oak Woodlands include California blackberry, English ivy, elderberries, poison oak (*Toxicodendron diversiloba*), and multiflora rose (*Rosa multiflora*), among others.

Valley Oak Woodland (0.38 acres)

Structure. Valley Oak Woodland varies from savanna-like to forest-like stands with partially closed canopies, comprised mostly of winter-deciduous, broad-leaved species. Denser stands typically grow in valley soils along natural drainages. Tree density decreases with the transition from lowlands to the less fertile soils of drier uplands. Similarly, the shrub layer is best developed along natural drainages, becoming insignificant in the uplands with more open stands of oaks. Valley oak stands with little or no grazing tend to develop a partial shrub layer of bird disseminated species, such as poison-oak, toyon (*Heteromeles arbutifolia*), and coffeeberry (*Frangula californica*). Ground cover consists of a well-developed carpet of annual grasses and forbs. Mature valley oaks with well-developed crowns range in height from 15 to 35 m (49 to 115 ft)

Composition. The Valley Oak Woodland on the Project Site consists of a patch of this habitat at the northern end of the Project Site between the Badger Park parking lot and Heron Drive. A small stream enters this habitat through a culvert under the park entrance road and continues west into the Coastal Oak Woodland and then south into the Riparian habitat before emptying into the Russian River near the southwest corner of the site. The dominant canopy tree in this patch of Valley oak habitat is valley oak, but other trees such as native Coast live oak and arroyo willow and non-native tree privet are also present, especially along the small stream. Typical understory plants include California blackberry, English ivy, and poison oak, along with grasses such as wild oat (*Avena fatua*), rattlesnake grass (*Briza maxima*), foxtail barley (*Hordeum murinum*), rigput brome (*Bromus diandrus*), and others.

Urban (5.95 acres)

Structure. The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves, common in city parks, green belts, and cemeteries, vary in height, tree spacing, crown shape, and understory conditions, depending upon the species planted and the planting design. The juxtaposition of urban vegetation types within cities produces a rich mosaic with considerable edge areas. The overall mosaic may be more valuable as wildlife habitat than the individual units in that mosaic.

Composition. The Urban habitat on the Project Site consists primarily of the developed portions of the Project Site (including the play fields, tot-lot, parking lot and other amenities where some remnant native trees may be present but where most vegetation consists of non-native species or plants used in landscaping), the community garden, and an adjacent small field of non-native grasses and herbaceous species that is considered a ruderal habitat. The composition of the vegetation within the Urban habitat is discussed below, however, investigators did not attempt to catalog vegetation within the community garden as the Project proposes no change to the community garden.

The area of the parking lot is mostly paved, but trees are planted within islands and medians consisting mostly of common hackberry (*Celtis occidentalis*) and with Empress tree (*Paulownia tomentosa*) planted along the edge of the dog park. Several Coast redwood trees (*Sequoia sempervirens*) have been planted in the southeast corner of the parking lot. The tot-lot was apparently constructed in a small area of native Valley oaks as tree canopy in this area consists of several remnant valley oak trees. Other landscaping in this area includes attractive species such as Chinese fringe flower (*Loropetalum chinense*). The Urban habitat also includes the mowed grassy fields that are used as play fields and the dog park. These areas were freshly mowed at the time of the field reviews, but grasses and herbaceous plants identifiable along the edges of these areas revealed that vegetation is non-native grass species such as wild oat, ripgut brome, foxtail barley, perennial ryegrass (*Festuca perennis*), and Kentucky bluegrass (*Poa pratensis*), and common non-native herbaceous species (or forbs) such as spring vetch (*Vicia sativa*), redstem filaree (*Erodium cicutarium*), cut-leaf geranium (*Geranium dissectum*), dandelion (*Taraxicum officinale*), bristly ox-tongue (*Helminthotheca echioides*), bull mallow (*Malva nicaeensis*), bur clover (*Medicago polymorpha*), and white clover (*Trifolium repens*).

Non-Native Annual Grassland (0.73 acres)

Structure. Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Annual Grassland habitats are open grasslands composed primarily of annual plant species. Many of these species also occur as understory plants in woodlands and other habitats. Structure in Annual Grassland depends largely on weather patterns and livestock grazing. Dramatic differences in physiognomy, both between seasons and between years, are characteristic of this habitat. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring, when temperatures increase and stimulate more rapid growth. Large amounts of standing dead plant material can be found during summer in years of abundant rainfall and light to moderate grazing pressure. Heavy spring grazing favors the growth of summer-annual forbs and reduces the amount of standing dead material. Grasslands, in general, are of conservation concern nationwide due to the loss of these habitats with conversion to agriculture and urban development.

Composition. The annual grassland area on the Project Site consists of a ruderal field vegetated primarily with non-native weedy species in the eastern portion of the project area between the community garden and the forest habitat along the river. This ruderal field is not mowed. Vegetation includes the non-native grasses and forbs found in the play fields such as wild oat, riggut brome, foxtail barley, spring vetch, dandelion, and cut-leaf geranium, but also species such as curly dock, greater periwinkle, bedstraw, Harding grass (*Phalaris aquatica*), wild radish (*Raphanus sativa*), pennyroyal (*Mentha spicata*), and Himalayan blackberry (*Rubus armeniacus*), purple salsify (*Tragopogon porrifolius*), chicory (*Cichorium intybus*), and other larger plants such as non-native sweet fennel (*Foeniculum vulgare*) and poison hemlock (*Conium maculatum*), and native California blackberry.

Riverine (0.87 acres)(portion of the site within the Russian River)

Structure. Intermittent or continually running water distinguishes rivers and streams. A stream originates at some elevated source, such as a spring or lake, and flows downward at a rate relative to slope or gradient and the volume of surface runoff or discharge. Velocity generally declines at progressively lower altitudes, and the volume of water increases until the enlarged stream finally becomes sluggish. Over this transition from a rapid, surging stream to a slow, sluggish river, water temperature and turbidity will tend to increase, dissolved oxygen will decrease, and the bottom will change from rocky to muddy. Riverine systems are often lacking in vegetation.

4.1.6 Animal Populations

General Characteristics of Onsite Habitats. The habitats on site and in the surrounding area support many wildlife species, mostly those typically found in disturbed forested habitats, wetlands, and urban habitats in this part of Sonoma County. Trees and other vegetation within forested habitats on the property generally provide shelter and cover for a variety of amphibians, reptiles, birds, and mammals and provide foraging and breeding habitat for a variety of aquatic and terrestrial wildlife species.

Riparian habitats provide food and water sources, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. They also provide breeding sites for amphibians and feeding areas for larger mammals such as deer. Canopy riparian trees and other vegetation provide nesting substrates for a number of bird species and foraging areas for both migratory and resident species. Well-developed riparian canopies also provide significant habitat in support of neotropical migrant land birds during spring and fall migration. The canopy vegetation provides shading and inputs of leaves and woody material to stream channels that provides suitable conditions for many aquatic organisms, including fish, that in Sonoma County can include species of anadromous salmonids. Fresh Emergent Wetlands are present within the Valley Foothill Riparian habitat and are among the most productive wildlife habitats in California.

Coastal Oak and Valley Oak Woodlands also provide food and cover for many species of wildlife. Many species of mammals, birds, reptiles, and amphibians are specifically adapted to life in oak woodlands. Oaks have long been considered important to some birds and mammals as a food resource (i.e., acorns and browse). Cavities in mature trees oak woodlands and riparian habitats may serve as nesting sites for cavity nesting birds and may serve as winter or maternity roost sites for various species of bat. The adjacent Russian River is a significant feature adjacent to the Project Site. In general, depending on the amount of water in a riverine system, streams provide suitable habitat for a variety of insects and

amphibian species, and provides a source of water for reptiles, amphibians, and mammals, and foraging habitat for birds adapted to aquatic habitat such as waterfowl, waterbirds and shorebirds. In areas of open water, insectivorous birds such swallows and some flycatchers will hawk for prey during the spring and summer. The Russian River supports a variety of fish species, including populations of special status anadromous fish including coho salmon and steelhead (see Section 4.2.2).

Animal Populations at the Project Site. The Russian River and adjacent riparian forest within the Project Site boundary provide wildlife habitat that includes a water source and that serves as a movement/migration corridor and foraging and breeding habitat for a variety of aquatic and terrestrial wildlife species. The Valley Foothill Riparian area in the southern portion of the Project Site is part of a wildlife corridor extending along the Russian River. An unnamed stream traverses the northern end of the site within the Valley Oak Woodland before passing through the Coastal Oak Woodland and Valley Foothill Riparian habitats and then emptying into the Russian River at the southwest corner of the site. This stream is also a wildlife corridor but at a smaller scale. Many of the trees in the Valley Foothill Riparian and Coastal Oak and Valley Oak Woodland habitats at the site are old enough to have significant cavities that could support cavity nesting birds or could serve as either winter or maternity roosts for various species of bat. All bat species and bat roosts are protected under California Fish and Game Code Section 4150.

The aquatic environments on the Project Site are particularly suitable as breeding habitat for various species of amphibian that would be expected to include species such as Pacific chorus frog (*Pseudacris regilla*), California slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), and western toad (*Anaxyrus boreas*), among others. Western fence lizards (*Sceloporus occidentalis*) were common in developed portions of the park; other common reptiles could include southern alligator lizard (*Elgaria multicarinatus*), Pacific gopher snake (*Pituophis catenifer*), and common garter snake (*Thamnophis sirtalis elegans*). Mammals observed at the Project Site during the field review included western gray squirrels (*Sciurus griseus*) within the forested habitats. Other mammals expected at the site, especially near developed park facilities, would include Virginia opossum (*Didelphis virginiana*), Botta's pocket gopher (*Thomomys bottae*), Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), deer mouse (*Peromyscus maniculatus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and mule deer (*Odocoileus hemionus*).

HBG's wildlife biologist observed 50 avian species at the site during February 28, March 21, and June 12, 2024, field reviews. The biologist developed an eBird checklist of all birds observed during the field reviews (See Appendix B, Table 2). Most of the bird species observed during February and March would be either permanent residents or winter visitors that could remain on the site during spring and summer to nest, but those observed during the June review are mostly likely species nesting at the site or in the immediate vicinity. .

The greatest diversity of avian species was noted in the Valley Foothill Riparian habitat between the developed portions of the park and the Russian River where trees and shrubs provide suitable habitat. Bird species observed in this area included Anna's hummingbird (*Calypte anna*), red-shouldered hawk (*Buteo lineatus*), osprey (*Pandion haliaetus*), hairy woodpecker (*Dryobates villosus*), black phoebe (*Sayornis nigricans*), western flycatcher (*Empidonax difficilis*), California scrub-jay (*Aphelocoma*

californica), chestnut-backed chickadee (*Poecile rufescens*), tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*), bushtit (*Psaltriparius minimus*), ruby-crowned kinglet (*Regulus calendula*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), hermit thrush (*Catharus guttatus*), Swainson's thrush (*Catharus ustulatus*), American robin (*Turdus migratorius*), cedar waxwing (*Bombycilla cedrorum*), lesser goldfinch (*Spinus psaltria*), white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), fox sparrow (*Passerella iliaca*), spotted towhee (*Pipilo maculatus*), yellow-rumped warbler (*Setophaga coronata*), and black-headed grosbeak (*Pheucticus melanocephalus*). Avian diversity was generally greatest in the riparian habitat immediately along the Russian River and along the stretch of creek that passes through the Coastal Oak Woodland and Valley Foothill Riparian habitats before emptying into the Russian River at the southwest corner of the site in the vicinity of the willow island.

Additional bird species were seen in the Coastal Oak Woodland including acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Dryobates nuttallii*), downy woodpecker (*Dryobates pubescens*), Northern flicker (*Colaptes auratus*), Hutton's vireo (*Vireo huttoni*), Steller's jay (*Cyanocitta stelleri*), oak titmouse (*Baeolophus inornatus*), white-breasted nuthatch (*Sitta carolinensis*), brown creeper (*Certhia americana*), western bluebird (*Sialia mexicana*), dark-eyed junco (*Junco hyemalis*), California towhee (*Melospiza crissalis*), Townsend's warbler (*Setophaga townsendi*), and western tanager (*Piranga ludoviciana*). Mallard (*Anas platyrhynchos*), common merganser (*Mergus merganser*), and killdeer (*Charadrius vociferus*) were observed within the Russian River or along its banks. All active nests of bird species mentioned above are protected by the Migratory Bird Treaty Act and California Fish and Game Code. Sections 3503, 3505, and 3513. Bird species not covered by the MBTA and Fish and Game Code would include introduced non-native species such as European starling (*Sturnus vulgaris*), rock pigeon (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), and house sparrow (*Passer domesticus*), which all likely occur at the site. Many of the bird species observed during the February and March surveys could remain on the site to nest. Bushtit, oak titmouse, and Bewick's wren were all observed carrying nesting material during the March 21, 2024, survey, evidence that these species nest within the forested areas on the site. Several nesting pairs of western bluebirds were observed in developed portions of the park carrying food for young during the June survey. Any of the species observed during the June survey likely nest on the site or in the immediate vicinity, including the neotropical migrants observed in the field (western flycatcher, Swainson's thrush, western tanager, and black-headed grosbeak). Other nesting neotropical migrants could include warbling vireo (*Vireo gilvus*), Bullock's oriole (*Icterus bullockii*), and Wilson's warbler (*Cardellina pusilla*).

4.1.7 Wetlands

An area totaling 3.07 acres of aquatic resources was identified and delineated by HBG during field surveys conducted on February 27 and 28, 2024 (see technical report included as Appendix D). More specifically, using the USFWS classification system (Cowardin et al 1979), the wetland aquatic resources consisted of Riverine Lower Perennial (1.51 acres), Riverine Intermittent (0.14 acre), and Palustrine Forested (1.42 acres) (Appendix A, Figures 9, 10, and 11).

Mazor, R.D., et al. (2021) define intermittent and perennial flows¹ as follows:

Intermittent reaches are channels that contain sustained flowing surface water for only part of the year, typically during the wet season, where the streambed may be below the water table and/or where the snowmelt from surrounding uplands provides sustained flow. The flow may vary greatly with stormwater runoff.

Perennial reaches are channels that contain flowing surface water continuously during a year of normal rainfall, often with the streambed located below the water table for most of the year. Groundwater typically supplies the baseflow for perennial reaches, but the baseflow may also be supplemented by stormwater runoff and/or snowmelt.

All of the 3.07 acres of aquatic resources meet the definition of WOTUS (33 CFR § 328.3 (a)) and therefore are potentially subject to Corps and USEPA jurisdiction under Section 404 of the CWA (Table 2). In addition, 4.79 acres of non-wetland areas were observed below ordinary high water (Appendix A, Figure 9). All 7.86 acres of aquatic resources (WOTUS wetlands/non-wetlands) meet the Water Board's definition of wetlands and are subject to jurisdiction as WOTS under the Porter-Cologne Water Quality Control Act (Table 3). In addition, 0.86 acres of non-wetland stream channel (to the top of the stream bank) is also potentially considered an "other WOTS" subject to Porter-Cologne Water Quality Control Act jurisdiction (Appendix A, Figure 10). The above-described wetland aquatic resources and non-wetlands would be potentially considered as a streambed under the CDFW's LSAA Program and subject to regulation under Fish and Game Code Section 1602 (Table 3) (Appendix A, Figure 11).

Table 2. Summary of the Types of Aquatic Resource Habitats Identified Within the Review Area and Analysis for Why They are Potentially Subject to CWA Section 404 Jurisdiction, Size, and Cowardin Classification, Badger Park, Healdsburg, California

Aquatic Resource ID #	Aquatic Habitat Type	WOTUS Definition Met?	Description of Relevant 33 CFR 328.3 WOTUS Definition	Size		Cowardin Classification ¹
			and Analysis	Acres	Linear Ft	
R1	Tributary	Yes	R1 meets the WOTUS definition of an A1 Water which is defined by 33 CFR 328.3 as (a)(1) <i>Traditional navigable waters, the territorial seas, and interstate waters.</i> Analysis: The Russian River is a perennial stream that is "navigable in fact".	1.514	1085	Lower Perennial, Riverine

¹ National Hydrography Dataset (NHD) stream permanence classifications (SPC; perennial, intermittent, and ephemeral) are widely used for data visualization and applied science and have implications for resource policy and management. NHD SPC were assigned using a combination of topographic field surveys and interviews with local residents. However, previous studies indicate that non-NHD, in situ streamflow observations (NNO) frequently disagree with NHD SPC (Konrad Hafen, et. al., 2020).

Table 2. Summary of the Types of Aquatic Resource Habitats Identified Within the Review Area and Analysis for Why They are Potentially Subject to CWA Section 404 Jurisdiction, Size, and Cowardin Classification, Badger Park, Healdsburg, California

Aquatic Resource ID #	Aquatic Habitat Type	WOTUS Definition Met?	Description of Relevant 33 CFR 328.3 WOTUS Definition	Size		Cowardin Classification ¹
			and Analysis	Acres	Linear Ft	
R2, R3, R4, R5, R6, and R7	Tributary	Yes	R2, R3, R4, R5, R6, and R7 are intermittent streams that meet the WOTUS definition of Jurisdictional Tributaries which are defined by 33 CFR 328.3 as <i>(a)(3) jurisdictional Tributaries of waters identified in paragraph (a)(1) or (a)(2) of this section that are relatively permanent, standing or continuously flowing bodies of water; [i.e., Jurisdictional Tributaries].</i> Analysis: R2, R3, R4, R5, R6, and R7 are relatively permanent, standing or continuously flowing bodies of water. These tributaries have ephemeral flows resulting from stormwater flow generating precipitation events, groundwater discharge, and high water table.	0.135	1427	Intermittent, Riverine
W1, W2, W3, and W4	Wetland	Yes	W1, W2, W3, and W4 are Wetlands which are defined by 33 CFR 328.3 as (a)(4) and are adjacent to the following waters: (i) Waters identified in paragraph (a)(1) of this section; or (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters; [i.e., Jurisdictional Adjacent Wetlands] Analysis: W1, W2, W3, and W4 are adjacent to an (a)(1), (a)(2), or (a)(3) water.	1.417	n/a	Forested, Palustrine
U1, U2, U3, U4, U5	Non-Wetland/Other Waters	No	Are part of the R2, R3, R4, R5, R6, and R7 tributaries described above.	4.79	n/a	Upland Below Ordinary High Water
Total				7.86	1,427	

Table 3. Summary of the Types of Aquatic Resources Identified Within the Review Area that are Potentially Subject to Water Board and CDFW Jurisdiction, Badger Park, Healdsburg, California

Aquatic Resource ID #	Aquatic Resource Type		Size		Cowardin Classification ¹
	Water Board WOTS	CDFW	Acres	Linear Feet	
R1	Streambed/Wetland	Streambed	1.514	1085	Lower Perennial, Riverine
R2	Streambed/Wetland	Streambed	0.065	759	Intermittent, Riverine

Table 3. Summary of the Types of Aquatic Resources Identified Within the Review Area that are Potentially Subject to Water Board and CDFW Jurisdiction, Badger Park, Healdsburg, California

Aquatic Resource ID #	Aquatic Resource Type		Size		Cowardin Classification ¹
	Water Board WOTS	CDFW	Acres	Linear Feet	
R3	Streambed/Wetland	Streambed	0.05	430	Intermittent, Riverine
R4	Streambed/Wetland	Streambed	0.004	127	Intermittent, Riverine
R5	Streambed/Wetland	Streambed	0	16	Intermittent, Riverine
R6	Streambed/Wetland	Streambed	0.001	15	Intermittent, Riverine
R7	Streambed/Wetland	Streambed	0.015	79	Intermittent, Riverine
W1	Wetland	Streambed	1.333	n/a	Forested, Palustrine
W2	Wetland	Floodplain*/Wetland	0.006	n/a	Forested, Palustrine
W3	Wetland	Streambed	0.076	n/a	Forested, Palustrine
W4	Wetland	Streambed	0.003	n/a	Forested, Palustrine
U1-U5	Other Water*	Floodplain*	5.65	n/a	Upland Below Ordinary High Water
Total			8.72	2,511	

¹ Cowardin et al. 1979. ² P = Pond; R = Riverine drainage; W = Wetland; n/a = not applicable. ³ For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically, 3 months). * = Non-wetland portion of the 100-year floodplain within the project area below Top of Bank.

4.2 Special-Status Species

Based on species occurrence information from the literature review and field observations, and USFWS IPaC database review, a list of special-status and CNDDB-tracked plant and animal species considered to have the potential of occurring within the Project was generated and is summarized in Tables 3 and 4² of Appendix B. Each species considered potentially occurring at the Project or in the vicinity was then evaluated based on the occurrence criteria provided in Section 3.4, above.

Based on a CNDDB search there are no special-status species documented within the Project Site boundaries, however 52 special-status species of plants, 29 special status animals, and 1 sensitive natural community known to occur within the vicinity of the Project Site. Appendix B, Tables 3 and 4 provide lists of the plant and animal species identified. Tables 3 and 4 also provide listing status, general and micro habitat descriptions, an evaluation of the species potential for occurring within the Project Site based on the criteria listed in Section 3.4, above, and recommended action if the proposed project is approved. The sensitive natural community mentioned in the CNDDB (Northern Claypan Vernal Pool) is discussed in Section 4.2.3.

²It should be noted that the USFWS IPaC also included the Northern Spotted Owl (*Strix occidentalis caurina*), Green Sea Turtle (*Chelonia mydas*), and monarch butterfly (*Danaus Plexippus*). It was determined the Project Site lacks suitable habitat for these species and there is no potential for occurrence.

4.2.1 Special Status Plants

Based on the database search, literature review and habitat types found in the Project, 14 special-status plant species were identified as having a moderate to high potential to occur within the Project Site (Appendix B, Table 3). Special status species with a Moderate to High Potential for presence in the onsite areas of Valley Foothill Riparian habitat with associated areas of freshwater marsh include the following:

- Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*), federally listed as endangered and CRPR 1B.1
- Thurber's reed grass (*Calamagrostis crassiglumis*), CRPR 2B.1
- Bristly sedge (*Carex comosa*), CRPR 2B.1
- Pitkin Marsh paintbrush (*Castilleja uliginosa*), state listed and endangered and CRPR 1A (may be extinct)
- Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*), CRPR 2B.2
- Swamp harebell (*Eastwoodia californica*), CRPR 1B.2
- Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), state listed endangered, CRPR 1B.2
- Pitkin Marsh lily (*Lilium pardalinum* spp. *pitkinense*), state and federally listed endangered, CRPR 1B.1
- White-beaked rush (*Rhynchospora alba*), CRPR 2B.2
- California beaked rush (*Rhynchospora californica*), CRPR 1B.1
- Brownish beaked rush (*Rhynchospora capitellata*), CRPR 2B.2
- Round-headed beaked rush (*Rhynchospora globularis*), CRPR 2B.1
- Kenwood Marsh checkerbloom (*Sidalcea oregana* ssp. *valida*), state and federally listed endangered, CRPR 1B.1
- Northern slender pondweed (*Stuckenia filiformis* ssp. *alpina*), CRPR 2B.2

All other plant species identified in the database search were determined to be absent due to the lack of potentially suitable habitat as documented by the CNDDDB database. Field studies conducted by HBG on February 27 and 28, 2024 found no special-status plants, but these surveys were not conducted during the flowering period of the target plant species.

4.2.2 Special Status Animals

FISH

Steelhead Trout (*Oncorhynchus mykiss*)- Central California Coast Distinct Population Segment

Range. The Central California Coast DPS of Steelhead includes all naturally spawned population of steelhead and their progeny in streams from the Russian River south to Aptos Creek in Santa Cruz County. The DPS does not include the Pajaro River but does include the drainages of the San Francisco and San Pablo Bays.

Special Status Listing. Steelhead populations in the Central California Coast DPS are listed as threatened under the federal ESA.

Critical habitat for Central California Coast steelhead includes all river reaches and estuarine areas accessible to steelhead in coastal river basins from the Russian River to Aptos Creek (inclusive), and the drainages of San Francisco and San Pablo Bays. Also included are adjacent riparian zones, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay to the Golden Gate. Critical habitat for this DPS includes the waters of the Russian River adjacent to the Project Site.

Habitat. Steelhead require well-oxygenated streams with riffles and loose, silt-free gravel substrate for spawning. Steelhead possess the ability to spawn repeatedly, maintaining the mechanisms to return to the Pacific Ocean after spawning in freshwater. Juvenile steelhead may spend up to four years residing in fresh water prior to migrating to the ocean as smolts. Steelhead spawning migrations occur from late November through April in years of normal runoff. Most upstream migration occurs during and immediately following periods of heavy storm runoff. Most salmon die after spawning, but steelhead begin a return migration to the ocean soon after completion of spawning. Juvenile steelhead require a period of residency in the stream before migrating downstream to the ocean with the length of freshwater residency varying from one to three years or more depending on the living conditions in the stream. The major downstream migration of juvenile steelhead occurs during the period from February through June, depending on the water year and pattern of winter-spring runoff. Fish habitat is physically reduced to a minimum during the low-flow period of July through October when the actual physical habitat supporting fish life is at its minimum and the amount of available habitat becomes a limiting factor in the health and survival of fish populations.

Threats. Historically, the Russian River had 20-65,000 steelhead returning annually, making it the third largest run in California, after the Sacramento and the Klamath Rivers. The Russian River steelhead fishery was world renowned up till the 1960's. Every accessible stream in the watershed supported steelhead at one time, but human impacts such as logging, dams, water diversions, and agricultural and urban development, have caused extreme habitat degradation over centuries and this once robust fishery has dwindled. Efforts to increase steelhead in the Russian River have been in place since 1870 and continue today with steelhead production programs at the Warm Springs and Lake Mendocino hatcheries (Sea Grant California 2024). Steelhead populations have fluctuated widely since about 1970 and are significantly reduced from historic populations. Human-caused factors for this decline include habitat alterations such as water diversions, road building, timber harvest, urbanization, flood control structures and practices, and climate change (NMFS 2012).

Potential Site Occurrence. Moderate Potential. The nearest sighting of steelhead mentioned in the CNDDDB is from Mill Creek and its upstream tributaries (Wallace, Felta, Palmer and Angel Creeks) in the area west of Healdsburg. These sightings were of hundreds of individuals observed in the Mill Creek watershed during fisheries studies conducted between 2013 and 2016. The location of these observations is approximately 1.4 miles from Badger Park. Steelhead have been known to occur within the Russian River watershed and a remnant population remains today. It is likely that steelhead occasionally pass by the Project Site within the Russian River.

Coho Salmon (*Oncorhynchus kisutch*)- Central California Coast Environmentally Sensitive Unit (ESU)
Range. Central California Coast Coho Salmon ESU includes all naturally spawned coho salmon originating from rivers south of Punta Gorda, California to and including Aptos Creek, as well as such coho salmon originating from tributaries to San Francisco Bay.

Special Status Listing. Populations of coho salmon within the Central California ESU are federally listed as endangered between Punta Gorda and the San Lorenzo River and are state listed south of San Francisco Bay.

Critical habitat for the Coho Salmon Central California Coast ESU encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between Punta Gorda and the San Lorenzo River (inclusive) in California, including two streams entering San Francisco Bay: Arroyo Corte Madera Del Presidio and Corte Madera Creek. Critical habitat for this ESU includes the waters of the Russian River adjacent to the Project Site.

Habitat. This salmonid requires beds of loose, silt-free, coarse gravel for spawning and cover, cool water and sufficient dissolved oxygen. Coho salmon spawning migrations occur from late November through April in years of normal runoff. Most upstream migration occurs during and immediately following periods of heavy storm runoff. All coho salmon die after spawning. Juvenile coho salmon require a period of residency in the stream before migrating downstream to the ocean. The length of freshwater residency may vary from one to three years or more depending on the living conditions in the stream. The major downstream migration of coho salmon occurs during the period from February through June, depending on the water year and pattern of winter-spring runoff. Fish habitat is physically reduced to a minimum during the low-flow period of July through October. At this time, the actual physical habitat supporting fish life is at its minimum and the amount of available habitat becomes a limiting factor in the health and survival of fish populations.

Threats. Annual Russian River coho salmon runs were estimated at over 15,000 as recently as 1952. Coho salmon populations have fluctuated widely since about 1970 and are significantly reduced from large historic populations. Throughout California, populations of native fish species, including coho and steelhead, have been steadily declining. Human-caused factors for this decline include habitat alterations such as water diversions, road building, timber harvest, urbanization, flood control structures and practices, and climate change (NMFS 2012).

Potential Site Occurrence. Moderate Potential. The nearest sighting of coho salmon in the CNDDDB is of 16 individuals observed at the Highway 101 bridge over the Russian River during fisheries studies conducted in 1998. This site is just under 0.5 miles from Badger Park. It is likely that coho salmon occasionally pass by the Project Site within the Russian River.

Russian River Tule Perch (*Hysteroecarpus traski pomu*)

Range. There are three subspecies of tule perch in California: one residing in Clear Lake, Lake County, California; one in the Sacramento-San Joaquin River system; and a third subspecies residing in the Russian River. Moyle (2002) indicates that the Russian River tule perch occur throughout the mainstem of the Russian River and the lower reaches of its major tributaries in Mendocino County. The CNDDDB reports that Russian River tule perch are found in low elevation streams of the Russian River system in

Sonoma and Mendocino Counties, occurring in the Russian River from approximately Ukiah in Mendocino County to Monte Rio in Sonoma County.

Special Status Listing. Species of Special Concern (CDFW 2024).

Habitat. Russian River tule perch require clear, flowing water and abundant cover, such as submerged tree branches, submerged logs, or plants overhanging the stream. They sometimes feed in riffles but generally require deep pools of several feet or more. Russian River tule perch are intolerant of turbid conditions and extreme variations in flow, and are therefore not found in polluted, low flow, or turbid streams.

Threats. Russian River tule perch have experienced declines in populations since population studies were conducted at U.C. Davis in the 1970s. The limited distribution, short life span, and low numbers make this species susceptible to extinction. Russian River tule perch are sensitive to stream pollution, therefore a main threat is from stream sedimentation resulting from timber harvest, agriculture and urban development. Major threats to the species are from alteration of habitat and water quality from damming of tributaries and agricultural development (especially vineyards) in the watershed (Moyle 2002). The CNDDDB indicates threats locally in the project area include stream flow changes, recreational pressures, gravel mining, water diversions, grazing, and agriculture.

Potential Site Occurrence. Moderate Potential. The nearest sighting of Russian River tule perch in the CNDDDB is of three adults caught by electrofishing and others observed in studies conducted at the Highway 101 bridge over the Russian River in 1998. This site is just under 0.5 miles from Badger Park. It is likely that Russian River tule perch occasionally pass by the Project Site within the Russian River.

AMPHIBIANS

Foothill yellow-legged frog (*Rana boylei*)- North Coast Distinct Population Segment (DPS).

Range. The North Coast Distinct Population Segment of this species range extends north of San Francisco Bay through the Coast Range and Klamath Mountains to the northern limit of the Foothill Yellow-legged Frog's range and east through the Cascade Range. It includes all of Colusa, Del Norte, Glenn, Humboldt, Lake, Marin, Mendocino, Napa, Shasta, Solano, Sonoma, Tehama, Trinity, and Yolo counties and portions of Butte, Lassen, Modoc, and Siskiyou counties, California, USA. The eastern boundary of this range is delineated by the Applegate, Big-Chico Creek-Sacramento, Lower Klamath, Lower Pit, McCloud, Sacramento Headwaters, Salmon, Scott, Shasta, and Upper Klamath watersheds (Patterson et al 2019).

Special-Status Listing. Species of Special Concern (CDFW 2024).

Habitat. Foothill yellow-legged frog requires partly shaded, shallow streams and riffles with rocky substrate in a variety of habitats. The frogs need at least some cobble-sized substrate for egg-laying. Larvae require at least 15 weeks to attain metamorphosis. Yellow-legged frogs are usually found on stream banks, especially near riffles.

Threats. Populations of this species in this DPS likely occupied many more streams historically. Although populations in this DPS occupy much of the former range, overall abundance has likely decreased compared to historical levels. Drought and climate change impacts remain a threat. The short-term trend of populations in this DPS are stable to declining as the effects of climate change and legacy logging impacts continue to impact habitat suitability. Several protection and conservation measures are in place that promote population stability throughout the DPS. The habitat elements necessary for stable populations were degraded throughout the DPS and are now beginning to recover. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.1216584/Rana_boylii_pop_1

Project Site Occurrence. Moderate Potential. The nearest sighting of foothill yellow-legged frog as reported in the CNDDDB is of a population known along Felta Creek, which is a tributary of Mill Creek, southwest of the City of Healdsburg. At this location, which is over 2.2 miles from Badger Park, adult frogs and five juveniles were documented during fish surveys conducted in 2018. Aquatic habitats within the Valley Foothill Riparian habitats, including the unnamed creek passing through the Coastal Oak Woodland and riparian habitat in the western and southern portions of Badger Park may provide suitable habitat for this species.

REPTILES

Western pond turtle (*Emys marmorata*):

Range. Range extends from Washington or British Columbia to central California.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103571/Actinemys_marmorata

Special-Status Listing. Federally proposed as a threatened species, CDFW Species of Special Concern (CDFW 2024). Note that CNDDDB uses the species scientific name *Emys marmorata* which is synonymous with *Actinemys marmorata*.

Habitat. Western pond turtles occupy ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The turtles prefer aquatic habitats with calm waters, vegetated banks and emergent logs or rocks to use as basking sites. The turtles also rely on suitable upland areas of scrub and woodlands for aestival refugia and may use upland habitats up to 0.5 km from water for activities such as egg-laying. Pond turtles living in streams may vacate flood-prone areas during the rainy season. Western pond turtles occur broadly in suitable habitats throughout the state of California.

Threats. Distribution and abundance have declined as a result commercial exploitation for the pet trade, habitat loss and degradation, introduced species, and (locally) disease.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103571/Actinemys_marmorata. Specific threats for this stretch of the Russian River as reported in the CNDDDB include loss of riparian habitat, riprap used for bank stabilization, and the presence of recreational boaters.

Project Site Occurrence. Moderate Potential. The CNDDDB reports presence of western pond turtle within a polygon along the Russian River extending from Alexander Valley Road east of Healdsburg downstream to about one mile downstream of Wohler Bridge, an area that encompasses the stretch of the Russian River adjacent to Badger Park. Western pond turtle was not observed during field surveys conducted by HBG on February 27 and 28, 2024. However, ponded areas within the forested floodplain

area within the southern and western portions of Badger Park could potentially provide suitable breeding habitat for western pond turtle, and suitable upland habitat for this species may be present within the Coastal oak woodland that is continuous with the riparian habitat. This species has a Moderate Potential for occurrence.

BIRDS

Osprey (*Pandion haliaetus*)

Range. The osprey is found in temperate and tropical regions of all continents, except Antarctica; in North America it breeds from Alaska and Newfoundland south to the Gulf Coast and Florida, wintering further south to Argentina. In California, ospreys breed in northern California from the Cascade Ranges south to Lake Tahoe, and along the coast south to Marin County.

Special-Status Listing. Osprey was recently considered a California Species of Special Concern, but nesting osprey are currently on the CDFW Watchlist.

Habitat. Ospreys are associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats (Zeiner et al 1990). They nest usually from late March to late August (Wheeler 2003) in nests built in large snags or open trees near large bodies of water. Osprey often construct nests on manmade structures such as telephone poles or transmission towers, channel markers, duck blinds, cranes, and artificial nest platforms. Artificial platforms have been instrumental in reintroducing ospreys into areas where they had disappeared. Nest sites can be used for breeding purposes for many years.

Threats. In the late 19th and early 20th centuries, the main threats to osprey populations were egg collectors and hunting of the adults along with other birds of prey. By the 1950s and 1960s, significant declines resulted from egg-thinning caused by use of DDT. Use of DDT was banned in the early 1970s, and osprey populations have made a significant recovery. The breeding population was estimated in 1975 at 350-400 pairs in northern California, although numbers have been increasing in recent years.

Project Site Occurrence. Moderate Potential. Osprey have been known to nest along the Russian River, and the CNDDDB reports 1972 and 1985 sightings of osprey suspected of nesting at a location “in the vicinity of Fitch Mountain east of Healdsburg”, a location that is approximately 0.6 miles from Badger Park. An osprey was observed flying over Badger Park by the HBG wildlife biologist during the March 21, 2024, field review. It’s possible this individual is nesting somewhere in the vicinity of the Project Site. Suitable nest trees are present along the Russian River within or near Badger Park, and nesting by this species in the general vicinity of the Project Site is possible.

4.2.3 Sensitive Natural Communities

One sensitive natural community occurs within the 10-mile CNDDDB database search radius: Northern Claypan Vernal Pool. This community type was not found at the Project Site during HBG’s field investigations on February 27 and 28, and March 21, 2024. However, the aquatic resources including wetlands, streams, and other waters found within the Project Site are considered to provide significant water quality, flood protection, and habitat functions, and as such, are potentially subject to Corps, Water Board, and CDFW jurisdiction.

The Russian River is designated as a stream protected by the County of Sonoma's Riparian Corridor Ordinance and within Badger Park by City of Healdsburg riparian policies. City Zoning Ordinance Section 20.24.090 (Riparian Setback Standards) requires a 100-foot setback from the top of bank of the Russian River for any structure or permanent or temporary improvement. The setback for these types of uses is to be 50 feet from the top of bank of Foss Creek (not in the project area) and 25 feet from the top of bank of all other streams. The unnamed stream traversing the oak woodlands and riparian habitats at the north and west end of the site would require a 25-foot setback to comply with City code.

4.2.4 Wildlife Movement/Corridors.

Wildlife use and wildlife movement through the Project is expected. The Russian River and Valley Foothill Riparian habitat in the southern portion of the Project Site is part of a wildlife corridor extending along the Russian River. The unnamed stream traversing the northern end of the site before passing through the Coastal Oak Woodland and Valley Foothill Riparian habitats and then emptying into the Russian River at the southwest corner of the site is also a wildlife corridor but at a smaller scale. Avian diversity was generally greatest in the riparian habitat immediately along the Russian River and along the stretch of creek that passes through the Coastal Oak Woodland and Valley Foothill Riparian habitats before emptying into the Russian River at the southwest corner of the site in the vicinity of the willow island. These areas provide a movement corridor for local insects, and amphibian, reptile, bird, and mammal species.

4.2.5 Critical Habitat

Critical habitat for Central California Coast steelhead includes all river reaches and estuarine areas accessible to steelhead in coastal river basins from the Russian River to Aptos Creek (inclusive), and the drainages of San Francisco and San Pablo Bays. Also included are adjacent riparian zones, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay to the Golden Gate. Critical habitat for this DPS includes the waters of the Russian River adjacent to the Project Site.

Critical habitat for the Coho Salmon Central California Coast ESU encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between Punta Gorda and the San Lorenzo River (inclusive) in California, including two streams entering San Francisco Bay: Arroyo Corte Madera Del Presidio and Corte Madera Creek. Critical habitat for this ESU includes the waters of the Russian River adjacent to the Project Site.

4.2.6 Heritage Tree Survey

A total of 32 heritage trees as defined by the City of Healdsburg Heritage Tree Ordinance were found within the Project site (Appendix E). Tree diameters ranged from 30 to 64 inches as measured 24 inches above the ground. Tree species include Black cottonwood, Coast redwood, Coast live oak, tree privet, Oregon ash, and Valley Oak. A multitrunked Bay laurel and a multitrunked tree privet were inventoried. These trees are likely deeply rooted given their size and the nature of the sandy soils they are growing within as they have not fallen during flooding by the Russian River.

5.0 PROJECT IMPACTS AND MITIGATION MEASURES

5.1 Standards of Significance

According to CEQA Guidelines³, the project would be considered to have a significant impact on biological resources if it would:

- 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 Wildlife 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 Wildlife or US Fish and Wildlife Service.
- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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.

A draft of the proposed Badger Park Master Plan showing the location of planned uses within the Badger Park site is provided in Appendix A, Figure 12. The project architect has prepared a project footprint that can be seen in Figures 13 through 19 that encompasses 6.25 acres of the overall site. Sections 5.2 to 5.5 below provide an evaluation of the potential biological impacts that would result from implementation of the proposed Master Plan and recommended measures to reduce, avoid, minimize, or compensate for potential impacts to biological resources and aquatic resources that may result from the proposed Project (Appendix A, Figures 13 and 14) construction and post-construction operations. The recommended mitigation measures may be revised based on the evaluation of detailed final plans for the project.

³ www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/2007-012/07_0317/SED%20Appendix%20G%20_%20CEQA%20Guidelines_Appendix%20G.pdf

5.2 Plant Communities

5.2.1 Plant Community Impacts.

Plant community impacts will result from the clearing of vegetation within the various habitats comprising the existing Badger Park Project Site. These impacts will occur within the 6.25-acre project footprint and will specifically result from (1) construction of trails, overlooks, or a small canoe/kayak launch ramp into the river or from trail improvements along the berm adjacent to the river, or (2) clearing of vegetation related to construction of picnic areas or children's adventure play areas at the east end of the site. The impacts of the planned improvements within the various plant communities that occur within Badger Park are shown in Figure 15. Within this project footprint, impacts to 4.49 acres of Urban habitat (previously disturbed areas of the existing Badger Park) and 0.73 acres of the non-native annual grassland area near the community garden would not be considered significant pursuant to CEQA guidelines as these areas have limited ecological value. The project would also impact 11.09 acres of more sensitive forested habitat consisting of 9.5 acres of Valley Foothill Riparian habitat mostly along the Russian River, 1.21 acres of Coastal Oak Woodland in the western portion of the site, and 0.38 acres of Valley Oak Woodland in the northeast portion of the site near Heron Drive. Improvements in these forested areas may result in impacts to wetlands within the Valley Foothill Riparian forest, including wetlands potentially subject to agency regulatory jurisdiction (see Section 5.2.3), or impacts related to removal of heritage trees (see Section 5.2.2).

Many locations within the forested areas of the site contain extensive growth of non-native trees and other vegetation. Large areas of the Coastal Oak Woodland, for instance, are vegetated with a combination of tree privet and English ivy (both included on the Cal-IPC inventory of invasive plants). The severity of impacts to Valley Foothill Riparian habitat and Coastal Oak Woodland could be minimized if improvements such as picnic areas and children's play areas were established in areas of mostly non-native vegetation.

Impact #1, Riparian and Oak Woodland Habitat. Clearing of vegetation for picnic areas or children's play areas or construction of trails, overlooks, or a small canoe/kayak launch ramp into the river may result in impacts to Valley Foothill Riparian habitat or Coastal Oak Woodland.

Mitigation Measure #1-1, Minimize Construction in Native Habitat. The Final Master Plan design should show all improvements within forested portions of the Project Site (e.g., trails, river access and overlooks, picnic areas, children's adventure play areas, etc.) to be placed within areas specifically vegetated with an abundance of non-native vegetation. Such areas for these facilities could include areas that are currently overrun with tree privet and English ivy rather than with native trees and understory of California blackberries. Prior to finalizing the Master Plan, areas of extensive growth of non-native vegetation composed primarily of tree privet and English ivy should be defined using GPS to allow the areas to be mapped so that play areas and picnic areas, etc. can be planned in environmentally benign locations to the extent possible.

Mitigation Measure #1-2, Avoid Native Habitat During Construction. Locations within the Valley Foothill Riparian and Coastal Oak Woodland habitats with a preponderance

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non-native vegetation (e.g., tree privet and English ivy) should be staked in the field prior to any vegetation removal for development of picnic areas, play areas, river access or overlooks, or trails. Locations for development of picnic area, play area, river access/overlooks, and trails should be field engineered by the architect and qualified biologist working with the construction crew so that these features can be implemented within areas of non-native vegetation, avoiding areas of native vegetation to the maximum extent possible.

Mitigation Measure #1-3, Mitigation for Unavoidable Impacts to Native Tree Removal During Construction. If loss of oak trees and other trees cannot be avoided for development of picnic area, play area, river access/overlooks, and trails, to ensure no net loss of oak trees and other trees the following replacement ratios shall be followed:

- 1:1 for removal of non-native trees;
- 1:1 for removal of native trees up to 3 inches DBH
- 3:1 for removal of native trees greater than 3 inches to 6 inches DBH;
- 6:1 for removal of native trees greater than 6 inches DBH;
- 1:1 for removal of oak trees up to 3 inches DBH;
- 4:1 for removal of oak trees up to 6 inches DBH;
- 8:1 for removal of oak trees greater than 6 inches to 15 inches DBH; and
- 10:1 for removal of oak trees greater than 15 inches DBH.

Where invasive species are removed, Oak trees and other native trees should be used to restore functioning oak woodland of similar composition, density, structure, and function to the selected oak woodland that was impacted. Replacement tree plantings shall consist of a minimum of 5-gallon size plantings and shall be native species to the area adapted to the lighting, soil, and hydrological conditions at the replanting site. Replacement oaks shall come from nursery stock grown from locally sourced acorns, or from acorns gathered locally, preferably from the same watershed in which they are planted. All plantings shall be certified by the source as phytophthora free.

Single tree planting should be a minimum of 30 feet from adjacent tree planting site or existing tree. Shrub planting if in groups should be a minimum 10 feet apart and a minimum of 20 feet from a tree planting site or existing tree. All plantings will occur within a soil pit dug to a minimum of 2 times diameter and depth of 5-gallon container. A mycorrhizal inoculant and slow-release fertilizer will be added to a tree & shrub planting mix placed around each 5-gallon planting. A protective double walled grow tube (Grow Tubes — OrchardValleySupply.com⁴) shall be placed around each planting.

Mitigation Measure #1-4, Vegetation Success. To ensure a successful revegetation effort as required by Mitigation Measure #1.3, all plants shall be monitored and maintained as necessary for five years. At the end of the five years of monitoring, with at least three years

⁴ https://orchardvalleysupply.com/products/grow-tubes?variant=8041877897244¤cy=USD&gad_source=1&gclid=CjwKCAjw_Na1BhAIEiwAM-dm7NugMF7KKJzJiNPhiVQd6FQr2eUIOaeYqPeA0AZxer8K_zCvqa64uBoCuLsQAvD_BwE

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without supplemental irrigation, each category of plantings (e.g., oaks, other trees, shrubs, etc.) shall have a minimum of 85% survival at the end of the minimum monitoring period and plantings shall attain 70% cover after 3 years and 75% cover after 5 years. Survival and cover criteria shall both be required unless the herbaceous or spreading plants cannot be differentiated by individual, in which case only cover success criteria are required.

Mitigation Measure #1-5, Oak and Other Native Mitigation Program. Prior to any Project ground-disturbing activities which remove oaks and other native trees, the applicant should develop and implement of a Native Tree Mitigation Program with the following components:

1. An inventory of all oak trees removed or encroached upon during project activities, separated by species and DBH;
2. Acres of oak habitat impacted, and density, coverage, and abundance of understory vegetation species impacted by life form (i.e., grass, forb, shrub, subshrub, vine);
3. Mitigation ratios applied and total number and/or area of replacement trees and vegetation;
4. Location of restoration areas and a discussion of the adequacy of the location(s) to serve as mitigation (e.g., would support oak trees/oak woodlands; avoid habitat type conversion);
5. The location and assessment of appropriate reference site(s) to inform the appropriate planting rate to recreate the pre-project function, density, percent basal, canopy, and vegetation cover of oak woodland impacted;
6. Scientific names [Genus and species (subspecies/variety if applicable)] of all plants being used for restoration;
7. Location(s) of propagule source. Propagules should be collected or grown from on-site sources or adjacent areas within the same watershed and should not be purchased from a supplier. Seeds must originate from plants/trees of the same species (i.e., Genus, species, subspecies, and variety) as the species impacted;
8. Species-specific planting methods (i.e., container or bulbs);
9. Planting schedule;
10. Measures to control exotic vegetation and protection from herbivory;
11. Measurable goals and success criteria for establishing self-sustaining populations (e.g., percent survival rate, absolute cover). Measurable success criteria should be based on present site/habitat conditions and/or functional local native oak woodlands as reference sites;
12. Contingency measures should the success criteria not be met;
13. Long-term monitoring for at least 10 years;
14. Adaptive management techniques, including replacement plants if necessary; and,
15. Annual reporting criteria and requirements.

5.2.2 Heritage Tree Impact

Conceptual plans developed to date suggest that several heritage trees (trees greater than 30 inches in diameter as measured 2 feet above ground) may need to be removed within the Valley Foothill Riparian habitat during construction of the river access trail. No other heritage trees will need to be removed to accommodate the proposed recreational improvements (Appendix E), including clearing of vegetation prior to the installation of picnic areas, children's adventure play areas, or other facilities

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within the Project Site (Appendix A, Figures 15 and 16). Although a particular heritage tree may not need to be removed, grading or construction activity in close proximity to a tree's root system may impact the long-term survivability of the tree if the tree's root system is damaged during construction. The City's Heritage Tree Protection and Tree Report Requirements (Land Use Code Chapter 20.24, Article II) require permits for removal of heritage trees and require the preparation of a plan for the replacement of removed trees and tree protection guidelines to "protect and preserve heritage trees to the fullest extent possible."

Impact #2, Heritage Trees. Several heritage trees may need to be removed within the Valley Foothill Riparian habitat during construction of the river access trail. Construction may damage root systems of trees not to be removed, compromising the long-term survivability of the tree.

Mitigation Measure #2-1, Trail Construction. The alignment of the river access trail in the Final Master Plan should be designed to avoid heritage trees and their roots systems. In addition, the construction of the river access trail should be field engineered by the architect and a qualified arborist working with the construction crew so that heritage trees and their root systems can be avoided. Trail construction will be no closer than 3 feet from the base of a tree. To avoid impacts to tree root systems, trail construction will avoid ground excavation and cutting into the tree root system. Permanent trail construction shall consist of overlaying porous engineering geotextile material on the existing ground and then overlaying with porous trail material such as gravel, decomposed granite, or coarse sand. The arborist should work with the city to prepare the Tree Replacement Plan and tree protection guidelines, as necessary to comply with City Code.

5.2.3 Sensitive Natural Communities and Wetlands

Although no CDFW-designated natural communities occur within the Project Site, aquatic resources including wetlands and tributary drainages were identified and delineated during field surveys within the forest areas of the Project Site. The wetlands and other waters are potentially subject to the jurisdiction of the Corps, Water Board, and CDFW (Appendix A, Figures 9, 10, and 11, respectively). Based on plans developed to date, some construction may need to be completed within wetlands/waters potentially subject to regulation by the Corps or Water Board or could involve disturbance to streams regulated by CDFW. No work will be conducted until the City, RWQCB, CDFW, and Corps provide authorizations for work in these aquatic resource areas that include wetlands and other waters.

The project as currently proposed would result in permanent impacts to approximately 0.40 acres of wetlands and other waters as a result of the placement of fill material to construct a pedestrian trail system; a total of approximately 1.20 acres of temporary fill impacts to wetlands and other waters as a result of pedestrian trail and footbridge construction; and a total of 0.032 acres of permanent impact and 0.037 acres of temporary impact associated with construction of a canoe/kayak launch ramp into the river (Attachment 1, Figures 17, 18, and 19).

Impact #3, Wetland/Stream Impacts. Construction of a canoe/kayak launch ramp into the river and construction of a pedestrian trail and footbridge system would require both permanent and temporary

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fill in wetlands potentially subject to regulation by the Corps or Water Board or could involve disturbance to streams regulated by CDFW.

Mitigation Measure #3-1, Avoidance of Wetlands/Streams. Consider the need to avoid Corps and/or Water Board wetlands when preparing the final Park Master Plan. In addition, to the extent the final Master Plan will allow, an undisturbed vegetated buffer should be established and maintained between ground-disturbing activities (including vegetation removal) and adjacent wetland areas. The final Master Plan must also show the top of both banks of the unnamed creek that enters the park from the north and traverses the western portion of the Project Site through the areas of Coastal Oak Woodland and Valley Foothill Riparian habitat before emptying into the Russian River. In addition to the location of the top of both banks of this unnamed creek, the final Master Plan must also show the 25-foot setback from the top of both banks of the stream (City code Section 20.24.090) where no ground disturbance or vegetation removal would be allowed.

Mitigation Measure #3-2, Field Engineering. All areas determined to be subject to regulatory jurisdiction of either Corps or the Water Board in the western and southern portions of the park should be staked in the field prior to any site disturbance necessary to implement the Master Plan, including vegetation removal for picnic areas, play areas, river access/overlooks, or trails. These areas should be avoided during vegetation removal or construction of park facilities to preserve wetlands in these areas. Locations for development of picnic area, play area, river access/overlooks, and trails should be field engineered by the architect and qualified biologist/Biological Monitor working with the construction crew so that these features can be implemented in a way that they avoid or minimize impacts to wetlands.

Mitigation Measure #3-3, Boardwalks. Where impacts to wetlands resulting from the construction of new trails or improvements to existing trails are unavoidable, minimize wetland impacts through the use of a boardwalk created by establishing decking supported by footings in wetland areas or through other measures that preserve some wetland functions.

Mitigation Measure #3-4, Free-span Pedestrian Bridges. Where pedestrian crossings of the unnamed stream are planned as part of Master Plan improvements, these crossings should be accomplished through the construction of a free-span pedestrian bridge over the stream with no footings for the bridge placed between or on the banks of the stream.

Mitigation Measure #3-5, Obtain Necessary Agency Permits. The applicant (City of Healdsburg) will need to apply for and obtain necessary authorizations for placement of fill material within WOTUS and WOTS. Such authorizations could include federal CWA Section 404 nationwide permits from the Corps, CWA 401 water quality certification and Porter-Cologne Act Waste Discharge Requirements from the Water Board, and one or more Fish and Game Code Section 1602 Streambed Alteration Agreements from CDFW. A Mitigation and Monitoring Plan may need to be prepared and submitted to these agencies for review as part of the process for

obtaining project authorization. At a minimum the applicant will ensure there is no net loss of wetland or stream habitat areal extent and associated function(s). There may be opportunities for onsite mitigation of wetland impacts to include wetland restoration and enhancement (i.e., removal of exotic/invasive vegetation). Onsite mitigation should be a priority.

5.3 Special-Status Species

5.3.1 Special Status Plant

The Project Site was found to have potential habitat for 14 special status plant species that could potentially occur in the onsite riparian/wetland habitats within the floodplain of the Russian River. The only way to know if these special status flora species are present on the site is to conduct rare plant surveys according to protocols established by state and federal agencies. Once presence or absence of these species has been determined, final plans can be developed to avoid construction within these areas when implementing elements of the project within the riparian/marsh habitats that require removal of understory vegetation (e.g. development of picnic areas, play areas, river access or overlooks, and trails). If populations of rare plants are found, either these populations would need to be avoided or alternative measures such as the transplanting of individual plants may be necessary.

Impact #4, Special Status Plant Species. Development of picnic areas, play areas, river access or overlooks, and trails could potentially impact populations of special status plant species if such populations were found to be present within the Valley Foothill Riparian or Coastal Oak Woodland portions of the site.

Mitigation Measure #4-1, Conduct Protocol Rare Plant Surveys. A qualified biologist should conduct protocol rare plant surveys within the forested riparian scrub and marsh areas of the site within the floodplain of the Russian River. Surveys should be conducted pursuant to *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). These surveys will determine if special status plant species occur within that portion of the property and vegetation clearing or construction of passive recreational uses could impact populations of these rare species. To span the varying flowering periods of multiple rare plant species that could potentially be found in onsite habitats, protocol surveys shall include a series of three survey dates between April and July of the survey year. Survey dates depend on dates at which target species are shown to be flowering, but most likely will include surveys in mid-April, mid-to-late May, and late June/early July of the survey year.

Rare plant surveys should be conducted within wetlands and within a zone of approximately 100 feet in adjacent uplands to determine if rare plants may be present that could be indirectly impacted by construction activity. Rare plant surveys within these areas of wetlands should consider the following special status plant species:

- Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*), federally listed as endangered and CRPR 1B.1
- Thurber's reed grass (*Calamagrostis crassiglumis*), CRPR 2B.1

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- Bristly sedge (*Carex comosa*), CRPR 2B.1
- Pitkin Marsh paintbrush (*Castilleja uliginosa*), state listed and endangered and CRPR 1A (may be extinct)
- Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*), CRPR 2B.2
- Swamp harebell (*Eastwoodia californica*), CRPR 1B.2
- Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), state listed endangered, CRPR 1B.2
- Pitkin Marsh lily (*Lilium pardalinum* spp. *pitkinense*), state and federally listed endangered, CRPR 1B.1
- White-beaked rush (*Rhynchospora alba*), CRPR 2B.2
- California beaked rush (*Rhynchospora californica*), CRPR 1B.1
- Brownish beaked rush (*Rhynchospora capitellata*), CRPR 2B.2
- Round-headed beaked rush (*Rhynchospora globularis*), CRPR 2B.1
- Kenwood Marsh checkerbloom (*Sidalcea oregana* ssp. *valida*), state and federally listed endangered, CRPR 1B.1
- Northern slender pondweed (*Stuckenia filiformis* ssp. *alpina*), CRPR 2B.2

Mitigation Measure #4-2, Avoid Rare Plant Populations. If any of the rare plants are found during protocol surveys, areas planned for clearing of vegetation or construction of passive recreational uses should avoid locations with growth of any of these species. Adjustment(s) to areas of proposed construction may be warranted to avoid populations of rare plants. If populations cannot be avoided, then transplantation is recommended as a mitigation strategy to avoid impact to any of these plant species. If any special-status plant species are observed, the applicant will coordinate with the City of Healdsburg, CDFW and USFWS, as appropriate, to prepare a plant salvage and mitigation plan on-site. No work will be conducted until the City, CDFW and USFWS provide written approval of the plan.

5.3.2 Special Status Animals

Coho Salmon, Steelhead, and Russian River Tule Perch

The Russian River, which forms the southern boundary of the property, is a documented spawning stream for coho salmon and steelhead. Russian River tule perch may also be present within the portion of the Russian River adjacent to the Project Site. Direct impacts to listed salmonids are possible if in-water work is conducted during months when these fish are moving through the Russian River during spawning season (generally between November and April). Offsite migration of soil leading to possible siltation of salmon streams is an important consideration as excessive siltation can result in covering of spawning gravels, a decreased respiratory function in fish, increasing turbidity levels and diminishing light penetration to submergent vegetation, and raising of water temperature, all potentially resulting in adverse impacts to fish populations. Disruption of the soil will be required within the floodplain of the Russian River during vegetation clearing activities (primarily involving the removal of highly and moderately non-native invasive plant species, Appendix B, Table 1) and the construction/installation of recreational facilities such as play equipment or picnic facilities, facilities for river access or overlooks, or trails. To ensure that no sediment-laden runoff runs into the Russian River during construction activities, the applicant has committed to implement a construction plan that includes suitable erosion control measures to protect the stream environment, including special status species of anadromous

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fish that spawn in the river. During all activities involving soil disturbance, the applicant will require the contractor to follow all applicable Best Management Practices from the California Stormwater Quality Best Management Practices Handbook for Construction Activities. Other sources of water pollution are a concern, including equipment storage, construction staging areas, and refueling of vehicles. With the implementation of Best Management Practices, including the use of straw wattles, covering of stockpile areas and other practices, there would be little possibility of siltation within stormwater runoff that could adversely affect the water quality of the Russian River or special status fish species (including populations of state or federally listed anadromous salmonids that are known to spawn there).

Impact #5, Special Status Fish Species. Disruption of the soil required within the floodplain of the Russian River during vegetation clearing and the construction of recreational facilities (e.g., play equipment, picnic facilities, facilities for river access or overlooks, or trails) could result in migration of sediment-laden runoff into the Russian River and impacts to special status fish species (coho salmon, steelhead, Russian River tule perch).

Mitigation Measure #5-1, Work Window for In-water Work. In-water work in the Russian River associated with construction of kayak/boat access at both the southwest and southeast corners of the site should be scheduled when water levels are low during the dry season between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids (especially steelhead and coho salmon) that spawn in the river.

Mitigation Measure #5-2, Erosion Control. The applicant should implement the following mitigation measures to minimize temporary construction impacts and consequent erosion and sedimentation impacts to habitat for special status fish species (including listed species of salmonids) in the Russian River:

1. Ground disturbing work to be conducted during dry or low-flow periods; if water happens to be present during the period of construction, temporary coffer dams will be used to redirect any surface water flows around the construction work area with any water from the interior of the coffer dam area discharged through a filter bag or straw bale siltation basin located in uplands.
2. Equipment working in streams will work from wood or steel mats to minimize soil disturbance.
3. Post-construction temporarily filled areas will be restored to the original ground surface elevation with fill material off-hauled and disposed of at a suitable upland location.
4. To prevent erosion and sediment transport coir (coconut), jute, or sterile straw erosion control blankets and logs, and/ or loose sterile straw, will be used as appropriate following seed bed preparation of bare soil areas.
5. The project will not use erosion control materials containing plastic monofilament netting (erosion control matting) or similar material containing

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netting within the Project area due to documented evidence of birds, amphibians, and reptiles becoming entangled or trapped in such material. Acceptable substitutes include erosion materials contained with burlap netting, burlap tubes filled with natural fiber material, rolls of coconut coir matting or similar.

6. Hydroseeding will follow the installation of natural fiber matting, rolls, and/or loose straw BMPs.

Hydroseed mix will include native grass seed that produce dense fibrous root system, organic mulch, slow-release fertilizer, mycorrhiza, and organic tackifier.

Mitigation Measure #5-3. Coho Salmon, Steelhead, Russian River Tule Perch. Sites for construction of boat access to the river will be demarcated with orange construction flagging, and no areas beyond the defined work limits shall be disturbed. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the high-water mark of the river. No refueling of vehicles will be allowed in areas adjacent to the river. Where feasible, construction of boat ramps shall occur with equipment positioned on the bank of the river. During all activities associated with boat access construction, all trash shall be properly contained and disposed of on a regular basis.

Foothill Yellow-legged Frog

The Freshwater marsh and riparian scrub on the Project Site within the floodplain of Russian River may be suitable aquatic habitat for foothill yellow-legged frog. As foothill yellow-legged frog is known to occur within about 2.2 miles from Badger Park, foothill yellow-legged frog presence on the Project Site is possible. Avoidance of all aquatic areas of wetlands and riparian habitats within the Russian River floodplain would avoid impacts to aquatic habitat for foothill yellow-legged frog. Some clearing of vegetation is planned within this general area to prepare the area for construction of picnic areas, play areas, river access, overlooks, or trails. Implementation of these activities could have a direct impact on any foothill yellow-legged frogs if they were present on the property at the time. Therefore, prior to initiation of the project, a survey of all proposed areas of vegetation clearing within the forested floodplain for foothill yellow-legged frog is warranted.

Impact #6, Foothill Yellow-legged Frog. Clearing of vegetation and the construction of recreational facilities (e.g., play equipment, picnic facilities, facilities for river access or overlooks, or trails) could have a direct impact on any foothill yellow-legged frogs if they were present on the property at the time.

Mitigation Measure #6-1: Foothill yellow-legged Frog Survey. Prior to initiation of construction activities, a qualified biologist should conduct a survey following U.S. Fish and Wildlife Service and California Department of Wildlife guidance for foothill yellow-legged frog within all areas slated for clearing of vegetation within the forested areas of the Russian River floodplain and the Coastal Oak Woodland. The qualified biologist will remain onsite to serve as a Biological Monitor and to monitor any ground disturbing work necessary to establish recreational uses within this area to ensure that no foothill

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yellow-legged frogs are harmed. If a foothill yellow-legged frog is found on the site within an area slated for removal of vegetation, the work will be halted until the frog either leaves the area of its own volition or can be relocated by the Biological Monitor to a safe environment.

Western Pond Turtle

Western pond turtle is known from the stretch along the Russian River extending from Alexander Valley Road east of Healdsburg downstream to about one mile downstream of Wohler Bridge, an area that encompasses the stretch of the Russian River adjacent to Badger Park. Pondered areas within the forested floodplain area within the western and southern portions of Badger Park could potentially provide suitable breeding habitat for western pond turtle and suitable upland habitat for this species may be present within the Coastal Oak Woodland that is continuous with the riparian habitat. Avoidance of all forested habitats within the Russian River floodplain and Coastal Oak Woodland would avoid impacts to habitat for western pond turtle, however, as some clearing of vegetation is planned within this area, implementation of these activities could have a direct impact on any western pond turtles if they were present on the property at the time. Therefore, prior to initiation of the project, a survey of all proposed areas of construction within the forested floodplain and Coastal Oak Woodland for western pond turtle is warranted.

Impact #7, Western Pond Turtle. Clearing of vegetation and the construction of recreational facilities (e.g., play equipment, picnic facilities, facilities for river access or overlooks, or trails) could have a direct impact on any western pond turtles if they were present on the property at the time.

Mitigation Measure #7-1: Western Pond Turtle Survey: A qualified biologist shall conduct a survey of all areas proposed for installation of recreational facilities within 325 feet of permanently ponded areas for western pond turtles and their nests within 48 hours of the commencement of vegetation clearing or construction activities. The qualified biologist will remain onsite to serve as a Biological Monitor and to monitor any ground disturbing work necessary to establish recreational uses within 325 feet of permanently ponded areas to ensure that no western pond turtles are harmed. If western pond turtles or their nests are detected at any time on the site within an area slated for removal of vegetation, the work will be halted until the turtle either leaves the area of its own volition or can be relocated by the Biological Monitor to a safe environment.

Osprey

Osprey has been noted in the vicinity of the Project Site in the past according to the CNDDDB and an osprey was noted flying over the Project Site during the March 21, 2024, field survey of the site. In addition, suitable nest trees are present either on the Project Site or in the project vicinity. If osprey were found to be nesting on or near the Project Site during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Disturbances to nest sites for these special status species are possible during vegetation removal for project construction within the proposed development area of the project site. Disturbance that causes nest abandonment or loss of nest productivity (e.g., killing or

5.0 PROJECT IMPACTS AND MITIGATION MEASURES

abandonment of eggs or young) would be a violation of the Migratory Bird Treaty Act and California Fish and Game Code.

Impact #8, Osprey Nest. If osprey were found to be nesting on or near the Project Site during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young.

Mitigation Measure #8-1: Osprey Nesting Survey: A qualified biologist shall conduct a preconstruction survey of Badger Park and adjacent areas for osprey nests if vegetation removal or construction of recreational facilities is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than 14 days prior to ground disturbance or vegetation removal by walking transects through all suitable habitat within the Project Site (especially the Valley Foothill Riparian habitat along the Russian River). If an active osprey nest is detected during the surveys, the nest site shall be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Project Site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that osprey may have acclimated to disturbance. No construction or ground disturbance activity shall occur within the established buffer zone until it is determined by the qualified biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist/Biological Monitor.

5.4 Animal Populations

5.4.1 Wildlife Movement/Corridors

As stated in Section 4.2.4, Wildlife use and wildlife movements through the Project is expected. The Valley Foothill Riparian in the southern portion of the Project Site is part of a wildlife corridor extending along the Russian River. The unnamed creek traversing the northern end of the site before passing through the Coastal Oak Woodland and Valley Foothill Riparian habitats before emptying into the Russian River at the southwest corner of the site near the willow island is also a wildlife corridor at a smaller scale. These areas provide a movement corridor for local insects, and amphibian, reptile, bird and mammal species. The Master Plan provides for protection of the area adjacent to the Russian River and the length of the unnamed creek in the western portion of the Project Site terminating at the willow island (including a 25-foot setback), so the integrity of these wildlife corridors will be maintained and impacts to use of the corridors by wildlife would not be significant.

Wildlife species were observed on the Project Site during winter/early spring and summer season field reviews by an HBG wildlife biologist (including 50 bird species), and significant impacts to wildlife species would be possible in the absence of mitigation measures. Mitigation measures herein that will protect wildlife species include mitigation to minimize impacts to riparian areas, wetlands, native vegetation, and heritage trees (Mitigation Measures #1 through #3), mitigation measures to protect

5.0 PROJECT IMPACTS AND MITIGATION MEASURES

any populations of special status plant and animal species (Mitigation Measures #4, 5, 6, 7 and 8), and measures to protect any onsite populations of nesting birds (Mitigation Measure #10) or bats (Mitigation Measure #11). Even with implementation of these mitigation measures some impacts to wildlife in the forested portions of the Project Site are possible, therefore, additional mitigation is described below requiring a qualified biologist to serve as a Biological Monitor to conduct preconstruction surveys for special status species, nesting birds and roosting bats; provide environmental training to the work crew; and monitor the construction activities during periods of ground disturbance or vegetation removal.

Impact #9, Wildlife Populations. Impacts to wildlife species within onsite animal migration and movement corridors would be possible during the clearing of vegetation and the construction of recreational facilities (e.g., play equipment, picnic facilities, facilities for river access or overlooks, or trails).

Mitigation Measure #9-1. Biological Monitor: A qualified biologist shall be retained to serve as a Biological Monitor and to conduct preconstruction surveys for special status species, nesting birds, and bats; provide environmental training to the work crew; and monitor the construction activities during periods of ground disturbance or vegetation removal.

The Biological Monitor will conduct an education program for all persons employed on the Project prior to performing ground-disturbing activities or vegetation removal. Instruction shall include a discussion of the biology and general behavior of any sensitive species that may be in the area, how they may be encountered within the work area, and procedures to follow when they are encountered. Training will include such information about coho salmon, steelhead, Russian River tule perch, foothill yellow-legged frog, western pond turtle, and osprey. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site Project activity. The Biological Monitor shall prepare and distribute wallet-sized cards or a factsheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and office and be available to the City upon request.

The qualified biologist/Biological Monitor shall remain on-site during work involving vegetation clearing and ground disturbance within the Valley Foothill Riparian and Coastal Oak and Valley Oak Woodland portions of the Project Site, including areas adjacent to the Russian River or along the unnamed drainage through the northern and western portions of the Project Site to provide biological monitoring. The Biological Monitor will (1) assist in demarcation of buffer zones to protect habitats or sensitive species (including active bird nests), (2) to ensure impacts to sensitive animal species do not occur, (3) to ensure the relocation of any sensitive animal species encountered according to agency protocols, and (4) to help ensure facilities are implemented in the least environmentally sensitive locations.

5.4.2 *Birds Protected by the MBTA and California Fish and Game Code*

Habitats within the project site were shown to support a number of bird species during field surveys conducted by HBG. If active nests were present in vegetation or other areas of the site during construction operations on the project site, direct or indirect impacts could occur to nesting bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code as a result of construction activity. CDFW generally considers the nesting season to be from February 1 to August 31 for most bird species. Work-related to construction, especially involving the removal of vegetation during the February 1 to August 31 breeding season of birds, could result in the mortality of nesting avian species if they are present. Many species of raptors (birds of prey) are sensitive to human incursion and construction activities, and it is necessary to ensure that nesting raptor species are not present in the vicinity of construction sites.

To ensure compliance with the MBTA and the California Fish and Game Code, bird nesting surveys are generally required if construction work requires vegetation removal during the bird nesting season. Required setbacks to protect active nests from construction activity are usually about 500 feet for large raptors such as buteos, 250 feet for small raptors such as accipiters, and 100 feet for passerines (songbirds) and other bird species.

Impact #10, Nesting Bird Species. Clearing of vegetation and the construction of recreational facilities (e.g., play equipment, picnic facilities, facilities for river access or overlooks, or trails) could result in disruption of active nests of bird species protected by the MBTA and California Fish and Game Code.

Mitigation Measure #10-1: Preconstruction Nesting Bird Survey A preconstruction nesting bird survey shall be conducted by a qualified biologist if construction occurs during the bird nesting season (February 1-August 31). The survey should be conducted within 5 days prior to the start of work. The survey should include the entire project footprint and areas immediately adjacent to the project work area. The survey should include the trees and shrubs on and immediately adjacent to the project work area. Other large trees in the project vicinity are on the opposite sides of major roads; birds nesting in these trees are unlikely to be impacted by the proposed project; however, the qualified biologist conducting surveys shall determine the appropriate survey area.

If the survey indicates the presence of nesting birds, a buffer should be placed around the nest and marked with orange construction fencing within which no work will be allowed until the young have successfully fledged or the nest has otherwise become inactive. The size of the nest buffer will be determined by the qualified biologist and will be based to a large extent on the nesting species, its sensitivity to disturbance, and the context of the nest location. In general, typical buffer widths range from 500 feet for large raptors such as buteos, 250 feet for small raptors such as accipiters, and 100 feet for passerines (songbirds) and other bird species. Buffers may be increased or decreased, as appropriate, with approval from CDFW. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined

to be complete based on monitoring of the active nest. A copy of the nesting bird survey report shall be provided to the County prior to construction.

5.4.3 Bats Protected by the California Fish and Game Code

Under California Fish and Game Code Section 4150, destruction of an occupied, nonbreeding, bat roost, resulting in the death of bats, or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), is prohibited. The proposed project could affect special status and common roosting bat species during either the removal of trees or demolition of existing structures. Bats have the potential to roost in existing vacant or underutilized buildings, other man-made structures, and could be present within structures. Mature trees may show evidence of cavities and/or exfoliating bark that could serve as roost sites for populations of bats or could harbor solitary bats.

Significant impacts to bats prohibited under the Fish and Game Code could result from disruption of an occupied non-breeding bat roost or the loss of a maternity colony of bats. This may occur through direct disturbance from destruction of a roost site during removal or pruning of trees or an indirect disturbance causing behavioral alterations due to construction noise or vibration, or by increased human activity in the area. A bat habitat assessment conducted by a bat biologist prior to construction could determine if suitable habitat for bats is found in trees to be removed or trimmed and allow development of mitigation strategies to achieve humane removal of bat populations if present.

Impact #11, Bat Populations. Clearing of vegetation and the construction of recreational facilities (e.g., play equipment, picnic facilities, facilities for river access or overlooks, or trails) could result in disruption of bat roosts protected by the California Fish and Game Code.

Mitigation Measure #11-1: Preconstruction Bat Measures. Prior to any tree removal, a qualified bat biologist shall conduct a habitat assessment for bats. The habitat assessment shall be conducted a minimum of 30 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, or exfoliating bark for colonial species, and suitable canopy for foliage-roosting species). Trees without suitable habitat for bats can be removed. If suitable habitat trees are found, they shall be flagged or otherwise clearly marked and tree trimming or removal shall not proceed without approval in writing from CDFW. These trees with suitable habitat may be removed only if: a) presence of bats is presumed or documented during the surveys described below, and removal using the two-step removal process detailed below occurs only during seasonal periods of bat activity from approximately March 1 through April 15 and September 1 through October 15, or b) after a qualified bat biologist, under prior written approval of the proposed survey methods by CDFW, conducts night emergence surveys or complete visual examination of roost features that establish absence of roosting bats.

If a two-step removal is used, two-step tree removal shall be conducted over two consecutive days, as follows: 1) the first day (in the afternoon), under direct supervision and instruction by a qualified bat biologist with experience conducting a two-step methodology, limbs and branches shall be removed by a tree cutter using chainsaws

only; limbs with cavities, crevices or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed.

5.5 Postconstruction Impacts and Mitigation Measures

Light, noise, traffic, sedimentation, and event activity impacts resulting from project operations may result from general recreation use at Badger Park. Mitigation measures are designed to prevent harm to the sensitive animal species including western pond turtle, foothill yellow-legged frog, and osprey, as well as other animal species.

Impact #11. Postconstruction. Impacts to animal populations, potentially including special status species, could result from light, noise, traffic, and sedimentation resulting from project operations associated with general recreation use at Badger Park.

Mitigation Measure #12-1, Post Construction.

Light. Artificial light causes disruption of the behavior of insects, amphibians, mammals, and invertebrates. Unnecessary outdoor lighting should be turned off from dusk to dawn. If outdoor lighting is necessary, amber lighting along all outdoor areas including roadways should be used (Amber/Orange nm range 587 - 592 Peak Wavelength 590). Where practicable, fixtures should be used that shield lamps or glowing lenses from being directly visible.

Traffic. No off-road event vehicle parking and driving is allowed. All parking will be within established parking lots. No oil or mineral salts will be applied to roadway or parking areas for dust control. Maximum vehicle speed limits are restricted to 10 mph. A mowed 30-foot margin, where feasible, will be maintained along both sides of the access road for visibility and fire control. Vehicles will stop if animals are observed until the animal clears the area. Speed limit and informational species protection signs will be posted along roadways.

Noise. Where feasible, electric power-driven equipment and vehicles should be used. Maximum vehicle speed should be restricted to 10 mph on all roads.

Sedimentation. To avoid the potential for sediment being transported into aquatic resource areas, including the Russian River, Mitigation Measure #11 intended to protect special status fish species in the river should be implemented. Any areas that are barren of vegetation resulting from construction, pedestrian or vehicle access, or animal use shall be restored by seeding with a blend of native erosion control grass seed. Seeded areas shall be mulched. Landscape fabric shall not be used. Revegetation shall be completed as soon as possible bare soil area(s) are discovered. Seeding placed after October 15 must be covered with broadcast straw, jute netting, coconut fiber blanket or similar erosion control blanket.

Protect Habitat Area. Because the onsite stream flows on either side of the willow island before emptying into the Russian River and the willow island portion of the site has been identified as an area of generally high species diversity, proposed land uses in the vicinity of the willow island should be limited to the proposed willow walk trail/river access (Project Description items 17 and 19 in Master Plan as shown in Figure 12), and the remainder of the willow island portion of the Project Site should be treated as a protected habitat area set aside for conservation purposes which visitors should not access.

6.0 ENVIRONMENTAL REGULATORY AUTHORIZATIONS

The proposed Project as described will require authorizations from federal, state, and local agencies which are listed in the table below which provides a summary of these agencies' regulatory authority, geographical reach of Jurisdiction, and types of impacts requiring authorization.

Table 4. Regulatory Authorizations Potentially Required for the Badger Park Project			
Agency	Regulatory Authority	Geographical Reach of Jurisdiction	Impacts Requiring Authorization
Department of the Army Corps of Engineers, San Francisco District	CWA Section 404	Wetlands & Other Waters of the United States	All ground disturbance
North Coast Regional Water Quality Control Board	CWA Section 401 and Porter-Cologne Act	Wetlands & Other Waters of the State	All ground disturbance and overhead disturbance
California Department of Fish and Wildlife	Section 1602 of the California Fish and Game Code	Stream channel bed, bank, and dependent adjacent vegetation within the stream zone.	All ground and overhead disturbance
County of Sonoma	Stream Setbacks for Structures (SCC §7-14.5)	Stream habitat	All activities which may disturb the current nature of Stream Corridor.
County of Sonoma	Stream Setbacks for Riparian Corridors (SCC §26.65.030)	Stream habitat	All activities which may disturb the current nature of riparian habitat along and adjacent to stream boundaries.
County of Sonoma	Stream Setbacks for Septic Systems and Water Wells	Stream habitat	All ground-disturbing activities which may discharge pollutants to streams in Sonoma County
County of Sonoma	Stream and Water Feature Setbacks for Grading Work	Stream habitat	All ground-disturbing activities which may discharge pollutants to streams in Sonoma County
County of Sonoma	Tree Protection Ordinance (Sec. 26-88-010 (m))	Protected tree species	All ground-disturbing activities which may impact protected trees in Sonoma County
City of Healdsburg	Heritage Tree Ordinance	Protected tree species	All ground-disturbing activities which may impact protected trees in the City of Healdsburg

7.0 REFERENCES

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33 U.S.C. 403. *Rivers and Harbors Appropriation Act of 1899.*

33 U.S.C. 1344. *Permits for Dredged or Fill Material.*

33 CFR, Title 33, Part 328. *Definition of Waters of the United States.*

<https://www.ecfr.gov/cgi-bin/text-idx?node=pt33.3.328&rgn=div5>

33 CFR Part 329. *Definition of Navigable Waters of the United States.*

<https://www.ecfr.gov/current/title-33/chapter-II/part-329>

40 CFR Part 230. *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material.* http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr230_main_02.tpl

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APPENDIX A

FIGURES

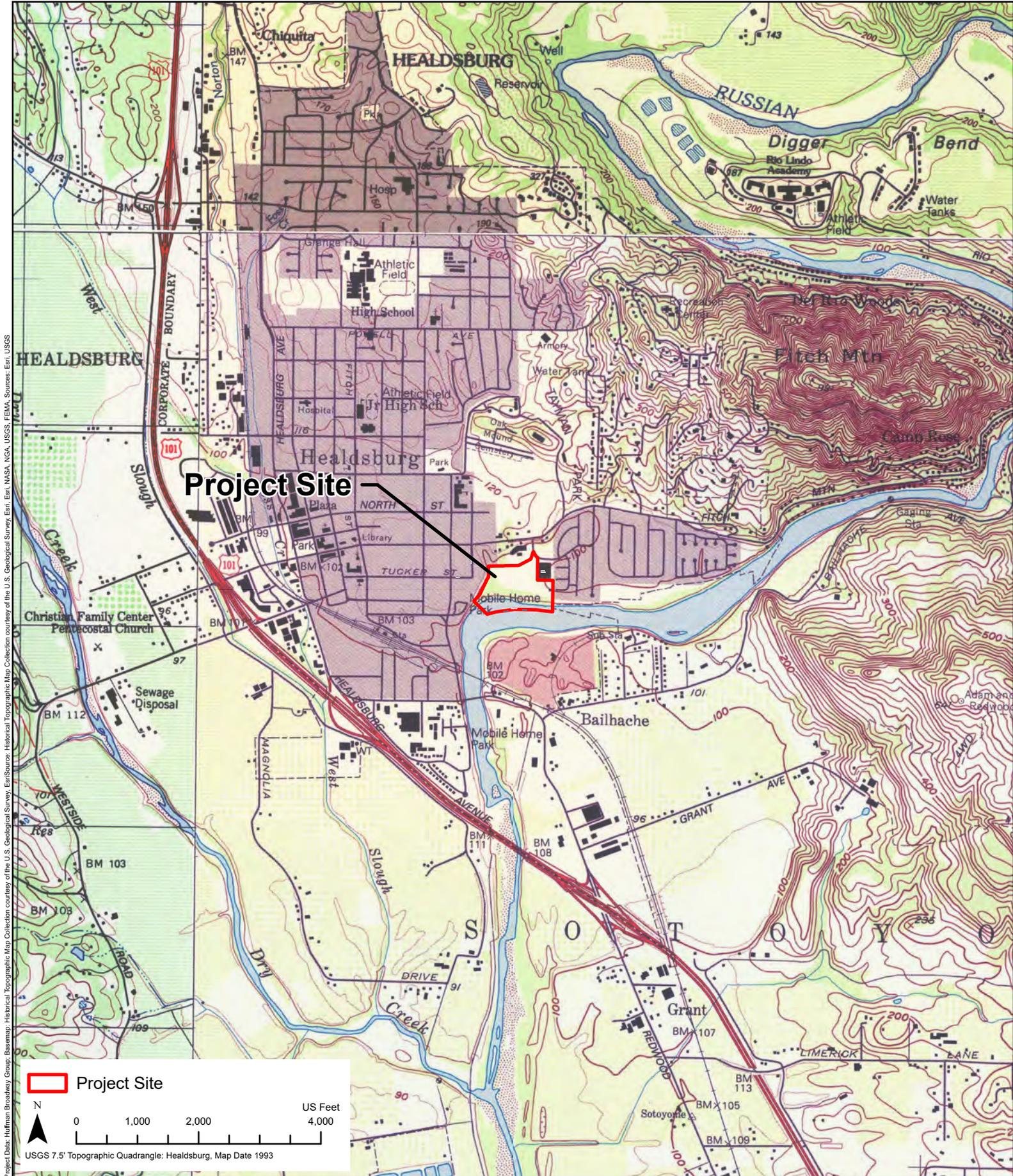


Figure 1. Project Site Location

Badger Park Project
 Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
 Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
 Scale: 1:50,000
 Date Map Created: 3/5/2024
 HBG GIS Analyst: Age Gilmore & Deland Wing
 HBG PM: Terry Huffman, PhD; Greg Huffman



Project Data: Huffman Broadway Group; Basemap: Haberial Topographic Map Collection courtesy of the U.S. Geological Survey, Esri, NASA, USGS, FEMA, Sources: Esri, USGS

Figure 2a. USGS Topographic Map of the Project Site
 Badger Park Project
 Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
 Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
 Scale: 1:24,000
 Date Map Created: 5/1/2024
 HBG GIS Analyst: Age Gilmore & Deland Wing
 HBG PM: Terry Huffman, PhD; Greg Huffman



Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METINASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Figure 3a. Aerial Image of the Project Site
Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:2,500
Date Map Created: 5/1/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman



Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METINASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Figure 3b. Aerial Image of the Project Site

Badger Park Project
 Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
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 HBG PM: Terry Huffman, PhD; Greg Huffman

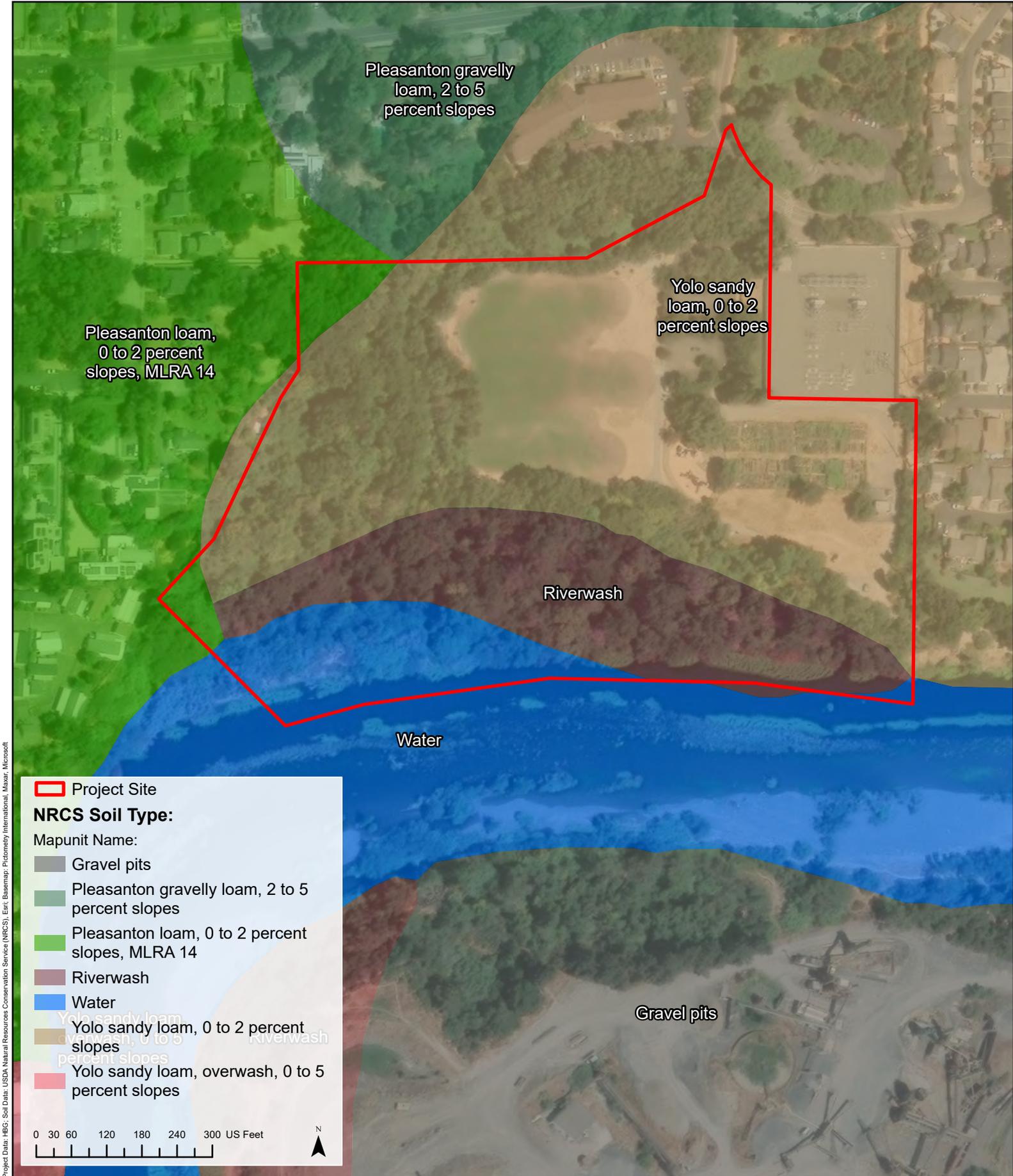


Figure 5. NRCS Soils Map
 Badger Park Project
 Healdsburg, Sonoma County, California

Project Data: HBG; Soil Data: USDA Natural Resources Conservation Service (NRCS); Esri, Basemap, Pictometry International, Maxar, Microsoft

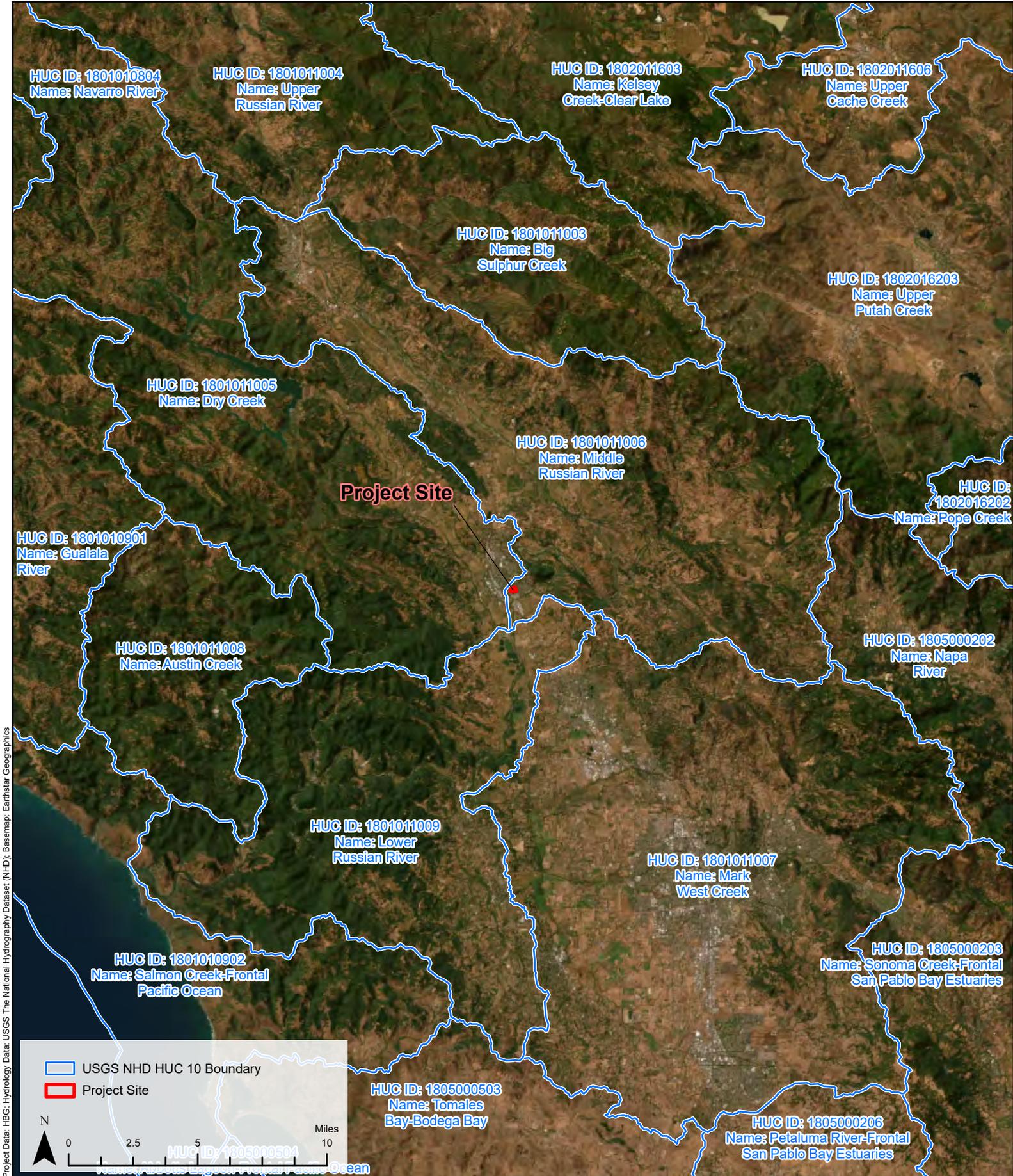


Figure 6. USGS NHD HUC 10 Watershed Boundaries

Badger Park Project
 Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
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 Date Map Created: 3/5/2024
 HBG GIS Analyst: Age Gilmore & Deland Wing
 HBG PM: Terry Huffman, PhD; Greg Huffman



Figure 7. USGS NHD HUC 12 Watershed Boundaries

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 StatePlane California II FIPS 0402 Feet
Scale: 1:200,001
Date Map Created: 3/5/2024
HBG GIS Analyst: Age Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

Project Data: HBG; Hydrology Data: USGS The National Hydrography Dataset (NHD); Basemap: Pictometry International, Earthstar Geographics

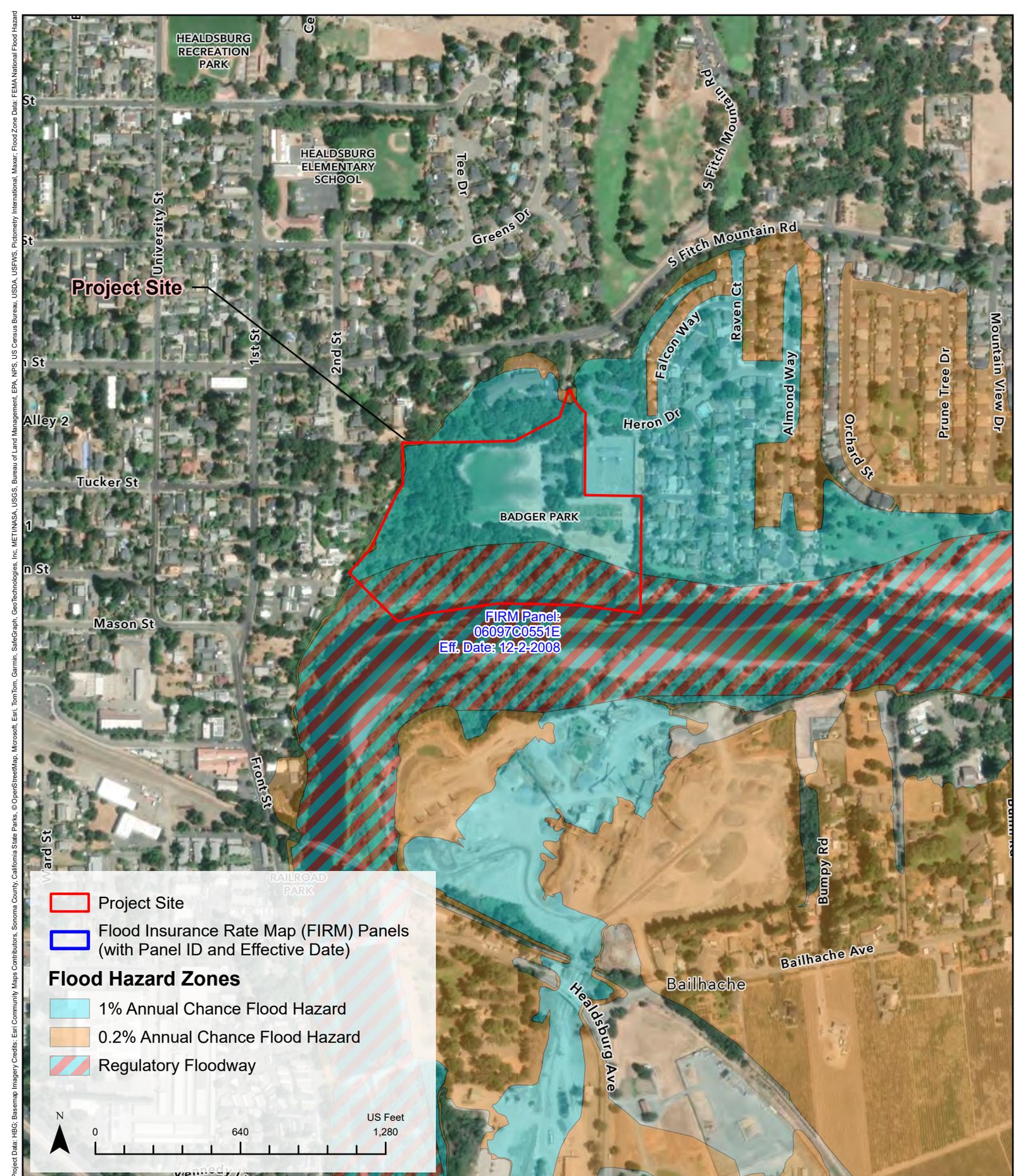
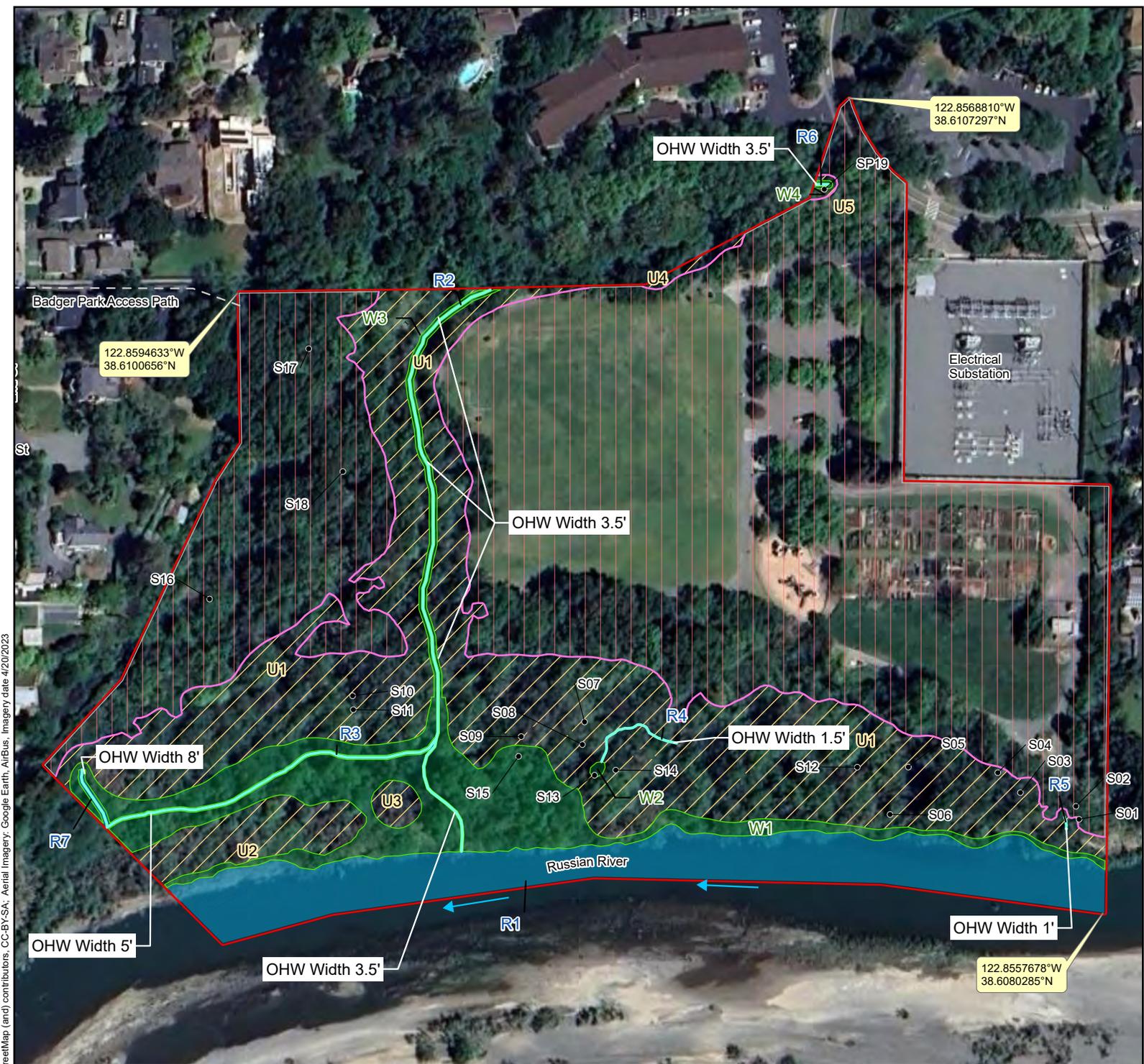


Figure 8. FEMA Flood Zone Mapping
 Badger Park Project
 Healdsburg, Sonoma County, California



Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA; Aerial Imagery: Google Earth, Airbus; Imagery date 4/20/2023

Aquatic Resources Subject to CWA Jurisdiction:

- Sample Point
- Project Site (18.64 ac)
- Ordinary High Water (OHW) 94 ft. NAVD88
- Upland Areas Above Ordinary High Water (OHW) 94 ft. NAVD88

Other Waters:

- Riverine Intermittent (CWA Section 404 WOTUS) (0.14 ac)
- Riverine Lower Perennial (CWA Section 404 WOTUS) (1.51 ac)
- Upland Areas Below Ordinary High Water (OHW) 94 ft. NAVD88 (4.79 ac)

Wetlands:

- Palustrine Forrested (CWA Section 404, WOTUS Jurisdiction Extends to Edge of Uplands) (1.42 ac)

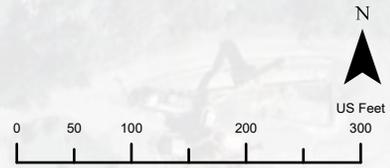


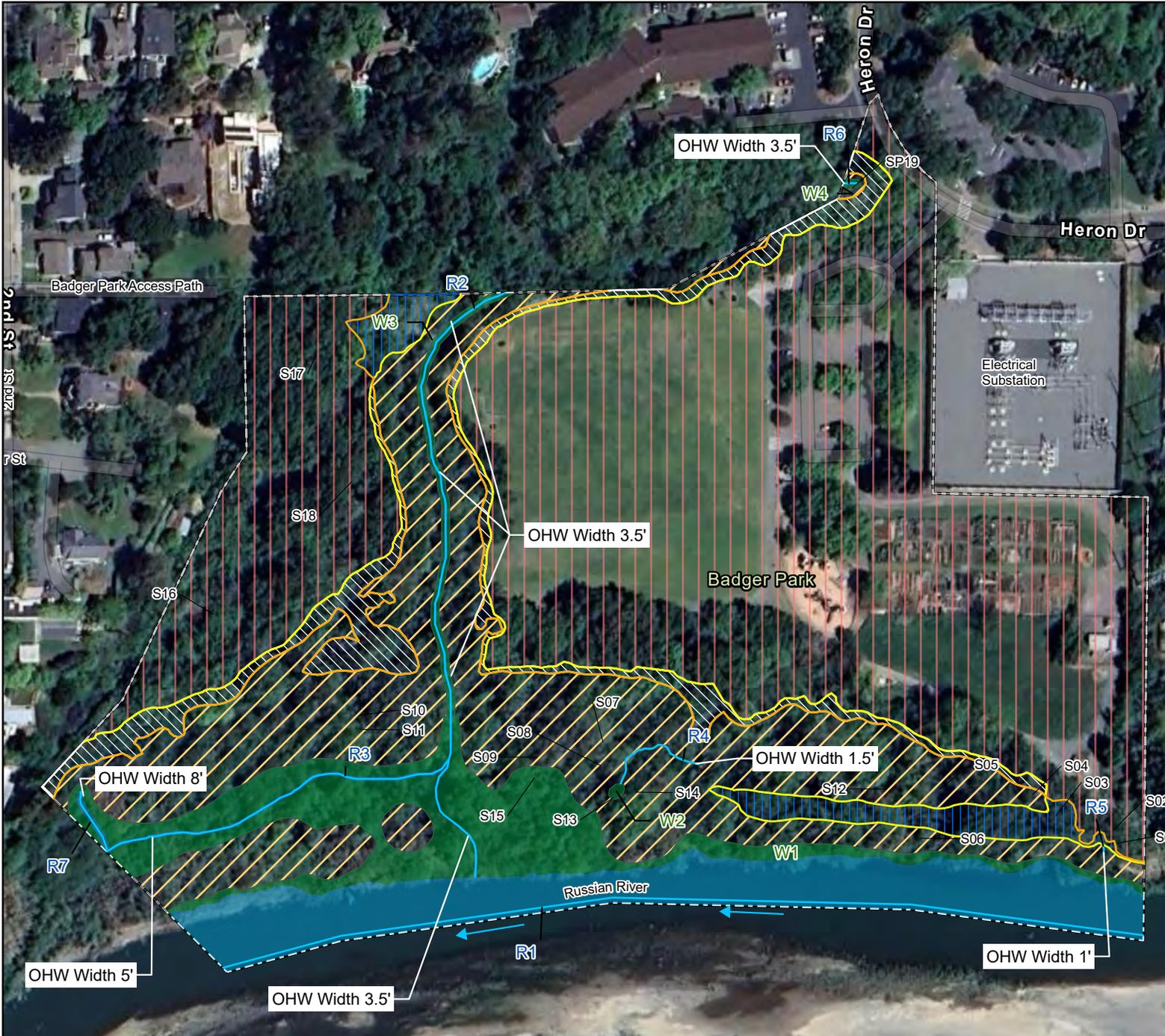
Figure 9. CWA Aquatic Resource Delineation

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:2,000
Date Map Created: 5/9/2024
HBG GIS Analyst: Age Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

Project Data: HBG, Basemap Imagery Credits: © OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METN/ASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Google Earth 4/1/2022



<ul style="list-style-type: none"> Project Site (18.64 ac) Top of Bank (TOB) Ordinary High Water (OHW) 94 ft. NAVD88 Upland Areas Above Top of Bank (TOB) 	<p>Waters of the State</p> <p>Other Waters:</p> <ul style="list-style-type: none"> Riverine Intermittent Emergent (CWA Section 404 & Porter-Cologne Act Jurisdiction Extends to TOB) (0.14 ac) Riverine Lower Perennial (CWA Section 404 & Porter-Cologne Act Jurisdiction Extends to TOB) (1.51 ac) Upland Areas Below Top of Bank and (TOB) and Ordinary High Water (OHW) (4.39 ac) Upland Areas Above TOB and Below OHW (0.43 ac) Upland Areas Above OHW and Below TOB (0.84 ac) <p>Wetlands:</p> <ul style="list-style-type: none"> Palustrine Emergent (CWA Section 404 & Porter-Cologne Act Jurisdiction Extends to Edge of Uplands) (1.42 ac)
---	---

N

0 100 200 400 600 800 1,000

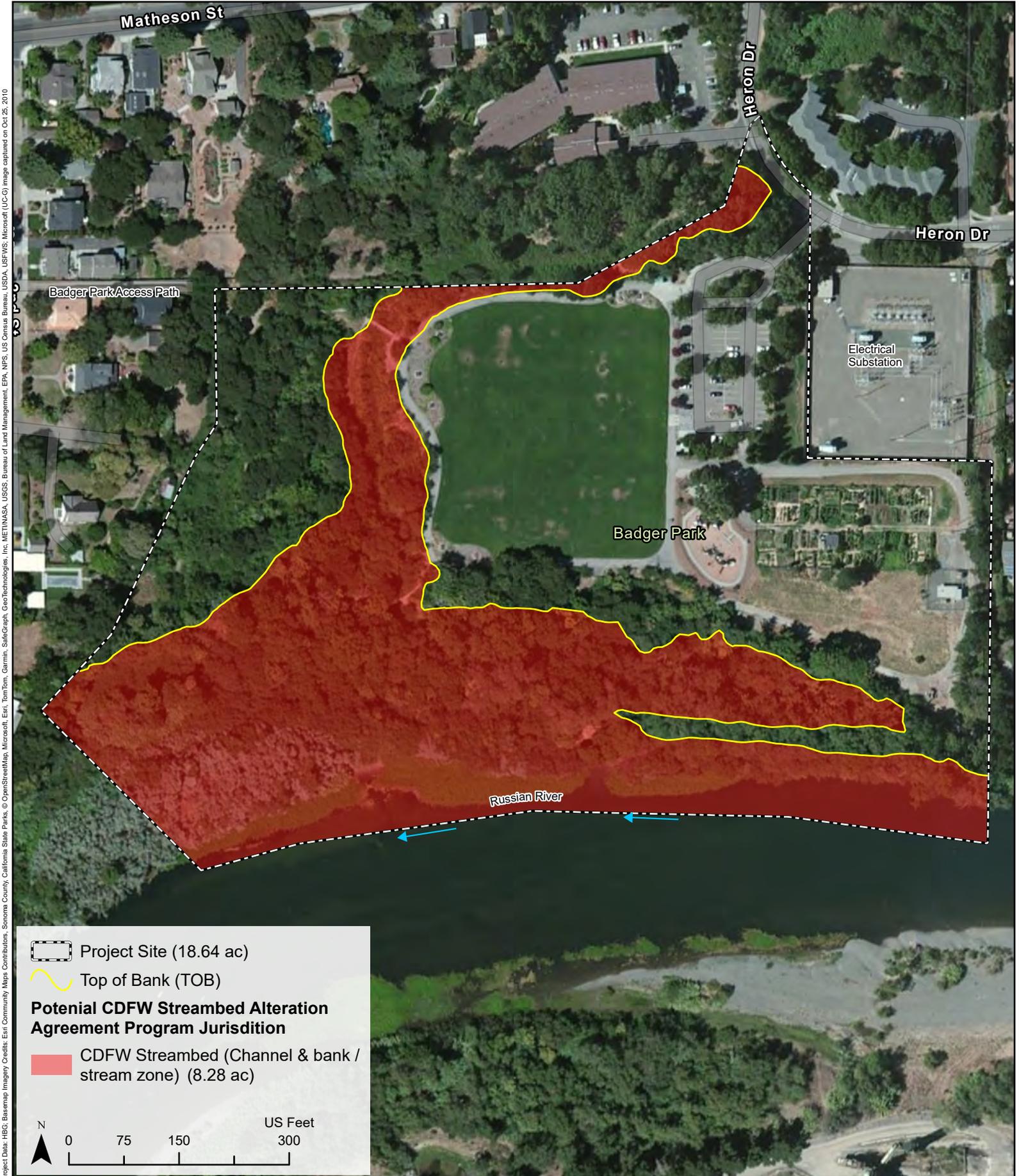
US Feet

Figure 10. North Coast Regional Water Quality Control Board Aquatic Resources Delineation

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:2,000
Date Map Created: 5/9/2024
HBG GIS Analyst: Age Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman



Project Data: HBG, Basemap Imagery Credits: Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, StateGraph, GeoTechnologies, Inc, METINASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Microsoft, (UC-O) Image captured on Oct 26, 2010

Figure 11. California Department of Fish and Wildlife Jurisdictional Determination

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:2,000
Date Map Created: 5/1/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman



LEGEND	
KEY	DESCRIPTION
	PROPERTY LINE
	LIMIT OF WORK
	CENTRAL LAWN
	PROMENADE
	RIVER OVERLOOKS
	PLAY AREA
	ADVENTURE PLAY
	COMMUNITY GARDEN
	DOG PLAY AREA
	RESTROOMS
	SPORTS COURTS
	PARKING
	GAME COURTS
	LOOP TRAIL
	PLAZA
	RIVER ACCESS DROP-OFF
	PICNIC AREA
	RIVERWALK TRAIL (E) [APPROX., TO BE RENOVATED]
	RIVER WALK TRAIL (N)
	WILLOW ISLAND
	RIVER ACCESS
	UTILITY INFRASTRUCTURE
	MAINTENANCE PATH

LANDSCAPE ARCHITECT:



FLETCHER STUDIO
LANDSCAPE ARCHITECTURE

2325 3rd street, suite 323
san francisco ca 94107
p 415.323.0850
e admin@fletcherstudio.com

BADGER PARK

750 HERON DRIVE
HEALDSBURG, CA 95448



CEQA

REVISION DESCRIPTION DATE

REVISION	DESCRIPTION	DATE

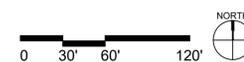
DATE NO. DRAWN: CHD:
02.14.24 19-012 NM DF

DRAWING TITLE:

Figure 12.
Proposed Badger
Park Master Plan

SHEET NO.:

L0.00

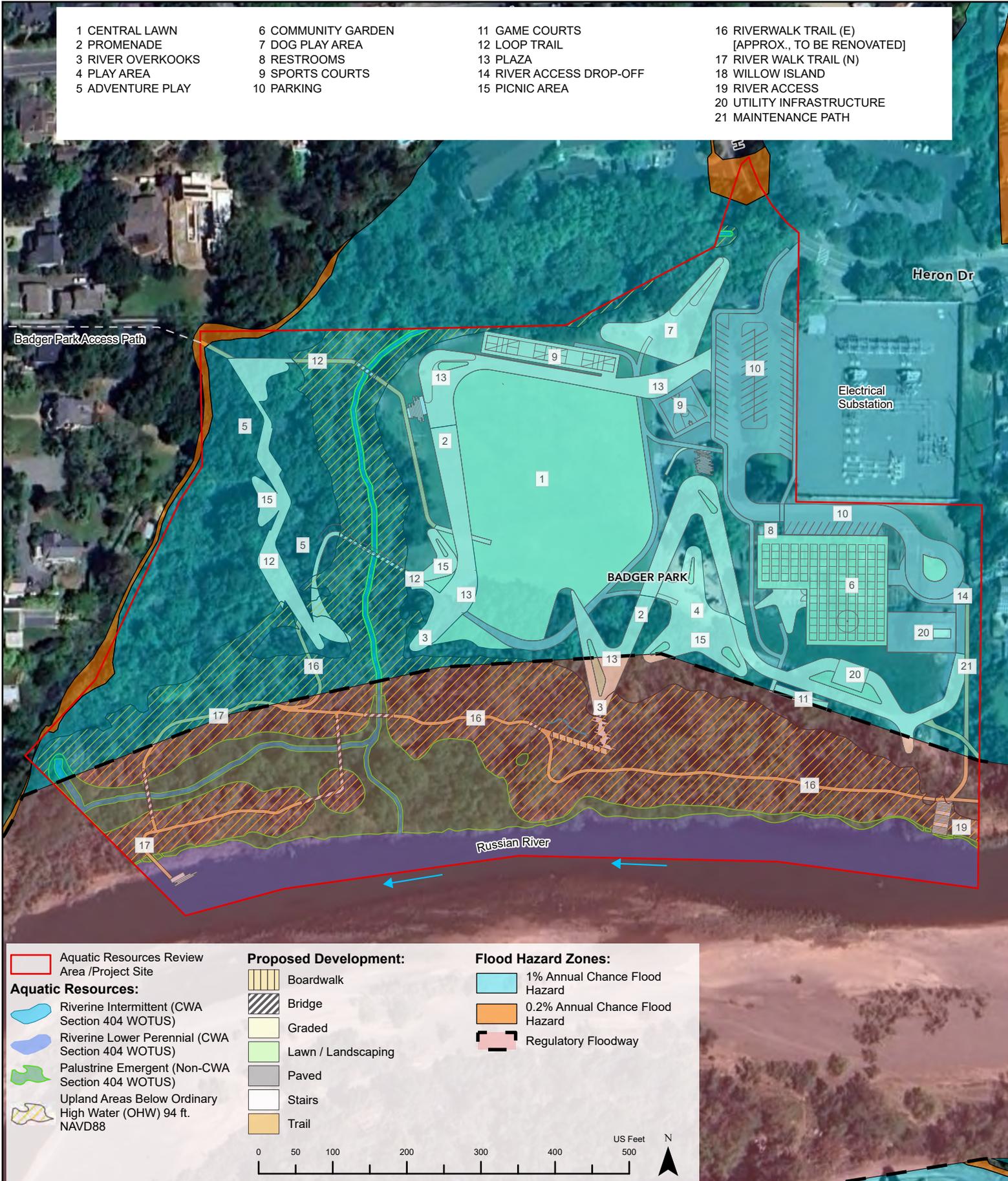


- 1 CENTRAL LAWN
- 2 PROMENADE
- 3 RIVER OVERLOOKS
- 4 PLAY AREA
- 5 ADVENTURE PLAY

- 6 COMMUNITY GARDEN
- 7 DOG PLAY AREA
- 8 RESTROOMS
- 9 SPORTS COURTS
- 10 PARKING

- 11 GAME COURTS
- 12 LOOP TRAIL
- 13 PLAZA
- 14 RIVER ACCESS DROP-OFF
- 15 PICNIC AREA

- 16 RIVERWALK TRAIL (E)
[APPROX., TO BE RENOVATED]
- 17 RIVER WALK TRAIL (N)
- 18 WILLOW ISLAND
- 19 RIVER ACCESS
- 20 UTILITY INFRASTRUCTURE
- 21 MAINTENANCE PATH



<p>Aquatic Resources Review Area /Project Site</p> <p>Aquatic Resources:</p> <ul style="list-style-type: none"> Riverine Intermittent (CWA Section 404 WOTUS) Riverine Lower Perennial (CWA Section 404 WOTUS) Palustrine Emergent (Non-CWA Section 404 WOTUS) Upland Areas Below Ordinary High Water (OHW) 94 ft. NAVD88 	<p>Proposed Development:</p> <ul style="list-style-type: none"> Boardwalk Bridge Graded Lawn / Landscaping Paved Stairs Trail 	<p>Flood Hazard Zones:</p> <ul style="list-style-type: none"> 1% Annual Chance Flood Hazard 0.2% Annual Chance Flood Hazard Regulatory Floodway
---	--	--

US Feet

0 50 100 200 300 400 500

N

Figure 14. Proposed Development with FEMA Flood Hazard Zones
 Badger Park Project
 Healdsburg, Sonoma County, California

Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land

- 1 CENTRAL LAWN
- 2 PROMENADE
- 3 RIVER OVERLOOKS
- 4 PLAY AREA
- 5 ADVENTURE PLAY
- 6 COMMUNITY GARDEN
- 7 DOG PLAY AREA
- 8 RESTROOMS
- 9 SPORTS COURTS
- 10 PARKING
- 11 GAME COURTS
- 12 LOOP TRAIL
- 13 PLAZA
- 14 RIVER ACCESS DROP-OFF
- 15 PICNIC AREA
- 16 RIVERWALK TRAIL (E)
[APPROX., TO BE RENOVATED]
- 17 RIVER WALK TRAIL (N)
- 18 WILLOW ISLAND
- 19 RIVER ACCESS
- 20 UTILITY INFRASTRUCTURE
- 21 MAINTENANCE PATH



Surveyed Tree	Project Site Areas Permanently Impacted (6.25 ac)	Vegetation Habitat (impacted acreage):
Aquatic Resources Review Area /Project Site	Upland Temporary Impact (1.02 ac)	
Upland Areas Below Ordinary High Water (OHW) 94 ft. NAVD88		Coastal Oak Woodland
		Coast Live Oak (0.17 ac)
		Valley Foothill Riparian
		Non-native/Ornamental Shrub (0.01 ac)
		Riparian Mixed Hardwood (0.99 ac)
		Riparian Mixed Shrub (0.06 ac)
		Unclassified Forest (0.04 ac)
		Valley Oak Woodland
		Valley Oak (0.11 ac)

Figure 15. Vegetation Impacts as Result of Project Ground Disturbing Activities
 Badger Park Project
 Healdsburg, Sonoma County, California

Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, CC-BY-SA, Esri Community Maps Contributors, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NSA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Aerial Imagery, Google Earth, AirBus Image Date 9/13/2023

- | | | | |
|-------------------|--------------------|--------------------------|--|
| 1 CENTRAL LAWN | 6 COMMUNITY GARDEN | 11 GAME COURTS | 16 RIVERWALK TRAIL (E)
[APPROX., TO BE RENOVATED] |
| 2 PROMENADE | 7 DOG PLAY AREA | 12 LOOP TRAIL | 17 RIVER WALK TRAIL (N) |
| 3 RIVER OVERLOOKS | 8 RESTROOMS | 13 PLAZA | 18 WILLOW ISLAND |
| 4 PLAY AREA | 9 SPORTS COURTS | 14 RIVER ACCESS DROP-OFF | 19 RIVER ACCESS |
| 5 ADVENTURE PLAY | 10 PARKING | 15 PICNIC AREA | 20 UTILITY INFRASTRUCTURE |
| | | | 21 MAINTENANCE PATH |



Aquatic Resources Review Area /Project Site	Project Site Areas Permanently Impacted	Aquatic Resources: Riverine Intermittent (CWA Section 404 WOTUS) Riverine Lower Perennial (CWA Section 404 WOTUS) Palustrine Emergent (Non-CWA Section 404 WOTUS) Upland Areas Below Ordinary High Water (OHW) 94 ft. NAVD88
Limit of Work (11.51 ac)	Upland Temporary Impact	
Vegetation & Soil Management Area (5.67 ac)		

0 50 100 200 300 400 500 US Feet N

Figure 16. Vegetation & Soil Management Area
 Badger Park Project
 Healdsburg, Sonoma County, California

Project Data: Huffman, Broadway Group; BaseMap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS; Aerial Imagery: Google Earth, ArBus, Imagery date 5/13/2023

- | | | | |
|-------------------|--------------------|--------------------------|----------------------------|
| 1 CENTRAL LAWN | 6 COMMUNITY GARDEN | 11 GAME COURTS | 16 RIVERWALK TRAIL (E) |
| 2 PROMENADE | 7 DOG PLAY AREA | 12 LOOP TRAIL | [APPROX., TO BE RENOVATED] |
| 3 RIVER OVERLOOKS | 8 RESTROOMS | 13 PLAZA | 17 RIVER WALK TRAIL (N) |
| 4 PLAY AREA | 9 SPORTS COURTS | 14 RIVER ACCESS DROP-OFF | 18 WILLOW ISLAND |
| 5 ADVENTURE PLAY | 10 PARKING | 15 PICNIC AREA | 19 RIVER ACCESS |
| | | | 20 UTILITY INFRASTRUCTURE |
| | | | 21 MAINTENANCE PATH |



<ul style="list-style-type: none"> Aquatic Resources Review Area /Project Site (57.65 ac) Ordinary High Water (OHW) Upland Areas Above Ordinary High Water (OHW) 94 ft. NAVD88 <p>Aquatic Resources Subject to CWA Jurisdiction:</p> <ul style="list-style-type: none"> Riverine Intermittent (CWA Section 404 WOTUS) (R2-R7) (0.09 ac) Riverine Lower Perennial (CWA Section 404 WOTUS) (R1) (1.48 ac) Palustrine Emergent (Non-CWA Section 404 WOTUS) (W1-W4) (1.30 ac) Upland Areas Below Ordinary High Water (OHW) 94 ft. NAVD88 (3.57 ac) 	<p>Project Site Areas Permanently Impacted:</p> <ul style="list-style-type: none"> Boardwalk Bridge Graded Lawn / Landscaping Paved Stairs Trail 	<p>Impact Areas</p> <ul style="list-style-type: none"> Riverine Permanent Impact (0.011 ac) Riverine Temporary Impact (0.063 ac) Palustrine Permanent Impact (0.003 ac) Palustrine Temporary Impact (0.115 ac) Upland Permanent Impact (0.253 ac) Upland Temporary Impact (0.997 ac)
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US Feet 0 50 100 200 300 400 500 N

Figure 17. Impacts to Existing Land Use/Cover and Aquatic Resources Subject to Corps/USEPA Clean Water Act Section 404 Jurisdiction
 Badger Park Project
 Healdsburg, Sonoma County, California

- 1 CENTRAL LAWN
- 2 PROMENADE
- 3 RIVER OVERLOOKS
- 4 PLAY AREA
- 5 ADVENTURE PLAY
- 6 COMMUNITY GARDEN
- 7 DOG PLAY AREA
- 8 RESTROOMS
- 9 SPORTS COURTS
- 10 PARKING
- 11 GAME COURTS
- 12 LOOP TRAIL
- 13 PLAZA
- 14 RIVER ACCESS DROP-OFF
- 15 PICNIC AREA
- 16 RIVERWALK TRAIL (E) [APPROX., TO BE RENOVATED]
- 17 RIVER WALK TRAIL (N)
- 18 WILLOW ISLAND
- 19 RIVER ACCESS
- 20 UTILITY INFRASTRUCTURE
- 21 MAINTENANCE PATH

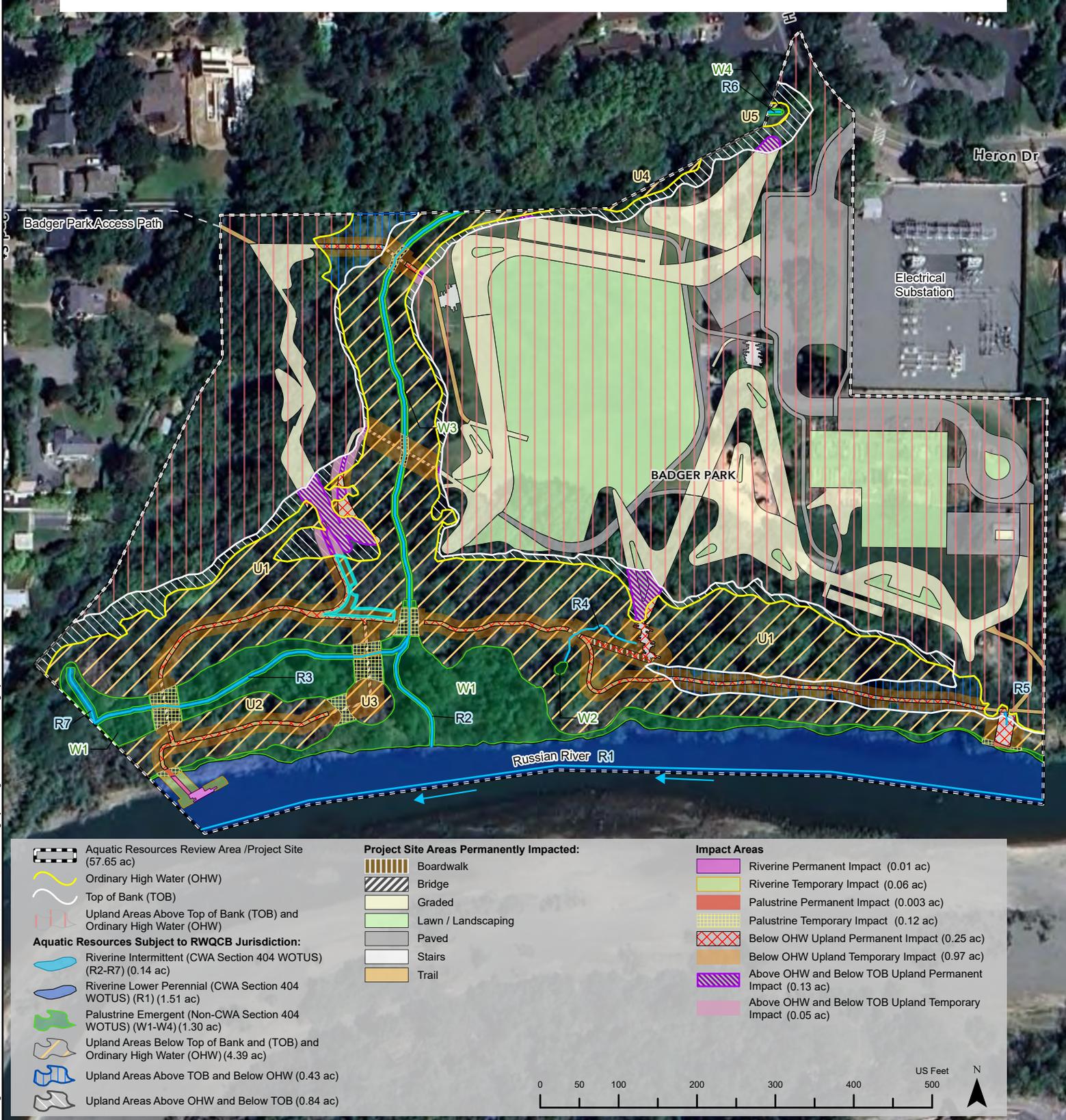


Figure 18. Impacts to Existing Land Use/Cover and Aquatic Resources Subject to North Coast Bay Regional Water Quality Control Board Jurisdiction

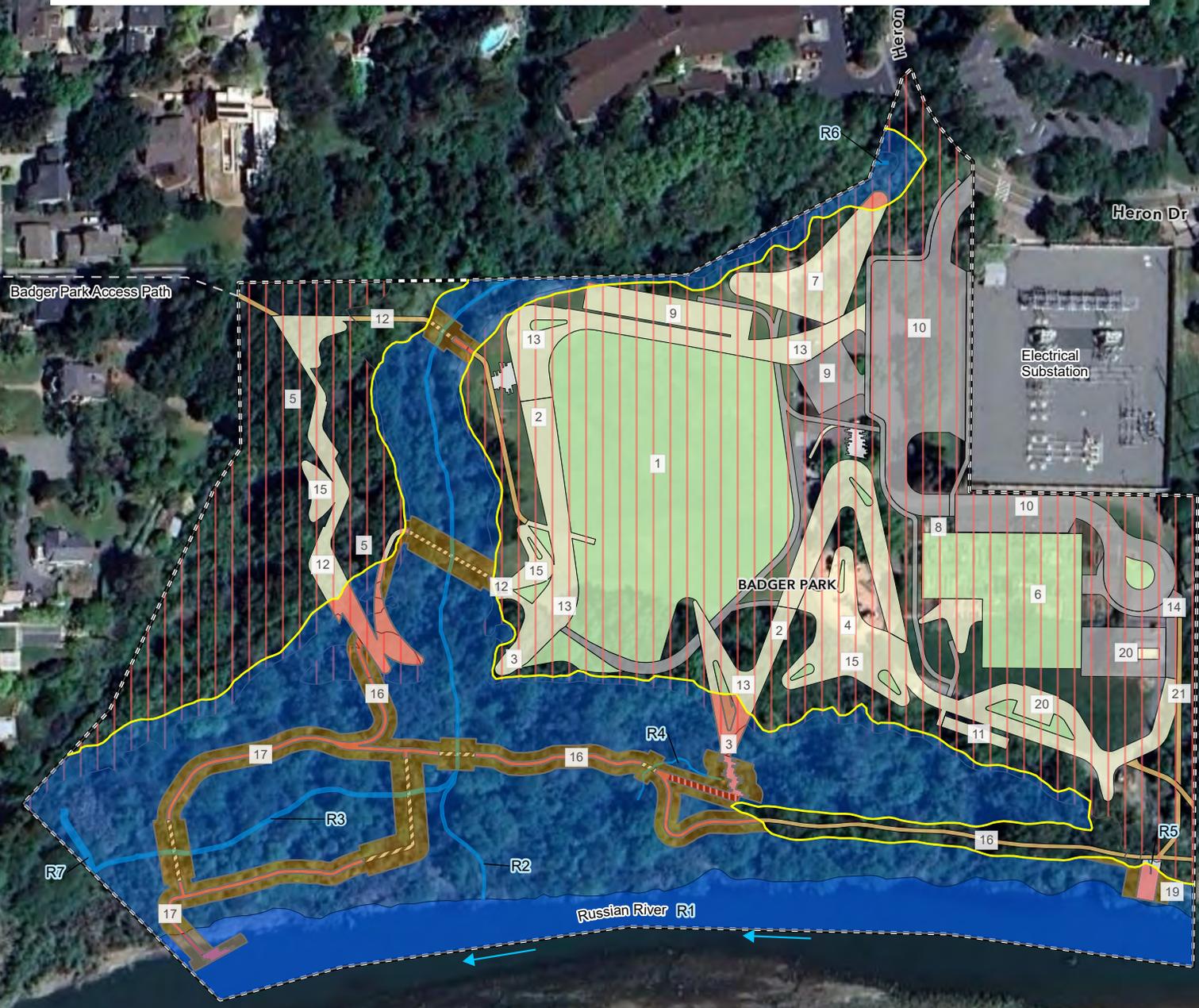
Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 StatePlane California II FIPS 0402 Feet (2011)
Scale: 1:2,000
Map Created Date: 5/15/2024
GIS Specialists: Agie Gilmore & Deland Wing
HBG Project Manager: Greg Huffman

Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METINASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS; Aerial Imagery: Google Earth, AirBus, Imagery date 5/13/2023

- | | | | |
|-------------------|--------------------|--------------------------|--|
| 1 CENTRAL LAWN | 6 COMMUNITY GARDEN | 11 GAME COURTS | 16 RIVERWALK TRAIL (E)
[APPROX., TO BE RENOVATED] |
| 2 PROMENADE | 7 DOG PLAY AREA | 12 LOOP TRAIL | 17 RIVER WALK TRAIL (N) |
| 3 RIVER OVERLOOKS | 8 RESTROOMS | 13 PLAZA | 18 WILLOW ISLAND |
| 4 PLAY AREA | 9 SPORTS COURTS | 14 RIVER ACCESS DROP-OFF | 19 RIVER ACCESS |
| 5 ADVENTURE PLAY | 10 PARKING | 15 PICNIC AREA | 20 UTILITY INFRASTRUCTURE |
| | | | 21 MAINTENANCE PATH |



Aquatic Resources Review Area / Project Site (57.65 ac)	Project Site Areas Permanently Impacted:	Aquatic Resources Subject to CDFW Jurisdiction:
Top of Bank (TOB)	Boardwalk	CDFW Streambed (Channel & bank / stream zone) (57.99 ac)
Upland Areas Above Ordinary High Water (OHW) 94 ft. NAVD88	Bridge	Impact to CDFW Streambed (Channel & bank / stream zone):
	Graded	Permanent Impact (0.34 ac)
	Lawn / Landscaping	Temporary Impact (0.96 ac)
	Paved	
	Stairs	
	Trail	

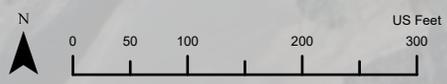


Figure 19. Impacts to Existing Land Use/Cover and Aquatic Resources Subject to California Department of Fish and Wildlife Jurisdiction

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 StatePlane California II FIPS 0402 Feet (2011)
Scale: 1:2,000
Map Created Date: 5/3/2024
GIS Specialists: Agie Gilmore & Deland Wing
HBG Project Manager: Greg Huffman

Project Data: Huffman Broadway Group; BaseMap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METINASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS; Aerial Imagery: Google Earth, AirBus, Imagery data 5/13/2023

APPENDIX B

BIOLOGICAL SPECIES TABLES AND IPaC INFORMATION

- Table 1. Vascular Plant Species Observed in the Study Site During February/March 2024 Plant Surveys
- Table 2. Bird Species Observed on the Project Site February/March 2024 (eBird Checklists)
- Table 3. Special Status Plants with Potential to Occur in the Vicinity of the Project Site, Sonoma County, California
- Table 4. Special Status Animal Species that Have Been Reported in the Vicinity of the Project Site, Sonoma County, California
- Table 5. IPaC information from the USFWS

TABLE 1. VASCULAR PLANT SPECIES OBSERVED AT THE PROJECT SITE DURING 2024 PLANT SURVEYS

Scientific Name Organized by Families ¹	Common Name	Native/Not Native	California Invasive Plant Council Invasive Plant Rating ²
Agavaceae			
<i>Chlorogalum pomeridianum</i>	Wavyleaf soap plant	Native	
Anacardiaceae			
<i>Toxicodendron diversilobum</i>	Poison oak	Native	
Apiaceae			
<i>Conium maculatum</i>	Poison hemlock	Not Native	Moderate
<i>Foeniculum vulgare</i>	Fennel	Not Native	Moderate
Apocynaceae			
<i>Vinca major</i>	Greater periwinkle	Not Native	Moderate
Araliaceae			
<i>Hedera helix</i>	English ivy	Not Native	High
Arecaceae			
<i>Phoenix canariensis</i>	Canary Island date palm	Not Native	Limited
Asteraceae			
<i>Achillea millefolium</i>	Common yarrow	Native	
<i>Cichorium intybus</i>	Chicory	Not Native	Not Classified
<i>Helminthotheca echioides</i>	Bristly ox-tongue	Not Native	Limited
<i>Lactuca serriola</i>	Prickly lettuce	Not Native	Not Classified
<i>Leontodon saxatilis</i>	Hawkbit	Not Native	Not Classified
<i>Matricaria discoidea</i>	Pineapple weed	Not Native	Not Classified
<i>Silybum marianum</i>	Milk thistle	Not Native	Limited
<i>Sonchus asper</i>	Prickly sowthistle	Not Native	Not Classified
<i>Sonchus oleraceus</i>	Common sowthistle	Not Native	Not Classified
<i>Taraxacum officinale</i>	Dandelion	Not Native	Not Classified
<i>Tragopogon porrifolius</i>	Purple salsify	Not Native	Not Classified
<i>Xanthium strumarium</i>	Rough cocklebur	Native	
<i>Cirsium vulgare</i>	Bull thistle	Not Native	Moderate
Brassicaceae			
<i>Brassica nigra</i>	Black mustard	Not Native	Moderate
<i>Hirschfeldia incana</i>	Shortpod mustard	Not Native	Moderate
<i>Lepidium didymum</i>	Wart-cress	Not Native	Not Classified
<i>Raphanus sativus</i>	Wild radish	Not Native	Limited
Cannabaceae			
<i>Celtis reticulata</i>	Net leaf hackberry	Native	
Caryophyllaceae			
<i>Spergularia rubra</i>	Purple sandspurry	Not Native	Not Classified
Convolvulaceae			
<i>Convolvulus arvensis</i>	Field bindweed	Not Native	Not Classified
Cupressaceae			
<i>Sequoia sempervirens</i>	Coast redwood	Native	
Cyperaceae			
<i>Carex aquatilis</i>	Water sedge	Native	
<i>Carex praegracilis</i>	Clustered field sedge	Native	
<i>Cyperus eragrostis</i>	Tall flatsedge	Native	
Dipsacaceae			
<i>Dipsacus sativus</i>	Teasel	Not Native	Moderate
Fabaceae			
<i>Acmispon americanus</i>	American bird's foot trefoil	Native	
<i>Genista monspessulana</i>	French broom	Not Native	High
<i>Lotus corniculatus</i>	Bird's foot trefoil	Not Native	Not Classified
<i>Lupinus bicolor</i>	Bicolored lupine	Native	
<i>Medicago polymorpha</i>	Bur clover	Not Native	Limited
<i>Trifolium dubium</i>	Shamrock clover	Not Native	Not Classified
<i>Trifolium fragiferum</i>	Strawberry clover	Not Native	Not Classified
<i>Trifolium hirtum</i>	Rose clover	Not Native	Limited
<i>Trifolium incarnatum</i>	Crimson clover	Not Native	Not Classified

TABLE 1. VASCULAR PLANT SPECIES OBSERVED AT THE PROJECT SITE DURING 2024 PLANT SURVEYS

Scientific Name Organized by Families ¹	Common Name	Native/Not Native	California Invasive Plant Council Invasive Plant Rating ²
<i>Trifolium repens</i>	White clover	Not Native	Not Classified
<i>Vicia benghalensis</i>	Purple vetch	Not Native	Not Classified
<i>Vicia sativa</i>	Spring vetch	Not Native	Not Classified
Fagaceae			
<i>Quercus agrifolia</i>	Coast live oak	Native	
<i>Quercus lobata</i>	Valley oak	Native	
Geraniaceae			
<i>Erodium botrys</i>	Broad leaf filaree	Not Native	Not Classified
<i>Geranium dissectum</i>	Cutleaf geranium	Not Native	Limited
Hamamelidaceae			
<i>Loropetalum chinense</i>	Chinese fringe flower	Not Native	Not Classified
Hypericaceae			
<i>Hypericum calycinum</i>	Aaron's beard	Not Native	Not Classified
Iridaceae			
<i>Sisyrinchium bellum</i>	Blue-eyed grass	Native	
Juglandaceae			
<i>Juglans hindsii</i>	Northern California black walnut	Native	
Juncaceae			
<i>Juncus balticus ssp. ater</i>	Baltic rush	Native	
<i>Juncus bufonius</i>	Common toad rush	Native	
<i>Juncus capitatus</i>	Capped rush	Not Native	Not Classified
<i>Juncus effusus</i>	Common rush	Native	
Lamiaceae			
<i>Melissa officinalis</i>	Lemon balm	Not Native	Not Classified
<i>Mentha spicata</i>	Spearmint	Not Native	Not Classified
<i>Umbellularia californica</i>	California bay	Native	
Lythraceae			
<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	Not Native	Moderate
Malvaceae			
<i>Malva nicaeensis</i>	Bull mallow	Not Native	Not Classified
Myrsinaceae			
<i>Lysimachia arvensis</i>	Scarlet pimpernel	Not Native	Not Classified
Oleaceae			
<i>Fraxinus latifolia</i>	Oregon ash	Native	
<i>Ligustrum lucidum</i>	Tree privet	Not Native	Limited
Onagraceae			
<i>Epilobium brachycarpum</i>	Paniced willow-herb	Native	
Orobanchaceae			
<i>Parentucellia viscosa</i>	Yellow parentucellia	Not Native	Limited
Oxalidaceae			
<i>Oxalis pes-caprae</i>	Sourgrass	Not Native	Moderate
Paulowniaceae			
<i>Paulownia imperialis</i>	Empress tree	Not Native	Not Classified
Plantaginaceae			
<i>Kickxia elatine</i>	Sharp-leaved fluellin	Not Native	Not Classified
<i>Plantago coronopus</i>	Cut-leaf plantain	Not Native	Not Classified
<i>Plantago lanceolata</i>	English plantain	Not Native	Limited
Poaceae			
<i>Arundo donax</i>	Giant reed	Not Native	High
<i>Avena fatua</i>	Wild oat	Not Native	Moderate
<i>Briza maxima</i>	Rattlesnake grass	Not Native	Limited
<i>Bromus diandrus</i>	Ripgut brome	Not Native	Moderate
<i>Bromus hordeaceus</i>	Soft brome	Not Native	Limited
<i>Bromus laevipes</i>	Woodland brome	Native	
<i>Cynodon dactylon</i>	Bermuda grass	Not Native	Moderate
<i>Danthonia californica</i>	California oatgrass	Native	
<i>Elymus glaucus</i>	Blue wildrye	Native	

TABLE 1. VASCULAR PLANT SPECIES OBSERVED AT THE PROJECT SITE DURING 2024 PLANT SURVEYS

Scientific Name Organized by Families ¹	Common Name	Native/Not Native	California Invasive Plant Council Invasive Plant Rating ²
<i>Festuca bromoides</i>	Brome fescue	Not Native	Not Classified
<i>Festuca californica</i>	California fescue	Native	
<i>Festuca perennis</i>	Italian ryegrass	Not Native	Moderate
<i>Hordeum marinum ssp. gussoneanum</i>	Mediterranean barley	Not Native	Moderate
<i>Hordeum murinum sp. glaucum</i>	Foxtail barley	Not Native	Moderate
<i>Panicum capillare</i>	Witch grass	Native	
<i>Phalaris aquatica</i>	Harding grass	Not Native	Moderate
<i>Poa annua</i>	Annual bluegrass	Not Native	Not Classified
<i>Poa pratensis</i>	Kentucky blue grass	Not Native	Limited
<i>Polypogon monspeliensis</i>	Rabbitsfoot grass	Not Native	Limited
Polygonaceae			
<i>Polygonum aviculare ssp. depressum</i>	Prostrate knotweed	Not Native	Not Classified
<i>Rumex crispus</i>	Curly dock	Not Native	Limited
<i>Rumex pulcher</i>	Fiddle dock	Not Native	Not Classified
Rosaceae			
<i>Prunus cerasifera</i>	Cherry plum	Not Native	Limited
<i>Rosa multiflora</i>	Multiflora rose	Not Native	Not Classified
<i>Rubus armeniacus</i>	Himalayan blackberry	Not Native	High
<i>Rubus ursinus</i>	California Blackberry	Native	
Rubiaceae			
<i>Galium aparine</i>	Common bedstraw	Native	
Salicaceae			
<i>Populus trichocarpa</i>	Black cottonwood	Native	
<i>Salix lasiolepis</i>	Arroyo willow	Native	
Sapindaceae			
<i>Aesculus californica</i>	California buckeye	Native	
<i>Acer macrophyllum</i>	Bigleaf maple	Native	
<i>Acer negundo</i>	Boxelder	Native	
Scrophulariaceae			
<i>Scrophularia californica</i>	California bee plant	Native	
Viburnaceae			
<i>Sambucus mexicana</i>	Blue elderberry	Native	
Vitaceae			
<i>Vitis californica</i>	California wild grape	Native	

¹ Taxonomic Source: <https://ucjeps.berkeley.edu/eflora/eflora> ; ² Cal-IPC Profile ratings: [Invasive Plants – California Invasive Plant Council \(cal-ipc.org\)](https://cal-ipc.org/);

Cal-IPC rating categories:

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

CHECKLIST S163232376

Wed **28 Feb 2024** 10:10 AM

Edit date and effort

Badger Park 📍 Sonoma County, California, United States

Edit location

✎ Checklist tools ▾

👤 Share

Gary Deghi

Traveling Complete

👤 1 ⌚ 3 hr, 5 min 📏 0.5 mi

Edit comments

29 Species observed

Add media

Edit species

1 **Common Merganser**

On the river

 Remove

1 **Anna's Hummingbird**

 Remove

2 **Turkey Vulture**

 Remove

2 **Red-shouldered Hawk**

 Remove

1 **Acorn Woodpecker**

 Remove

1 **Downy Woodpecker**

 Remove

1 **Nuttall's Woodpecker**

 Remove

4 **Black Phoebe**

 Remove

1 **Hutton's Vireo**

 Remove

2 **Steller's Jay**

 Remove

5 **California Scrub-Jay**

 Remove

2 **American Crow**

 Remove

2 **Common Raven**

 Remove

6 **Chestnut-backed Chickadee**

 Remove

4 **Oak Titmouse**

 Remove

15 **Tree Swallow**

 Remove

5 **Ruby-crowned Kinglet**

 Remove

2 **White-breasted Nuthatch**

 Remove

2 **Bewick's Wren**

 Remove

2 **Hermit Thrush**

 Remove

15 **American Robin**

 Remove

4 **Lesser Goldfinch**

 Remove

15 **White-crowned Sparrow**

 Remove

5 **Golden-crowned Sparrow**

 Remove

 4 **Song Sparrow**

 Remove < Older Newer >

2 **Spotted Towhee**

[Remove](#)

1 **Orange-crowned Warbler**

[Remove](#)

4 **Yellow-rumped Warbler**

[Remove](#)

1 **Townsend's Warbler**

SUBMIT ANOTHER FOR...

Same location and date

Badger Park, Sonoma County, California, US on Wed Feb 28, 2024

Same location

Badger Park, Sonoma County, California, US

Same area and date

Another location near Badger Park, Sonoma County, California, US on Wed Feb 28, 2024

Same area

Another location near Badger Park, Sonoma County, California, US

Same date

Wed Feb 28, 2024

Different location and date

CHECKLIST S165513542

Thu **21 Mar 2024** 9:40 AM

[Edit date and effort](#)

Badger Park  Sonoma County, California, United States

[Edit location](#)

 **Checklist tools** 

 [Share](#)

Gary Deghi

Traveling Complete

 1  3 hr, 5 min  0.5 mi

[Edit comments](#)

 **39** Species observed

Add media

Edit species

2 **Mallard**

 Remove

3 **Anna's Hummingbird**

 Remove

8 **Turkey Vulture**

 Remove

1 **Osprey**

 Remove

1 **Red-shouldered Hawk**

 Remove

1 **Acorn Woodpecker**

 Remove

4 **Downy Woodpecker**

 Remove

1 **Nuttall's Woodpecker**

 Remove

1 **Hairy Woodpecker**

 Remove

3 **Northern Flicker**

 Remove

5 **Black Phoebe**

 Remove

2 **Steller's Jay**

 Remove

5 **California Scrub-Jay**

 Remove

3 **American Crow**

 Remove

6 **Common Raven**

 Remove

5 **Chestnut-backed Chickadee**

 Remove

11 **Oak Titmouse**

 Remove

Observed carrying nesting material

15 **Tree Swallow**

 Remove

2 **Violet-green Swallow**

 Remove

5 **Bushtit**

 Remove

Observed carrying nesting material

2 **Ruby-crowned Kinglet**

 Remove

2 **White-breasted Nuthatch**

 Remove

1 **Brown Creeper**

 Remove

10 **Bewick's Wren**

 Remove

Observed carrying nesting material

 All checklists

< Older Newer >

3/25/2024, 1:07 PM

2 **Western Bluebird**

Remove

2 **Hermit Thrush**

Remove

4 **American Robin**

Remove

2 **Cedar Waxwing**

Remove

4 **House Finch**

Remove

4 **Lesser Goldfinch**

Remove

1 **Fox Sparrow**

Remove

5 **Dark-eyed Junco**

Remove

10 **White-crowned Sparrow**

Remove

4 **Golden-crowned Sparrow**

Remove

12 **Song Sparrow**

Remove

3 **California Towhee**

Remove

3 **Spotted Towhee**

Remove

1 **Orange-crowned Warbler**

Remove

3 **Yellow-rumped Warbler**

Remove

SUBMIT ANOTHER FOR...

Same location and date

Badger Park, Sonoma County, California, US on Thu Mar 21, 2024

Same location

Badger Park, Sonoma County, California, US

Same area and date

Another location near Badger Park, Sonoma County, California, US on Thu Mar 21, 2024

Same area

Another location near Badger Park, Sonoma County, California, US

Same date

Thu Mar 21, 2024

Different location and date



CHECKLIST S181034054

Wed **12 Jun 2024** 9:10 AM

Badger Park 📍 Sonoma County, California, United States

Gary Deghi

Share

Traveling **Complete**

1 1 hr, 5 min 0.3 mi

All checklists

Older **Newer**

23 Species Observed

Add media

- 1 Killdeer 
- 3 Turkey Vulture 
- 2 Nuttall's Woodpecker 
- 1 Northern Flicker 
- 3 Western Flycatcher 
- 1 Steller's Jay 
- 10 California Scrub-Jay 
- 4 American Crow 
- 2 Oak Titmouse 
- 2 Tree Swallow 
- 4 Violet-green Swallow 
- 2 Northern Rough-winged Swallow 
- 2 Bushtit 
- 1 House Wren 
- 10 Bewick's Wren 
- 8 Western Bluebird 
- 1 Swainson's Thrush 
- 2 House Finch 
- 8 Song Sparrow 
- 4 California Towhee 
- 2 Spotted Towhee 

 All checklists

 Older

Newer 

5 **Black-headed Grosbeak**

SUBMIT ANOTHER FOR...

[Same location and date](#)

Badger Park, Sonoma County, California, US on Wed Jun 12, 2024

[Same location](#)

Badger Park, Sonoma County, California, US

[Same area and date](#)

Another location near Badger Park, Sonoma County, California, US on Wed Jun 12, 2024

[Same area](#)

Another location near Badger Park, Sonoma County, California, US

[Same date](#)

Wed Jun 12, 2024

[Different location and date](#)

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Sonoma alopecurus <i>(Alopecurus aequalis var. sonomensis)</i>	Endangered / -- / 1B.1 1B.1 G5T1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Freshwater marshes and swamps, riparian scrub. Wet areas, marshes, and riparian banks, with other wetland species. 3-360 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Napa false indigo <i>(Amorpha californica var. napensis)</i>	-- / -- / 1B.2 1B.2 G4T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 30-735 m	No Potential. Suitable habitat is not present at the Project Site.	None
Baker's manzanita <i>(Arctostaphylos bakeri ssp. bakeri)</i>	-- / Rare / 1B.1 1B.1 G2T1 / S1 SB_UCSC-UC Santa Cruz	Broadleaved upland forest, chaparral. Often on serpentine. 75-245 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Cedars manzanita <i>(Arctostaphylos bakeri ssp. sublaevis)</i>	-- / Rare / 1B.2 1B.2 G2T2 / S2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz	Chaparral, closed-cone coniferous forest. In serpentine chaparral and Sargent cypress woodland; typically in canyons and on slopes. 300-365 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Vine Hill manzanita <i>(Arctostaphylos densiflora)</i>	-- / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Chaparral. Acid marine sand. 60-75 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Rincon Ridge manzanita <i>(Arctostaphylos stanfordiana ssp. decumbens)</i>	-- / -- / 1B.1 1B.1 G3T1 / S1 SB_UCSC-UC Santa Cruz	Chaparral, cismontane woodland. Highly restricted endemic to red rhyolites in Sonoma County. 90-375 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Sonoma sunshine <i>(Blennosperma bakeri)</i>	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Vernal pools, valley and foothill grassland. Vernal pools and swales. 10-290 m.	No Potential. Suitable habitat is not present at the Project Site.	None

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
narrow-anthered brodiaea <i>(Brodiaea leptandra)</i>	-- / -- / 1B.2 1B.2 G3? / S3? SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Volcanic substrates. 30-590 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Thurber's reed grass <i>(Calamagrostis crassiglumis)</i>	-- / -- / 2B.1 2B.1 G3Q / S2	Coastal scrub, marshes and swamps. Usually in marshy swales surrounded by grassland or coastal scrub. 5-50 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Cedars fairy-lantern <i>(Calochortus raichei)</i>	-- / -- / 1B.2 1B.2 G2 / S2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz	Closed-cone coniferous forest, chaparral. On serpentine. Usually on shaded slopes, but also on barrens and talus. 255-430 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Mt. Saint Helena morning-glory <i>(Calystegia collina ssp. oxyphylla)</i>	-- / -- / 4.2 4.2 G4T3 / S3	Chaparral, lower montane coniferous forest, valley and foothill grassland. On serpentine barrens, slopes, and hillsides. 280-1010 m.	No Potential. Suitable habitat is not present at the Project Site.	None
bristly sedge <i>(Carex comosa)</i>	-- / -- / 2B.1 2B.1 G5 / S2 IUCN_LC-Least Concern	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island. -5-1010 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Pitkin Marsh paintbrush <i>(Castilleja uliginosa)</i>	-- / Endangered / 1A 1A GXQ / SX	Freshwater marsh. Last known remaining plant died in 1987; was known from overgrown freshwater marsh. 60 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Rincon Ridge ceanothus <i>(Ceanothus confusus)</i>	-- / -- / 1B.1 1B.1 G1 / S1 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	Closed-cone coniferous forest, chaparral, cismontane woodland. Known from volcanic or serpentine soils, dry shrubby slopes. 150-1280 m.	No Potential. Suitable habitat is not present at the Project Site.	None

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Calistoga ceanothus <i>(Ceanothus divergens)</i>	-- / -- / 1B.2 1B.2 G2 / S2 SB_UCSC-UC Santa Cruz	Chaparral. Rocky, serpentine or volcanic sites. 100-950 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Vine Hill ceanothus <i>(Ceanothus foliosus var. vineatus)</i>	-- / -- / 1B.1 1B.1 G3T1 / S1	Chaparral. Sandy, acidic soil in chaparral. 45-305 m.	No Potential. Suitable habitat is not present at the Project Site.	None
holly-leaved ceanothus <i>(Ceanothus purpureus)</i>	-- / -- / 1B.2 1B.2 G2 / S2 SB_SBBG-Santa Barbara Botanic Garden	Chaparral, cismontane woodland. Rocky, volcanic slopes. 140-720 m.	No Potential. Suitable habitat is not present at the Project Site.	None
pappose tarplant <i>(Centromadia parryi ssp. parryi)</i>	-- / -- / 1B.2 1B.2 G3T2 / S2 BLM_S-Sensitive	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernal mesic, often alkaline sites. 1-500 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Vine Hill clarkia <i>(Clarkia imbricata)</i>	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, valley and foothill grassland. Acidic, sandy soil. 60-80 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Pennell's bird's-beak <i>(Cordylanthus tenuis ssp. capillaris)</i>	Endangered / Rare / 1B.2 1B.2 G4G5T1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Closed-cone coniferous forest, chaparral. In open or disturbed areas on serpentine within forest or chaparral. 90-215 m.	No Potential. Suitable habitat is not present at the Project Site.	None
serpentine cryptantha <i>(Cryptantha dissita)</i>	-- / -- / 1B.2 1B.2 G3 / S3 BLM_S-Sensitive	Chaparral. Serpentine outcrops. 135-735 m.	No Potential. Suitable habitat is not present at the Project Site.	None

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Peruvian dodder (<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>)	-- / -- / 2B.2 2B.2 G5T4? / SH	Marshes and swamps (freshwater). Freshwater marsh. 15-280 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
dwarf downingia (<i>Downingia pusilla</i>)	-- / -- / 2B.2 2B.2 GU / S2	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-490 m.	No Potential. Suitable habitat is not present at the Project Site.	None
swamp harebell (<i>Eastwoodiella californica</i>)	-- / -- / 1B.2 1B.2 G3 / S3 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marsh, north coast coniferous forest. Bogs and marshes in a variety of habitats; uncommon where it occurs. 1-520 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Greene's narrow-leaved daisy (<i>Erigeron greenei</i>)	-- / -- / 1B.2 1B.2 G3 / S3	Chaparral. Serpentine and volcanic substrates, generally in shrubby vegetation. 90-835 m.	No Potential. Suitable habitat is not present at the Project Site.	None
serpentine daisy (<i>Erigeron serpentinus</i>)	-- / -- / 1B.3 1B.3 G2 / S2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral. Serpentine seeps. 120-400 m.	No Potential. Suitable habitat is not present at the Project Site.	None
fragrant fritillary (<i>Fritillaria liliacea</i>)	-- / -- / 1B.2 1B.2 G2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 3-385 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	-- / Endangered / 1B.2 1B.2 G2 / S2 BLM_S-Sensitive	Marshes and swamps (freshwater), vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 4-2410 m.	Moderate Potential. Suitable habitat is present at the Project Site.	None

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
congested-headed hayfield tarplant (<i>Hemizonia congesta</i> ssp. <i>congesta</i>)	-- / -- / 1B.2 1B.2 G5T2 / S2 SB_UCBG-UC Botanical Garden at Berkeley	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 5-520 m.	No Potential. Suitable habitat is not present at the Project Site.	None
thin-lobed horkelia (<i>Horkelia tenuiloba</i>)	-- / -- / 1B.2 1B.2 G2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleafed upland forest, chaparral, valley and foothill grassland. Sandy soils; mesic openings. 45-640 m.	No Potential. Suitable habitat is not present at the Project Site.	None
small groundcone (<i>Kopsiopsis hookeri</i>)	-- / -- / 2B.3 2B.3 G4? / S1S2	North coast coniferous forest. Open woods, shrubby places, generally on Gaultheria shallon. 120-1435 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Burke's goldfields (<i>Lasthenia burkei</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Vernal pools, meadows and seeps. Most often in vernal pools and swales. 15-580 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Jepson's leptosiphon (<i>Leptosiphon jepsonii</i>)	-- / -- / 1B.2 1B.2 G2G3 / S2S3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	Chaparral, cismontane woodland, valley and foothill grassland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 55-855 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Pitkin Marsh lily (<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>)	Endangered / Endangered / 1B.1 1B.1 G5T1 / S1 SB_BerrySB-Berry Seed Bank SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of	Cismontane woodland, meadows and seeps, marshes and swamps. Saturated, sandy soils with grasses and shrubs. 45-65 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Sebastopol meadowfoam (<i>Limnanthes vinculans</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Meadows and seeps, vernal pools, valley and foothill grassland. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-115 m.	No Potential. Suitable habitat is not present at the Project Site.	None

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Cobb Mountain lupine <i>(Lupinus sericatus)</i>	-- / -- / 1B.2 1B.2 G2? / S2? BLM_S-Sensitive SB_UCSC-UC Santa Cruz	Chaparral, cismontane woodland, lower montane coniferous forest, broadleaved upland forest. In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 120-1390 m.	No Potential. Suitable habitat is not present at the Project Site.	None
marsh microseris <i>(Microseris paludosa)</i>	-- / -- / 1B.2 1B.2 G2 / S2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 3-610 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Baker's navarretia <i>(Navarretia leucocephala ssp. bakeri)</i>	-- / -- / 1B.1 1B.1 G4T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 3-1680 m.	No Potential. Suitable habitat is not present at the Project Site.	None
many-flowered navarretia <i>(Navarretia leucocephala ssp. plieantha)</i>	Endangered / Endangered / 1B.2 1B.2 G4T1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Vernal pools. Volcanic ash flow vernal pools. 30-915 m.	No Potential. Suitable habitat is not present at the Project Site.	None
white-flowered rein orchid <i>(Piperia candida)</i>	-- / -- / 1B.2 1B.2 G3? / S3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	North Coast coniferous forest, lower montane coniferous forest, broadleaved upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m.	No Potential. Suitable habitat is not present at the Project Site.	None
white beaked-rush <i>(Rhynchospora alba)</i>	-- / -- / 2B.2 2B.2 G5 / S2 IUCN_LC-Least Concern	Bogs and fens, meadows and seeps, marshes and swamps. Freshwater marshes and sphagnum bogs. 60-1875 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
California beaked-rush <i>(Rhynchospora californica)</i>	-- / -- / 1B.1 1B.1 G1 / S1 SB_UCSC-UC Santa Cruz	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Freshwater seeps and open marshy areas. 45-270 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
brownish beaked-rush <i>(Rhynchospora capitellata)</i>	-- / -- / 2B.2 2B.2 G5 / S1 IUCN_LC-Least Concern	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest. Mesic sites. 45-1710 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
round-headed beaked-rush <i>(Rhynchospora globularis)</i>	-- / -- / 2B.1 2B.1 G5 / S1	Marshes and swamps. Freshwater marsh. 45-60 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Kenwood Marsh checkerbloom <i>(Sidalcea oregana ssp. valida)</i>	Endangered / Endangered / 1B.1 1B.1 G5T1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Marshes and swamps. Edges of freshwater marshes. 115-125 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.
Freed's jewelflower <i>(Streptanthus brachiatus ssp. hoffmanii)</i>	-- / -- / 1B.2 1B.2 G2T2 / S2 BLM_S-Sensitive	Chaparral, cismontane woodland. Serpentine rock outcrops, primarily in geothermal development areas. 485-1040 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Hoffman's bristly jewelflower <i>(Streptanthus glandulosus ssp. hoffmanii)</i>	-- / -- / 1B.3 1B.3 G4T2 / S2 SB_UCSC-UC Santa Cruz	Chaparral, cismontane woodland, valley and foothill grassland. Moist, steep rocky banks, in serpentine and non-serpentine soil. 60-765 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Morrison's jewelflower <i>(Streptanthus morrisonii ssp. morrisonii)</i>	-- / -- / 1B.2 1B.2 G2T1? / S1? BLM_S-Sensitive	Chaparral. Serpentine outcrops in the Austin Creek area. 210-625 m.	No Potential. Suitable habitat is not present at the Project Site.	None
northern slender pondweed <i>(Stuckenia filiformis ssp. alpina)</i>	-- / -- / 2B.2 2B.2 G5T5 / S2S3	Marshes and swamps. Shallow, clear water of lakes and drainage channels. 5-2325 m.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct protocol rare plant surveys.

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
two-fork clover (<i>Trifolium amoenum</i>)	Endangered / -- / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_USDA-US	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 m.	No Potential. Suitable habitat is not present at the Project Site.	None
Methuselah's beard lichen (<i>Usnea longissima</i>)	-- / -- / 4.2 4.2 G4 / S4 BLM_S-Sensitive	North coast coniferous forest, broadleafed upland forest. Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.	No Potential. Suitable habitat is not present at the Project Site.	None
oval-leaved viburnum (<i>Viburnum ellipticum</i>)	-- / -- / 2B.3 2B.3 G4G5 / S3?	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1400 m.	No Potential. Suitable habitat is not present at the Project Site.	None

Determination of Occurrence Potential. Following the desktop review and field surveys, HBG assessed the potential for the occurrence of special status species on the Project site. Biological conditions (vegetation communities, wildlife habitats, disturbances, etc.) and the habitat and life cycle requirements of special status species identified for analysis in the desktop review were considered. "Recent" occurrences are defined as observed within the past 30 years. Based on these considerations, species were assigned to the following categories:

No Potential: Habitat on and adjacent to the site is clearly nonpotential for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is nonpotential or of very poor quality. The species is not likely to be found on the site.

Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is nonpotential. The species has a moderate probability of being found on the site.

High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly potential. The species has a high probability of being found on the site.

Present: Species is observed on the site or has been recorded (i.e., CNDDDB, other reports) on the site recently.

NOTE: The potential for bird species were further distinguished into those that may: 1) nest within or near the Project site; 2) forage within or near the Project site; and/or 3) occur on or near the Project site only as transients during migratory flights or other dispersal events.

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Healdsburg 7.5 Minute Quadrangle Map and surrounding areas, information dated February 2024.

2. California Rare Plant Ranks

1A - Presumed extirpated in California and either rare or extinct elsewhere

1B - Rare or Endangered in California and elsewhere

2A - Presumed extirpated in California, but more common elsewhere

2B - Rare or Endangered in California, but more common elsewhere

3 - Plants for which we need more information – Review list

4 - Plants of limited distribution – Watch list

3. Threat Code Extensions:

.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)

.3 – Not very threatened in California (under 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

TABLE 4. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Insects Blennosperma vernal pool andrenid bee (<i>Andrena blennospermatis</i>)	-- / -- G2 / S1	This bee is oligolectic on vernal pool Blennosperma. Bees nest in the uplands around vernal pools.	No Potential. Suitable habitat is not present at the site.	None
Insects obscure bumble bee (<i>Bombus caliginosus</i>)	-- / -- G2G3 / S1S2 IUCN_VU-Vulnerable	Coastal areas from Santa Barbara County north to Washington state. Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	No Potential. Suitable habitat is not present at the site.	None
Insects Giuliani's dubiraphian riffle beetle (<i>Dubiraphia giulianii</i>)	-- / -- G1G3 / S1S3	Aquatic; found in the slow part of the Russian River. Inhabits rocks and vegetation.	No Potential. Suitable habitat is not present at the site.	None
Mollusks western ridged mussel (<i>Gonidea angulata</i>)	-- / -- G3 / S2 IUCN_VU-Vulnerable	Primarily creeks and rivers and less often lakes. Originally in most of state, now extirpated from Central and Southern California.	No Potential. Suitable habitat is not present at the site.	None
Crustaceans California linderiella (<i>Linderiella occidentalis</i>)	-- / -- G2G3 / S2S3 IUCN_NT-Near Threatened	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and total dissolved solids.	No Potential. Suitable habitat is not present at the site.	None
Crustaceans Barr's amphipod (<i>Stygobromus cherylae</i>)	-- / -- G1 / S1	Known only from a spring box in Sonoma County.	No Potential. Suitable habitat is not present at the site.	None
Crustaceans California freshwater shrimp (<i>Syncaris pacifica</i>)	Endangered / Endangered G2 / S2 IUCN_EN-Endangered	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	No Potential. Marginally suitable habitat may be present on the Project Site, but the nearest populations of this species are more than 8 miles away.	None

TABLE 4. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Fish northern coastal roach <i>(Hesperoleucus venustus navarroensis)</i>	-- / -- GNRT3 / S3 CDFW_SSC-Species of Special Concern	Habitat generalists. Found generally in a wide variety of habitats in the Navarro River and Russian River basins where there is cover (e.g. fallen trees) and where alien predators are absent. Most abundant in tributaries with clear, well oxygenated water with dominant substrates of cobble and boulder, and shallow depths (average 10-50 cm) with pools up to 1 m deep.	No Potential. Suitable habitat is not present at the site.	None
Fish Russian River tule perch <i>(Hysteroecarpus traskii poma)</i>	-- / -- G5T4 / S4 AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern	Low elevation streams of the Russian River system. Requires clear, flowing water with abundant cover. They also require deep (> 1 m) pool habitat.	Moderate Potential. Suitable habitat present in the Russian River adjacent to the Project.	Implement erosion control measures to control sedimentation in runoff into the river.
Fish hardhead <i>(Mylopharodon conocephalus)</i>	-- / -- G3 / S3 CDFW_SSC-Species of Special Concern IUCN_IC-Least Concern USFS_S-Sensitive	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	No Potential. Suitable habitat is not present at the site.	None
Fish coho salmon - central California coast ESU <i>(Oncorhynchus kisutch pop. 4)</i>	Endangered / Endangered G5T2Q / S2 AFS_EN-Endangered	Federal listing = pops between Punta Gorda and San Lorenzo River. State listing = pops south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.	Moderate Potential. Suitable habitat present in the Russian River adjacent to the Project.	Implement erosion control measures to control sedimentation in runoff into the river.
Fish steelhead - central California coast DPS <i>(Oncorhynchus mykiss irideus pop. 8)</i>	Threatened / -- G5T3Q / S3 AFS_TH-Threatened	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	Moderate Potential. Suitable habitat present in the Russian River adjacent to the Project.	Implement erosion control measures to control sedimentation in runoff into the river.
Amphibians California giant salamander <i>(Dicamptodon ensatus)</i>	-- / -- G2G3 / S2S3 CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	No Potential. Suitable habitat is not present at the site.	None
Amphibians foothill yellow-legged frog - north coast DPS <i>(Rana boylei pop. 1)</i>	-- / -- G3T4 / S4 BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range including watershed subbasins (HU 8) Lower Pit, Battle Creek, Thomes Creek, and Big Chico Creek in Lassen, Shasta, Tehama, and Butte Counties. Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	Moderate Potential. Suitable habitat may be present at the Project Site.	Conduct preconstruction survey for this species.

TABLE 4. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Amphibians California red-legged frog <i>(Rana draytonii)</i>	Threatened / -- G2G3 / S2S3 CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	No Potential. Suitable habitat is not present at the site.	None
Amphibians red-bellied newt <i>(Taricha rivularis)</i>	-- / -- G2 / S2 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	No Potential. Suitable habitat is not present at the site.	None
Reptiles western pond turtle <i>(Emys marmorata)</i>	Proposed Threatened / -- G3G4 / S3 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Moderate Potential. Suitable habitat is present at the Project Site.	Conduct preconstruction survey for this species.
Birds great blue heron <i>(Ardea herodias)</i>	-- / -- G5 / S4 CDF_S-Sensitive IUCN_LC-Least Concern	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	No Potential. Suitable habitat is not present at the site.	None
Birds burrowing owl <i>(Athene cunicularia)</i>	-- / -- G4 / S2 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	No Potential. Suitable habitat is not present at the site.	None
Birds white-tailed kite <i>(Elanus leucurus)</i>	-- / -- G5 / S3S4 BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	No Potential. Suitable habitat is not present at the site.	None
Birds osprey <i>(Pandion haliaetus)</i>	-- / -- G5 / S4 CDF_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Moderate Potential. Suitable nesting habitat may be present on the Project Site or the immediate vicinity. A single osprey was observed flying over the site during a field review conducted on March 21, 2024."	Conduct preconstruction survey for nesting by this species if construction is scheduled during the nesting season.

TABLE 4. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Mammals pallid bat <i>(Antrozous pallidus)</i>	-- / -- G4 / S3 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No Potential. Suitable habitat is not present at the site.	None
Mammals Sonoma tree vole <i>(Arborimus pomio)</i>	-- / -- G3 / S3 CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood and montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	No Potential. Suitable habitat is not present at the site.	None
Mammals Townsend's big-eared bat <i>(Corynorhinus townsendii)</i>	-- / -- G4 / S2 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	No Potential. Suitable habitat is not present at the site.	None
Mammals North American porcupine <i>(Erethizon dorsatum)</i>	-- / -- G5 / S3 IUCN_LC-Least Concern	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of coniferous and mixed woodland habitat.	No Potential. Suitable habitat is not present at the site.	None
Mammals hoary bat <i>(Lasiurus cinereus)</i>	-- / -- G3G4 / S4 IUCN_LC-Least Concern	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	No Potential. Suitable habitat is not present at the site.	None
Mammals western red bat <i>(Lasiurus frantzii)</i>	-- / -- G4 / S3 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	No Potential. Suitable habitat is not present at the site.	None
Mammals fringed myotis <i>(Myotis thysanodes)</i>	-- / -- G4 / S3 BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	No Potential. Suitable habitat is not present at the site.	None

TABLE 4. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Mammals American badger (<i>Taxidea taxus</i>)	-- / -- G5 / S3 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	No Potential. Suitable habitat is not present at the site.	None

Determination of Occurrence Potential. Following the desktop review and field surveys, HBG assessed the potential for the occurrence of special status species on the Project site. Biological conditions (vegetation communities, wildlife habitats, disturbances, etc.) and the habitat and life cycle requirements of special status species identified for analysis in the desktop review were considered. "Recent" occurrences are defined as observed within the past 30 years. Based on these considerations, species were assigned to the following categories:

- No Potential:** Habitat on and adjacent to the site is clearly nonpotential for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely:** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is nonpotential or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential:** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is nonpotential. The species has a moderate probability of being found on the site.
- High Potential:** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly potential. The species has a high probability of being found on the site.
- Present:** Species is observed on the site or has been recorded (i.e., CNDDDB, other reports) on the site recently.

NOTE: The potential for bird species were further distinguished into those that may: 1) nest within or near the Project site; 2) forage within or near the Project site; and/or 3) occur on or near the Project site only as transients during migratory flights or other dispersal events.

1. **Source:** California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Healdsburg 7.5 Minute Quadrangle Map and surrounding areas, information dated February 2024.

2. Status Codes:

- Federal**
 FE = Federally listed Endangered
 FT = Federally listed Threatened
 FPE = Federally Proposed Endangered
 FPT = Federally Proposed Threatened
 FC = Federal Candidate Species
 BCC = USFWS Bird Species of Conservation Concern

- State**
 SE = California State-listed Endangered
 ST = California State-listed Threatened
 SR = California State Rare
 SCE = California State Candidate Endangered
 SCT = California State Candidate Threatened
 CFP = California Fully Protected
 SSC = CDFW Species of Special Concern
 WL = CDFW Watch List Species

USGS 7.5 Quad

CNDDB All (Join Tables Here)

- Project Boundary With 10 Mile Buffer
- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (specific)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

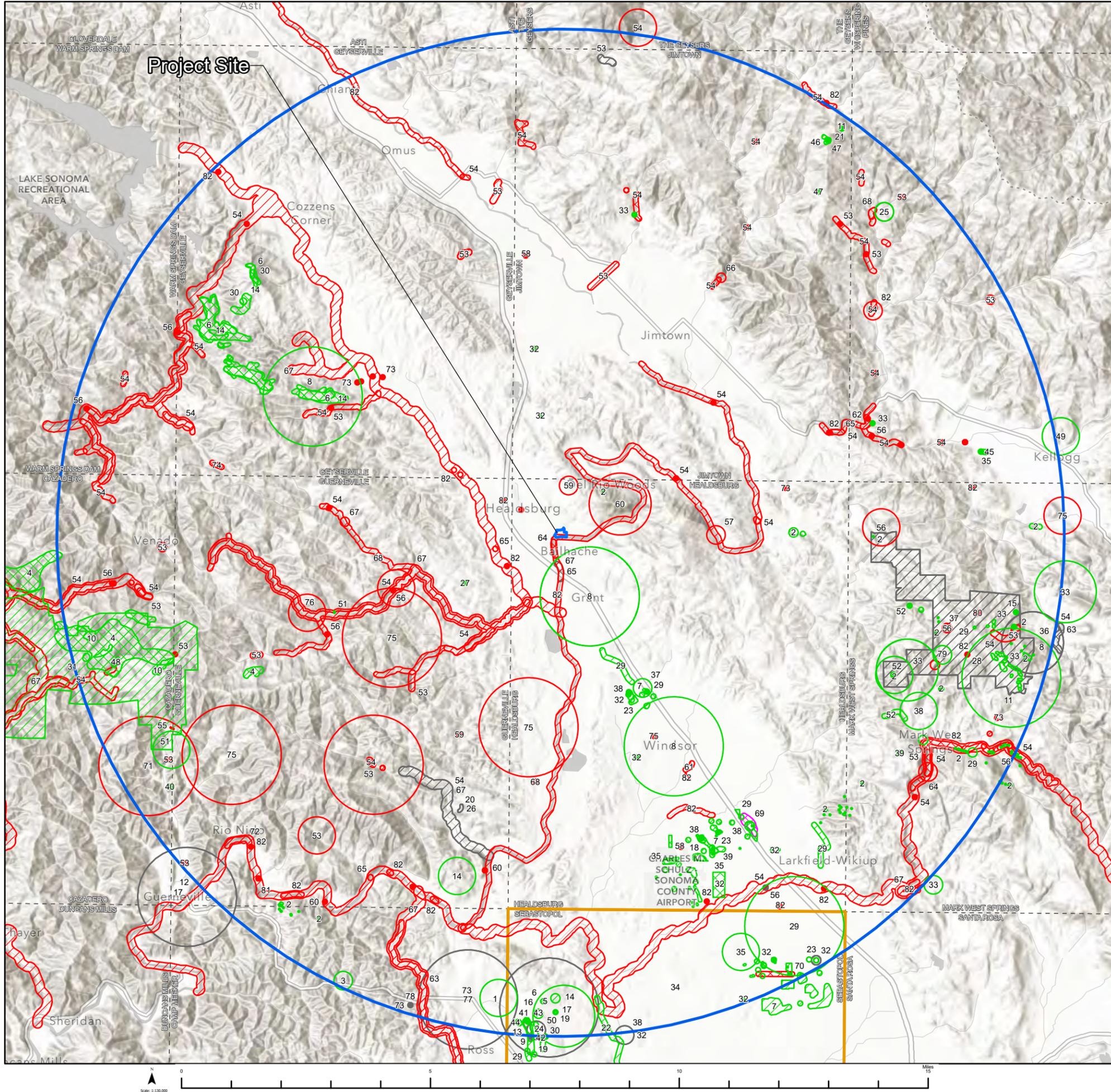
Plants		Amphibians	
1 <i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	53 <i>Dicamptodon ensatus</i>	California giant salamander
2 <i>Amorpha californica</i> var. <i>nagensis</i>	Napa false indigo	54 <i>Rana boylei</i> pop. 1	foothill yellow-legged frog - north coast DPS
3 <i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i>	Baker's manzanita	55 <i>Rana draytonii</i>	California red-legged frog
4 <i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i>	Cedars manzanita	56 <i>Taricha rivularis</i>	red-bellied newt
5 <i>Arctostaphylos densiflora</i>	Vine Hill manzanita		
6 <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita		
7 <i>Blennosperma bakeri</i>	Sonoma sunshine		
8 <i>Brodiaea leptandra</i>	narrow-anthered brodiaea		
9 <i>Calamagrostis crassiglumis</i>	Thurber's reed grass		
10 <i>Calochortus raichei</i>	Cedars fairy-lantern		
11 <i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory		
12 <i>Carex comosa</i>	bristly sedge		
13 <i>Castilleja uliginosa</i>	Pitkin Marsh paintbrush		
14 <i>Ceanothus confusus</i>	Rincon Ridge ceanothus		
15 <i>Ceanothus diversgens</i>	Calistoga ceanothus		
16 <i>Ceanothus foliosus</i> var. <i>vineatus</i>	Vine Hill ceanothus		
17 <i>Ceanothus purpureus</i>	holly-leaved ceanothus		
18 <i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant		
19 <i>Clarkia imbricata</i>	Vine Hill clarkia		
20 <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i>	Pennell's bird's-beak		
21 <i>Cryptantha dissida</i>	serpentine cryptantha		
22 <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Peruvian dodder		
23 <i>Downingia pusilla</i>	dwarf downingia		
24 <i>Eastwoodia californica</i>	swamp harebell		
25 <i>Erigeron greenii</i>	Greene's narrow-leaved daisy		
26 <i>Erigeron serpentinus</i>	serpentine daisy		
27 <i>Fritillaria liliacea</i>	fragrant fritillary		
28 <i>Gnaphalium heterosepala</i>	Boggs Lake hedge-hyssop		
29 <i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield tarplant		
30 <i>Horkelia tenuiloba</i>	thin-lobed horkelia		
31 <i>Kopslopsis hookeri</i>	small groundcone		
32 <i>Lasthenia burkei</i>	Burke's goldfields		
33 <i>Leptosiphon jepsonii</i>	Jepson's leptosiphon		
34 <i>Liium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily		
35 <i>Limnanthes vincularis</i>	Sebastopol meadowfoam		
36 <i>Lupinus sericatus</i>	Cobb Mountain lupine		
37 <i>Microseris paludosa</i>	marsh microseris		
38 <i>Navaretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navaretia		
39 <i>Navaretia leucocephala</i> ssp. <i>pileantha</i>	many-flowered navaretia		
40 <i>Piperia candida</i>	white-flowered rein orchid		
41 <i>Rhynchospora alba</i>	white beaked-rush		
42 <i>Rhynchospora californica</i>	California beaked-rush		
43 <i>Rhynchospora californica</i>	California beaked-rush		
44 <i>Rhynchospora capitellata</i>	round-headed beaked-rush		
45 <i>Rhynchospora globularis</i>	Kenwood Marsh checkerbloom		
46 <i>Stalacea oregana</i> ssp. <i>valida</i>	Frederick's jewelflower		
47 <i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>	Hoffman's bristly jewelflower		
48 <i>Streptanthus glandulosus</i> ssp. <i>hoffmanii</i>	Morrison's jewelflower		
49 <i>Stuckenia filiformis</i> ssp. <i>alpina</i>	northern slender pondweed		
50 <i>Trifolium amoenum</i>	two-lob clover		
51 <i>Ulna longissima</i>	Methuselah's beard lichen		
52 <i>Viburnum ellipticum</i>	oval-leaved viburnum		

Birds		Crustaceans	
57 <i>Ardea herodias</i>	great blue heron	61 <i>Linderiella occidentalis</i>	California linderiella
58 <i>Athene cucularia</i>	burrowing owl	62 <i>Stygobromus cherylae</i>	Bar's amphipod
59 <i>Elaeus leucurus</i>	white-tailed kite	63 <i>Syncaris pacifica</i>	California freshwater shrimp
60 <i>Pandion haliaetus</i>	osprey		

Fish		Herbaceous	
64 <i>Hesperoleucus venustus navarroensis</i>	northern coastal roach	69 <i>Northern Hardpan Vernal Pool</i>	Northern Hardpan Vernal Pool
65 <i>Hysteroleucis traskii</i> pom	Russian River tule perch		
66 <i>Mylopharodon conocephalus</i>	hardhead		
67 <i>Oncorhynchus kisutch</i> pop. 4	coho salmon - central California coast ESU		
68 <i>Oncorhynchus mykiss irideus</i> pop. 8	steelhead - central California coast DPS		

Insects		Mammals	
70 <i>Andrena blennospermatis</i>	Blennosperma vernal pool andrenid bee	73 <i>Antrozous pallidus</i>	pallid bat
71 <i>Bombus caliginosus</i>	obscure bumble bee	74 <i>Arboreus pomo</i>	Sonoma tree vole
72 <i>Dubiraphia giulianii</i>	Giuliani's dubiraphian riffle beetle	75 <i>Corynorhinus townsendii</i>	Townsend's big-eared bat
		76 <i>Erethizon dorsatum</i>	North American porcupine
		77 <i>Lasius cinereus</i>	hoary bat
		78 <i>Lasius frantzii</i>	western red bat
		79 <i>Myotis thysanodes</i>	fringed myotis
		80 <i>Taxidea taxus</i>	American badger

Mollusks		Reptiles	
81 <i>Gonidea angulata</i>	western ridged mussel	82 <i>Emys marmorata</i>	western pond turtle



Badger Park CNDDB Elements Intersecting 10 Mile: Plants, Animals, and Terrestrial and Aquatic Communities

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Project Data: Huffman Broadway Group; Plant, Animal & Community Data: CDFW CNDDB 2/3/2024; Basemap: Esri, NASA, NGA, USGS, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 FT US
Scale: 1:130,000
Date Exported: 2/28/2024
GIS Analyst: Deland Wing
HBG PM: Greg Huffman

USGS 7.5 Quad

Federal Status, California Status Plant

	Endangered, Endangered		2B.3
	Endangered, Rare		4.2
	Endangered, None		
	None, Endangered		
	None, Rare		
	None, None		

Rare Plant Rank

	1A
	1B.1
	1B.2
	1B.3
	2B.1
	2B.2

Project Boundary With 10 Mile Buffer

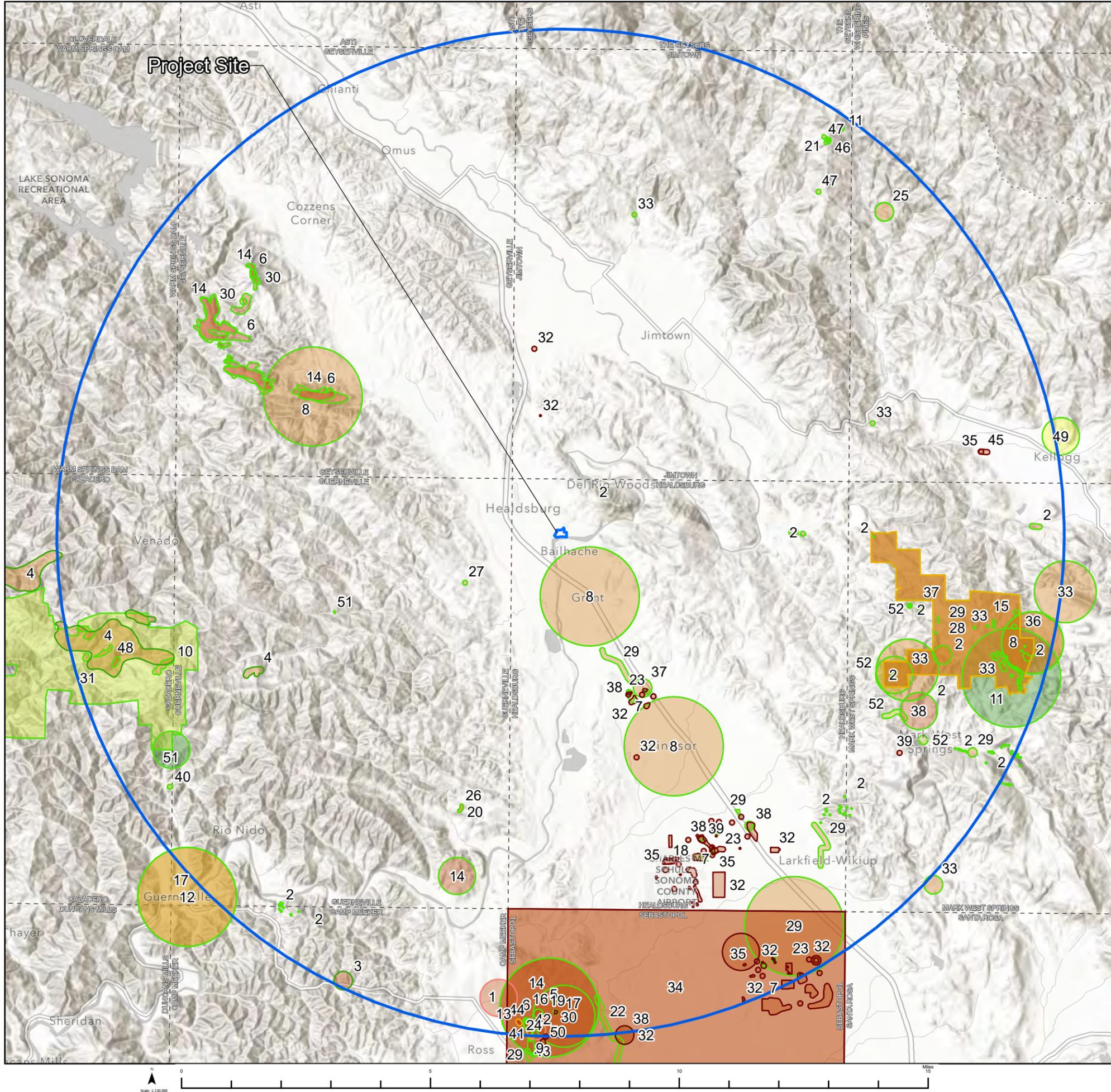
Plants		Amphibians	
1 <i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	53 <i>Dicamptodon ensatus</i>	California giant salamander
2 <i>Amorpha californica</i> var. <i>nagensis</i>	Napa false indigo	54 <i>Rana boylei</i> pop. 1	foothill yellow-legged frog - north coast DPS
3 <i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i>	Baker's manzanita	55 <i>Rana draytonii</i>	California red-legged frog
4 <i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i>	Cedars manzanita	56 <i>Taricha rivularis</i>	red-bellied newt
5 <i>Arctostaphylos densiflora</i>	Vine Hill manzanita		
6 <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita		
7 <i>Blennosperma bakeri</i>	Sonoma sunshine		
8 <i>Brodiaea leptandra</i>	narrow-anthered brodiaea		
9 <i>Calamagrostis crassiglumis</i>	Thurber's reed grass		
10 <i>Calochortus raichei</i>	Cedars fairy-lantern		
11 <i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory		
12 <i>Carex comosa</i>	bristly sedge		
13 <i>Castilleja uliginosa</i>	Pitkin Marsh paintbrush		
14 <i>Ceanothus confusus</i>	Rincon Ridge ceanothus		
15 <i>Ceanothus divergens</i>	Callistoga ceanothus		
16 <i>Ceanothus foliosus</i> var. <i>vineatus</i>	Vine Hill ceanothus		
17 <i>Ceanothus purpureus</i>	holly-leaved ceanothus		
18 <i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant		
19 <i>Clarkia imbricata</i>	Vine Hill clarkia		
20 <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i>	Pennell's bird's-beak		
21 <i>Cryptantha dissida</i>	serpentine cryplantha		
22 <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Peruvian dodder		
23 <i>Downingia pusilla</i>	dwarf downingia		
24 <i>Eastwoodia californica</i>	swamp harebell		
25 <i>Erigeron greenei</i>	Greene's narrow-leaved daisy		
26 <i>Erigeron serpentinus</i>	serpentine daisy		
27 <i>Fritillaria liliacea</i>	fragrant fritillary		
28 <i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop		
29 <i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield tarplant		
30 <i>Horkelia tenuiloba</i>	thin-lobed horkelia		
31 <i>Kopslopsis hookeri</i>	small groundcone		
32 <i>Lasthenia burkei</i>	Burke's goldfields		
33 <i>Leptosiphon jepsonii</i>	Jepson's leptosiphon		
34 <i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily		
35 <i>Limnanthes vinculans</i>	Sebastopol meadowfoam		
36 <i>Lupinus sericatus</i>	Cobb Mountain lupine		
37 <i>Microseris paludosa</i>	marsh microseris		
38 <i>Navaretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navaretia		
39 <i>Navaretia leucocephala</i> ssp. <i>pileantha</i>	many-flowered navaretia		
40 <i>Piperia candida</i>	white-flowered rein orchid		
41 <i>Rhynchospora alba</i>	white beaked-rush		
42 <i>Rhynchospora californica</i>	California beaked-rush		
43 <i>Rhynchospora capitellata</i>	brownish beaked-rush		
44 <i>Rhynchospora globularis</i>	round-headed beaked-rush		
45 <i>Sidalcea oregana</i> ssp. <i>valida</i>	Kenwood Marsh checkerbloom		
46 <i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>	Freed's jewelflower		
47 <i>Streptanthus glandulosus</i> ssp. <i>hoffmanii</i>	Hoffman's bristly jewelflower		
48 <i>Streptanthus morisonii</i> ssp. <i>morisonii</i>	Morrison's jewelflower		
49 <i>Stuckenia filiformis</i> ssp. <i>alpina</i>	northern slender pondweed		
50 <i>Trifolium amoenum</i>	two-lob clover		
51 <i>Ulna longissima</i>	Methuselah's beard lichen		
52 <i>Viburnum ellipticum</i>	oval-leaved viburnum		

Birds		Crustaceans	
57 <i>Ardea herodias</i>	great blue heron	61 <i>Linderiella occidentalis</i>	California linderiella
58 <i>Athene cucularia</i>	burrowing owl	62 <i>Stygobromus cherylae</i>	Barr's amphipod
59 <i>Elanus leucurus</i>	white-tailed kite	63 <i>Syncaris pacifica</i>	California freshwater shrimp
60 <i>Pandion haliaetus</i>	osprey		

Fish		Herbaceous	
64 <i>Hesperoleucus venustus navarroensis</i>	northern coastal roach	69 <i>Northern Hardpan Vernal Pool</i>	Northern Hardpan Vernal Pool
65 <i>Hysteroleucis traskii</i> pom	Russian River tule perch		
66 <i>Mylopharodon conocephalus</i>	hardhead		
67 <i>Oncorhynchus kisutch</i> pop. 4	coho salmon - central California coast		
68 <i>Oncorhynchus mykiss irideus</i> pop. 8	ESU steelhead - central California coast DPS		

Insects		Mammals	
70 <i>Andrena blennospermatis</i>	Blennosperma vernal pool andrenid bee	73 <i>Antrozous pallidus</i>	pallid bat
71 <i>Bombus caliginosus</i>	obscure bumble bee	74 <i>Arborimus pom</i>	Sonoma tree vole
72 <i>Dubiraphia giulianii</i>	Giuliani's dubiraphian riffle beetle	75 <i>Corynorhinus townsendii</i>	Townsend's big-eared bat
		76 <i>Erithizon dorsatum</i>	North American porcupine
		77 <i>Lasius cinereus</i>	hoary bat
		78 <i>Lasius frantzii</i>	western red bat
		79 <i>Myotis thysanodes</i>	fringed myotis
		80 <i>Taxidea taxus</i>	American badger

Mollusks		Reptiles	
81 <i>Gonidea angulata</i>	western ridged mussel	82 <i>Emys marmorata</i>	western pond turtle



Badger Park CNDDB Elements Intersecting 10 Mile: Plants

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Project Data: Huffman Broadway Group; Plant, Animal & Community Data: CDFW CNDDB 2/3/2024; Basemap: Esri, NASA, NGA, USGS, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

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USGS 7.5 Quad

Animals

FED List

- Endangered
- Threatened
- Proposed Threatened
- None

CAL List

- Endangered

Project Boundary With 10 Mile Buffer

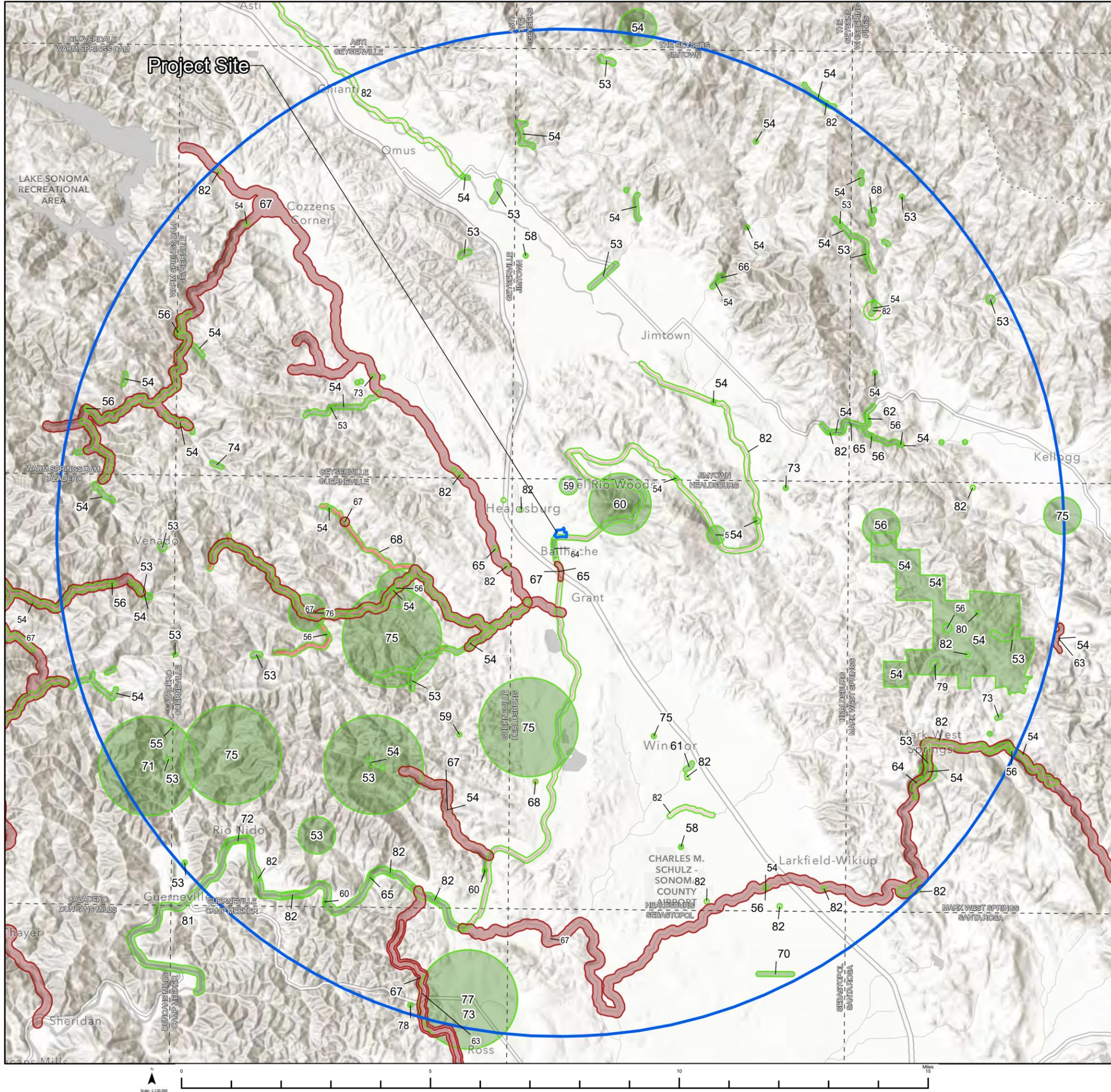
None

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Badger Park CNDDB Elements Intersecting 10 Mile: Animals

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Healdsburg, Sonoma County, California

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2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
<p>Northern Spotted Owl <i>Strix occidentalis caurina</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/1123</p>	Threatened

Reptiles

NAME	STATUS
<p>Green Sea Turtle <i>Chelonia mydas</i></p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/6199</p>	Threatened
<p>Northwestern Pond Turtle <i>Actinemys marmorata</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/1111</p>	Proposed Threatened

Insects

NAME	STATUS
<p>Monarch Butterfly <i>Danaus plexippus</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/9743</p>	Candidate

Flowering Plants

NAME	STATUS
<p>Burke's Goldfields <i>Lasthenia burkei</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/4338</p>	Endangered

Many-flowered Navarretia *Navarretia leucocephala* ssp. *plieantha* Endangered
Wherever found
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/2491>

Sebastopol Meadowfoam *Limnanthes vinculans* Endangered
Wherever found
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/404>

Sonoma Sunshine *Blennosperma bakeri* Endangered
Wherever found
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/1260>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>

- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are bald and/or golden eagles in your project area.

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

NAME	BREEDING SEASON
<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>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. https://ecos.fws.gov/ecp/species/1626</p>	Breeds Jan 1 to Aug 31
<p>Golden Eagle <i>Aquila chrysaetos</i></p> <p>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. https://ecos.fws.gov/ecp/species/1680</p>	Breeds Jan 1 to Aug 31

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 ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "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.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

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.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

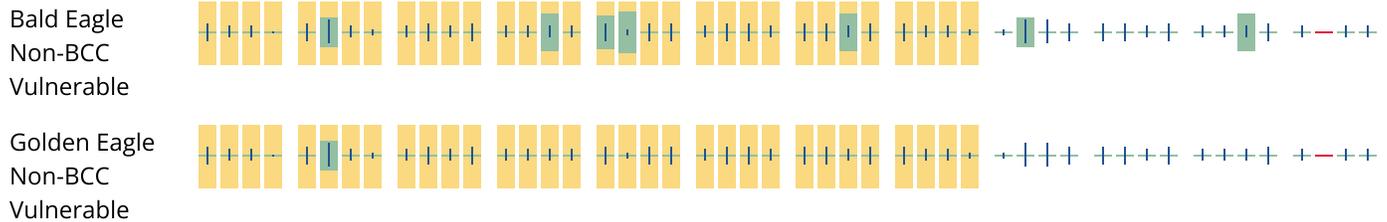
No Data (—)

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.





What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence 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). To see 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 of bald and golden eagles 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 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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- 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>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

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, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird <i>Selasphorus sasin</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

- Bald Eagle** *Haliaeetus leucocephalus* Breeds Jan 1 to Aug 31
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.
<https://ecos.fws.gov/ecp/species/1626>
- Belding's Savannah Sparrow** *Passerculus sandwichensis beldingi* Breeds Apr 1 to Aug 15
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/8>
- Black Swift** *Cypseloides niger* Breeds Jun 15 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/8878>
- Bullock's Oriole** *Icterus bullockii* Breeds Mar 21 to Jul 25
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
- California Gull** *Larus californicus* Breeds Mar 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
- California Thrasher** *Toxostoma redivivum* Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
- Common Yellowthroat** *Geothlypis trichas sinuosa* Breeds May 20 to Jul 31
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/2084>
- Golden Eagle** *Aquila chrysaetos* Breeds Jan 1 to Aug 31
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.
<https://ecos.fws.gov/ecp/species/1680>

Long-eared Owl *asio otus*

Breeds Mar 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3631>

Nuttall's Woodpecker *Picoides nuttallii*

Breeds Apr 1 to Jul 20

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/9410>

Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Western Grebe *aechmophorus occidentalis*

Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/6743>

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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 "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "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.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

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.

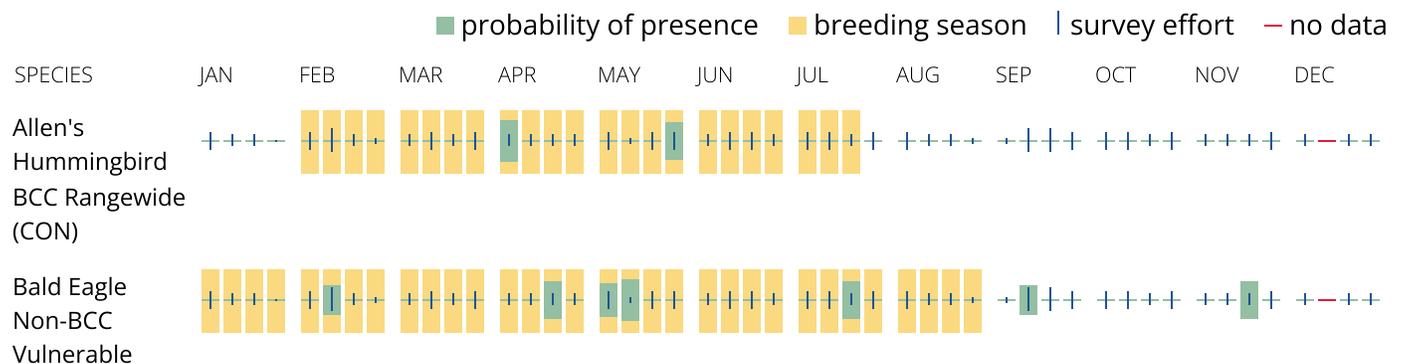
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

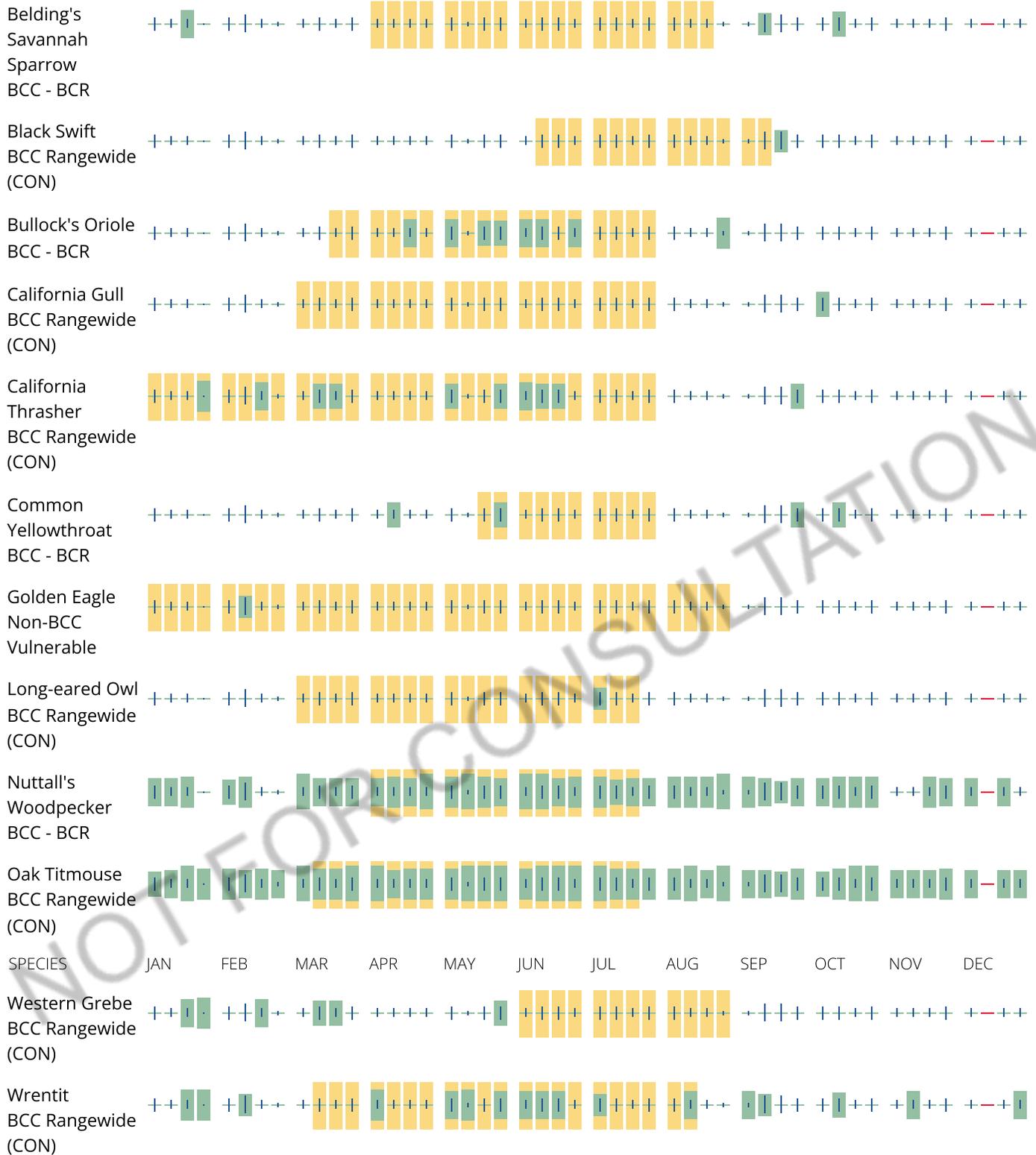
No Data (-)

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.





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.

Facilities

National Wildlife Refuge lands

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 at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX C
BADGER PARK REDEVELOPMENT MASTER PLAN



BADGER PARK REDEVELOPMENT MASTER PLAN



PDT DESIGN PROCESS

BADGER PARK MASTER PLAN

BADGER PARK



THE BIRDS NEIGHBORHOOD

GRAVEL BAR

SYAR INDUSTRIES

BADGER PARK

'WILLOW ISLAND'

RUSSIAN RIVER

BADGER PARK

SYAR INDUSTRIES

TILLEY GRO

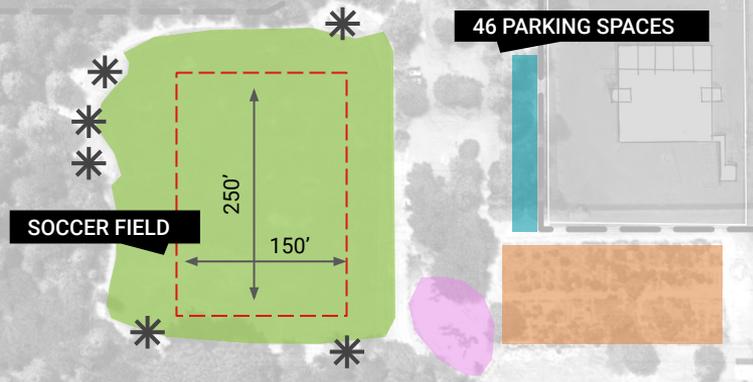
BADGER PARK

SUBSTATION

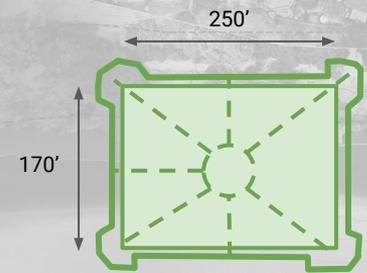


EXISTING CONDITIONS

BADGER PARK



- ① NATURAL GRASS / FIELDS
- ② PLAY AREA
- ③ COMMUNITY GARDEN
- ④ DOG PLAY AREA
- ⑤ SPORTS COURTS
- * PICNIC AREAS
- ▲ RIVER VIEWS



SIZE COMPARISON:
HEALDSBURG PLAZA

BASE PLAN

FOREST AREA AS-IS

- ① CENTRAL LAWN
- ② PLAY AREA
- ③ COMMUNITY GARDEN
- ④ CREEK
- ⑤ REALIGNED PARKING
- ⑥ DROP-OFF AREA
- ⑦ TRAIL TO SYAR GRAVEL BAR
- ⑧ ELECTRICAL SUBSTATION
- ⑨ RUSSIAN RIVER
- ⑩ ACCESS TO TILLEY GROVE



BASE PLAN

FOREST AREA THINNED



- ① CENTRAL LAWN
- ② PLAY AREA
- ③ COMMUNITY GARDEN
- ④ CREEK
- ⑤ REALIGNED PARKING
- ⑥ DROP-OFF AREA
- ⑦ TRAIL TO SYAR GRAVEL BAR
- ⑧ WILLOW ISLAND
- ⑨ WILLOW BEACH
- ⑩ WEST FOREST (THINNED)
- ⑪ ELECTRICAL SUBSTATION
- ⑫ RUSSIAN RIVER
- ⑬ ACCESS TO TILLEY GROVE

DESIGN PROCESS



ACTIVE



PASSIVE



HYBRID



PARKING



SITE UTILITIES





COMMUNITY ENGAGEMENT / PARKS + REC COMMISSION

BADGER PARK MASTER PLAN

INITIAL MASTER PLAN FOR COMMUNITY FEEDBACK

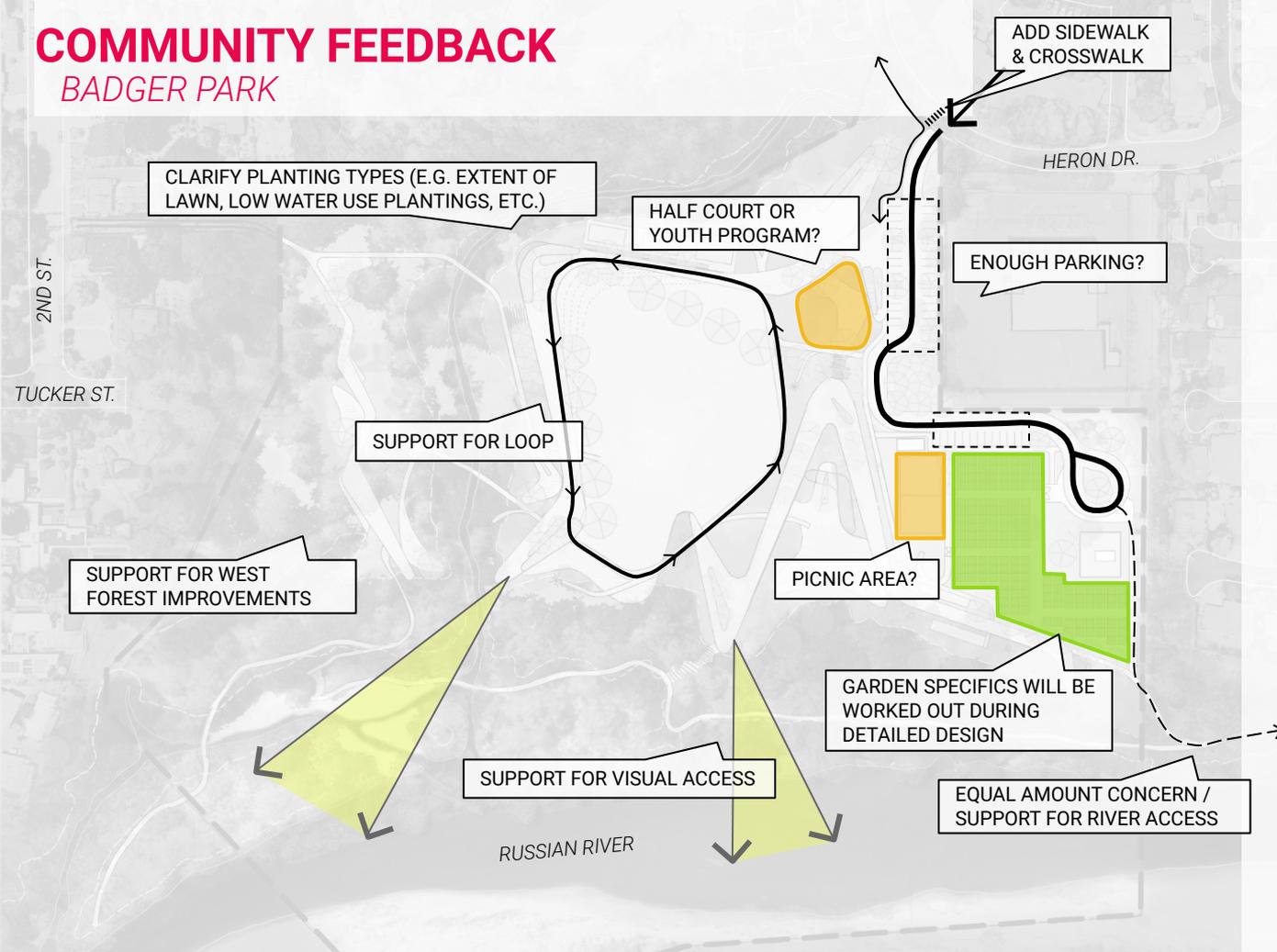
BADGER PARK

- ① CENTRAL LAWN
- ② PROMENADE
- ③ RIVER OVERLOOKS
- ④ PLAY AREA
- ⑤ COMMUNITY GARDEN
- ⑥ DOG PLAY AREA
- ⑦ RESTROOMS
- ⑧ SPORTS COURTS
- ⑨ BOCCE COURTS
- ⑩ LOOP TRAIL
- ⑪ PLAZA
- ⑫ RIVER ACCESS DROP-OFF
- ⑬ PICNIC AREA
- ⑭ RIVERWALK TRAIL
- ⑮ WILLOW ISLAND
- ✱ POSSIBLE ART



COMMUNITY FEEDBACK

BADGER PARK



- Overall positive reaction to masterplan
- Confirm proposed parking qty. is adequate to support proposed uses (river access, games, weekend activities)
- Support for keeping a walking loop, but with a surface that is less slippery during winter months.
- Equal amount of concern / support regarding river access.
- Some preference for keeping the dog play area in its current location, due to amount of insects that may be at proposed location.
- To work on further during Detailed Design phase:
 - Community garden specifics, e.g. how beds will be phased as gardeners vacate plots to make room for possible parking.
 - Clarify low water use plantings, meadows, hybrid bermuda grass and synthetic turf areas.

PRELIMINARY MASTER PLAN

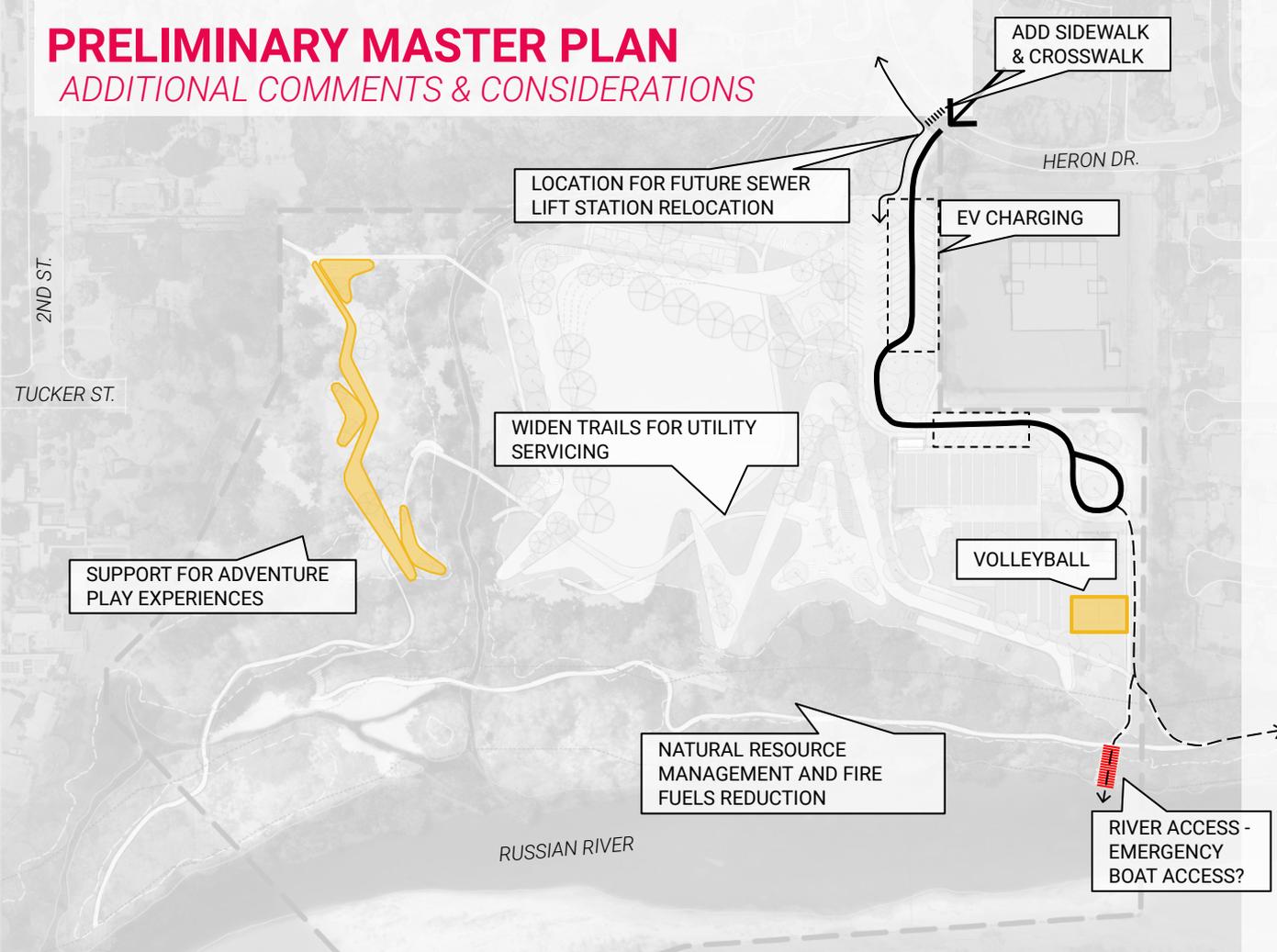
PREVIOUS



- ① CENTRAL LAWN
- ② PROMENADE
- ③ RIVER OVERLOOKS
- ④ PLAY AREA
- ⑤ NOT USED
- ⑥ COMMUNITY GARDEN
- ⑦ DOG PLAY AREA
- ⑧ RESTROOMS
- ⑨ SPORTS COURTS
- ⑩ NOT USED
- ⑪ GAME COURTS
- ⑫ LOOP TRAIL
- ⑬ PLAZA
- ⑭ RIVER ACCESS DROP-OFF
- ⑮ PICNIC AREA
- ⑯ RIVERWALK TRAIL
- ⑰ WILLOW ISLAND
- ⑱ RIVER ACCESS
- ✦ POSSIBLE ART

PRELIMINARY MASTER PLAN

ADDITIONAL COMMENTS & CONSIDERATIONS



- Overall positive reaction to masterplan
- Support for river access via Badger Park -- commissioners suggested adding direct kayak / canoe access along eastern edge of park
- Volleyball court incorporated along river access connector
- Support for an adventure play experiences within the west forest area, including natural boulders and logs for spontaneous play
- Incorporate Public Works, Utility, and Public Safety considerations



FINAL MASTER PLAN

BADGER PARK MASTER PLAN

PROPOSED MASTER PLAN

UPDATED



- ① CENTRAL LAWN
- ② PROMENADE
- ③ RIVER OVERLOOKS
- ④ PLAY AREA
- ⑤ ADVENTURE PLAY
- ⑥ COMMUNITY GARDEN
- ⑦ DOG PLAY AREA
- ⑧ RESTROOMS
- ⑨ SPORTS COURTS
- ⑩ VOLLEYBALL
- ⑪ GAME COURTS
- ⑫ LOOP TRAIL
- ⑬ PLAZA
- ⑭ RIVER ACCESS DROP-OFF
- ⑮ PICNIC AREA
- ⑯ RIVERWALK TRAIL
- ⑰ WILLOW ISLAND
- ⑱ RIVER ACCESS
- ★ POSSIBLE ART

MATERIAL PALETTE

BADGER PARK



WOOD



METAL



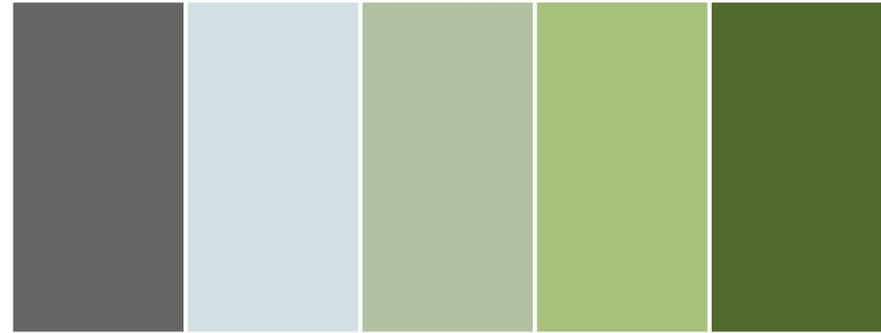
MIX OF INDIGENOUS
MATERIALS AND METAL

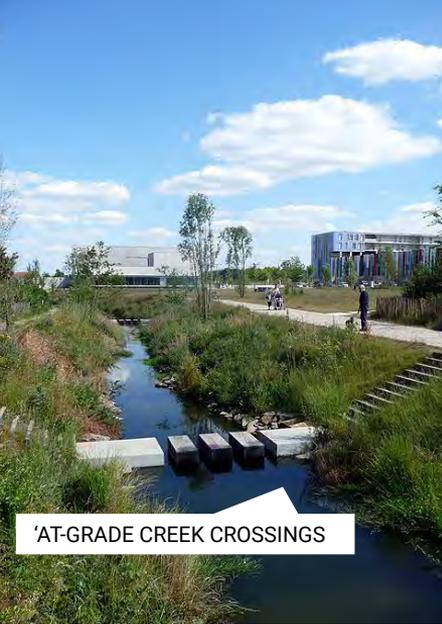


STONE



MUTED COLOR PALETTE
MATCHES RIVER COLORS





'AT-GRADE CREEK CROSSINGS



OVERLOOKS



COMMUNITY GARDEN



MULTI-SPORT COURTS



ARTISTIC FENCE



'RIVER' NATURAL PLAY

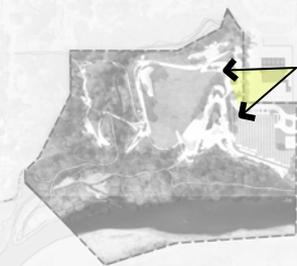


INDUSTRIAL PAVILION



LANDFORMS FRAME VIEWS

AERIAL LOOKING WEST



- ① CENTRAL LAWN
- ② PROMENADE
- ③ PLAY AREA
- ④ PLAZA
- ⑤ STAIRS
- ⑥ RESTROOMS
- ⑦ SPORT COURTS
- ⑧ COMMUNITY GARDEN
- ⑨ DOG PLAY AREA
- ⑩ PARKING AREA
- ⑪ OVERLOOK

PROMENADE



- 1 PROMENADE
- 2 GRASSY LANDFORMS
- 3 PLAY AREA BEYOND
- 4 PLANTING AREA

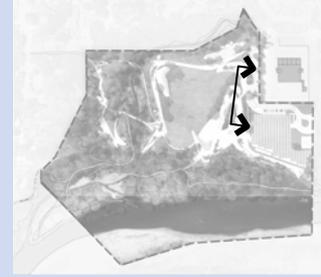
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3

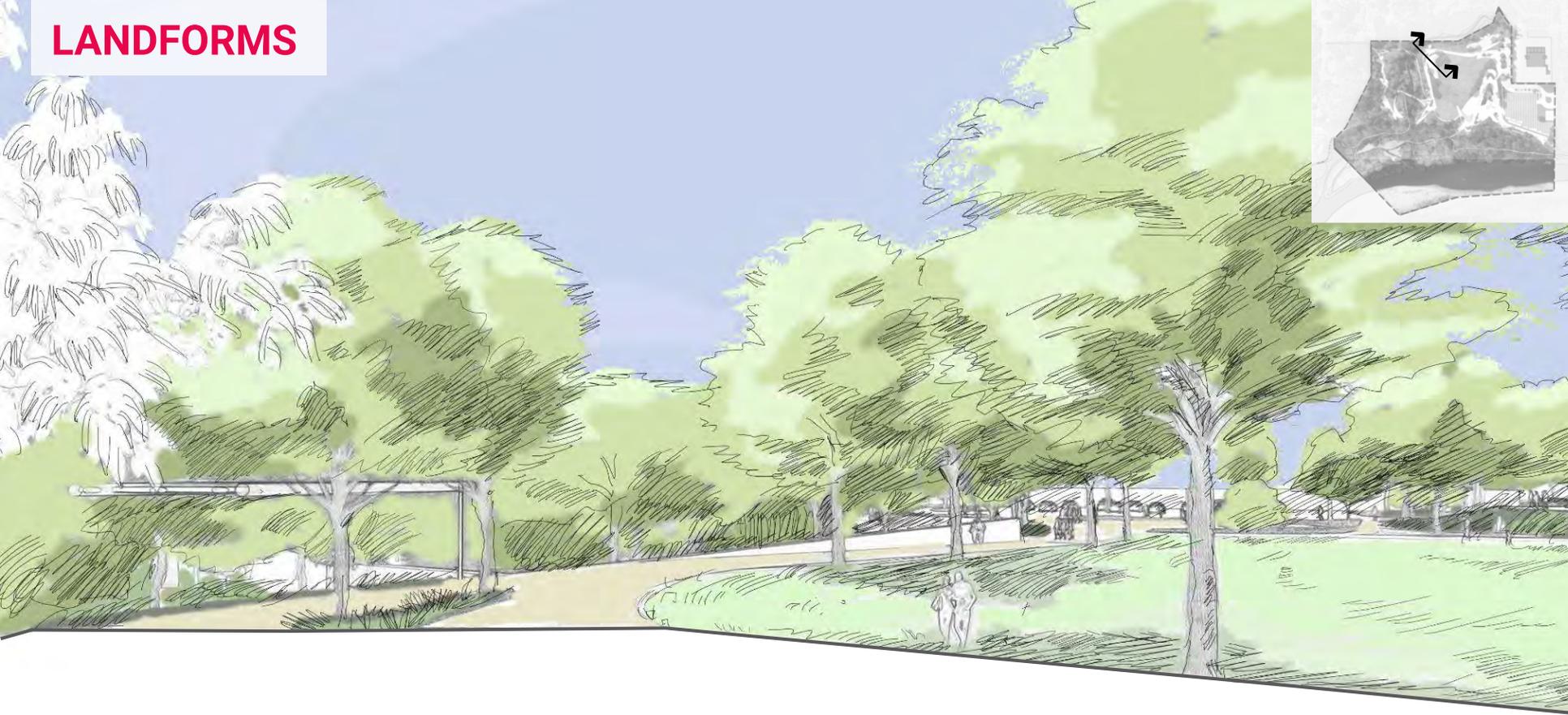
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2

LANDFORMS



LANDFORMS



PROPOSED MASTER PLAN

UPDATED



- ① CENTRAL LAWN
- ② PROMENADE
- ③ RIVER OVERLOOKS
- ④ PLAY AREA
- ⑤ ADVENTURE PLAY
- ⑥ COMMUNITY GARDEN
- ⑦ DOG PLAY AREA
- ⑧ RESTROOMS
- ⑨ SPORTS COURTS
- ⑩ VOLLEYBALL
- ⑪ GAME COURTS / PLAY
- ⑫ LOOP TRAIL
- ⑬ PLAZA
- ⑭ RIVER ACCESS DROP-OFF
- ⑮ PICNIC AREA
- ⑯ RIVERWALK TRAIL
- ⑰ WILLOW ISLAND
- ⑱ RIVER ACCESS
- ★ POSSIBLE ART

APPENDIX D
AQUATIC RESOURCES DELINEATION REPORT
BADGER PARK REDEVELOPMENT PROJECT
HEALDSBURG, CALIFORNIA

APPENDIX E
TREE SURVEY
BADGER PARK REDEVELOPMENT PROJECT
HEALDSBURG, CALIFORNIA

APPENDIX 5. TREE SURVEY

ON-SITE PHOTO DOCUMENTATION OF HERITAGE TREES

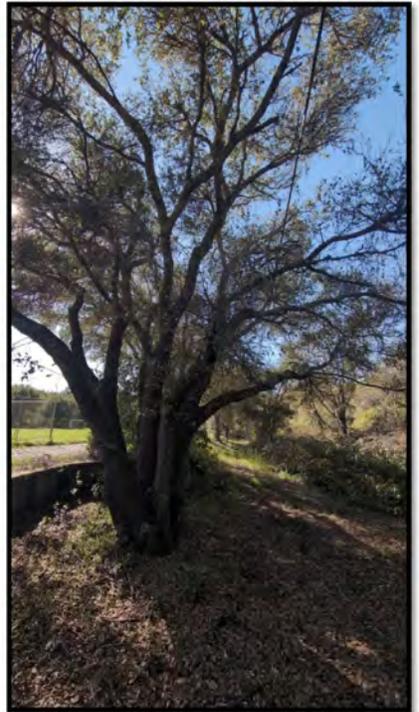
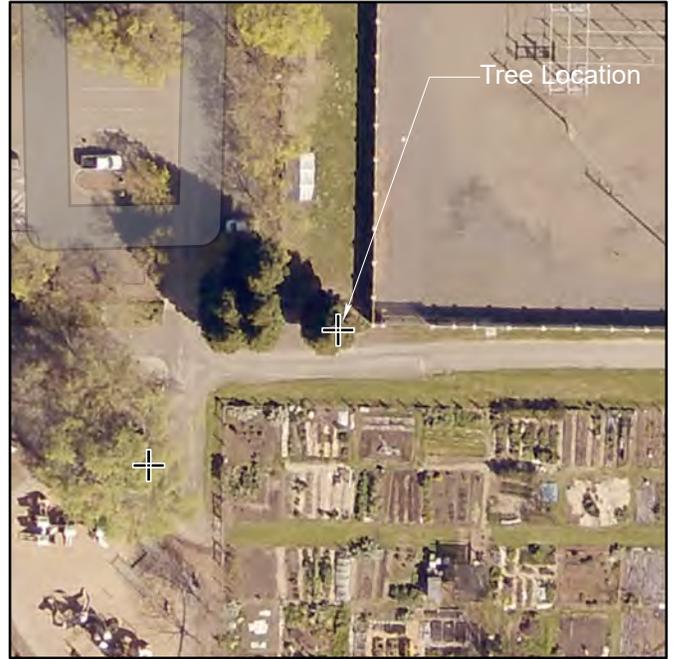


Photo ID: 1

Species: Coast Redwood
Sequoia sempervirens

Measured 24" from the Ground: Diameter = 31



1:1,000

Photo ID: 2

Species: Valley Oak
Quercus lobata

Measured 24" from the Ground: Diameter = 37



1:1,000



Photo ID: 11

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 34



1:1,000

Photo ID: 12

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 31



1:1,000



Photo ID: 13

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 64



1:1,000



Photo ID: 14

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 49



1:1,000

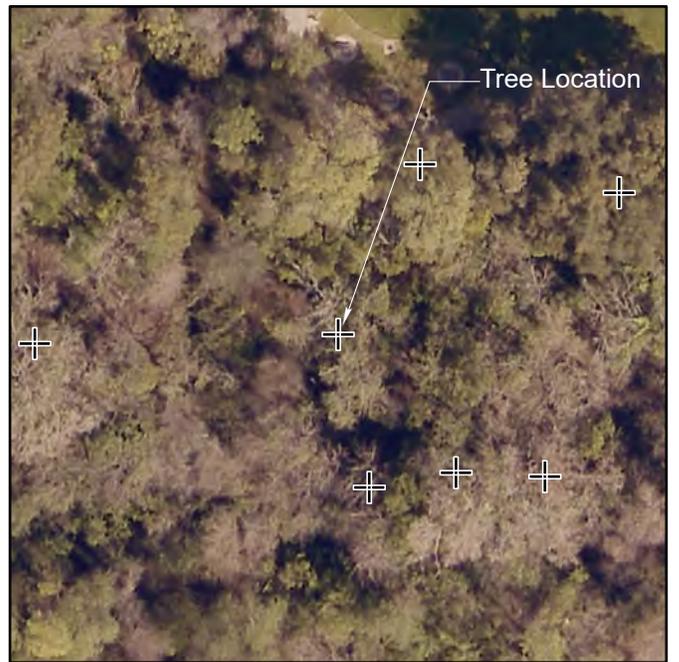


Photo ID: 15
Species: Black Cottonwood
Populus trichocarpa
Measured 24" from the Ground: Diameter = 33



1:1,000

Photo ID: 16
Species: Black Cottonwood
Populus trichocarpa
Measured 24" from the Ground: Diameter = 30



1:1,000

Photo ID: 17

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 46



1:1,000

Photo ID: 18

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 36



1:1,000

Photo ID: 19

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 35



1:1,000

Photo ID: 20

Species: Black Cottonwood
Populus trichocarpa

Measured 24" from the Ground: Diameter = 38



1:1,000



Photo ID: 23
Species: European privet
Ligustrum vulgare
Measured 24" from the Ground: Diameter = 30



1:1,000



Photo ID: 24
Species: Oregon ash
Fraxinus latifolia
Measured 24" from the Ground: Diameter = 46

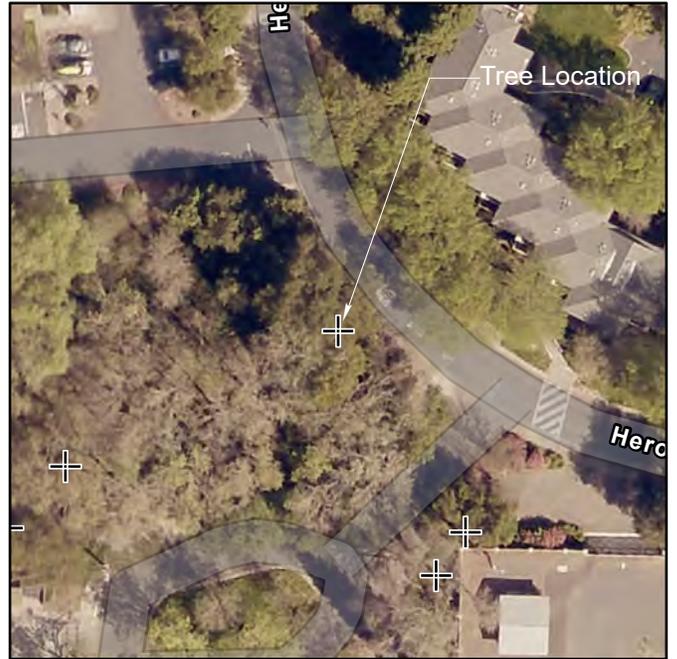


1:1,000

Photo ID: 25

Species: Coast Live oak
Quercus agrifolia

Measured 24" from the Ground: Diameter = 32



1:1,000

Photo ID: 26

Species: Coast Live oak
Quercus agrifolia

Measured 24" from the Ground: Diameter = 30



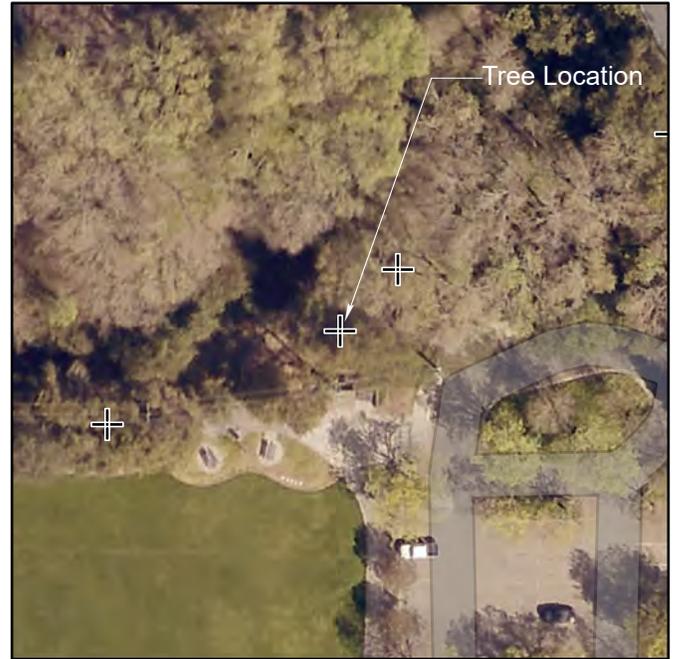
1:1,000



Photo ID: 27

Species: Coast Live oak
Quercus agrifolia

Measured 24" from the Ground: Diameter = 31



1:1,000



Photo ID: 28

Species: Coast Live oak
Quercus agrifolia

Measured 24" from the Ground: Diameter = 45



1:1,000





Photo ID: 29

Species: Coast Live oak
Quercus agrifolia

Measured 24" from the Ground: Diameter = 43



Photo ID: 30

Species: Coast Live oak
Quercus agrifolia

Measured 24" from the Ground: Diameter = 31



Map and Photo Source Credits - Project Data and Photos: Huffman Broadway Group; Basemap;; Aerial Imagery:
Pictometry (Sonoma Accuplus IMG 2021) image captured on Feb 19, 2021

Photo Count: {COUNT:Sort}
Date Report Created: 5/10/2024

Appendix E, Table 1. Tree Survey Data

ID#	Species	Latin Name	Size (inches)
1	Coast Redwood	<i>Sequoia sempervirens</i>	31
2	Valley Oak	<i>Quercus lobata</i>	37
3	Black Cottonwood	<i>Populus trichocarpa</i>	38
4	Black Cottonwood	<i>Populus trichocarpa</i>	47
5	Black Cottonwood	<i>Populus trichocarpa</i>	32
6	Bay laurel	<i>Umbellularia californica</i>	36
7	Black Cottonwood	<i>Populus trichocarpa</i>	32
8	Black Cottonwood	<i>Populus trichocarpa</i>	47
9	Black Cottonwood	<i>Populus trichocarpa</i>	36
10	Black Cottonwood	<i>Populus trichocarpa</i>	31
11	Black Cottonwood	<i>Populus trichocarpa</i>	34
12	Black Cottonwood	<i>Populus trichocarpa</i>	31
13	Black Cottonwood	<i>Populus trichocarpa</i>	64
14	Black Cottonwood	<i>Populus trichocarpa</i>	49
15	Black Cottonwood	<i>Populus trichocarpa</i>	33
16	Black Cottonwood	<i>Populus trichocarpa</i>	30
17	Black Cottonwood	<i>Populus trichocarpa</i>	46
18	Black Cottonwood	<i>Populus trichocarpa</i>	36
19	Black Cottonwood	<i>Populus trichocarpa</i>	35
20	Black Cottonwood	<i>Populus trichocarpa</i>	38
21	Coast Live oak	<i>Quercus agrifolia</i>	36
22	Coast Live oak	<i>Quercus agrifolia</i>	30
23	European privet	<i>Ligustrum vulgare</i>	30
24	Oregon ash	<i>Fraxinus latifolia</i>	46
25	Coast Live oak	<i>Quercus agrifolia</i>	32
26	Coast Live oak	<i>Quercus agrifolia</i>	30
27	Coast Live oak	<i>Quercus agrifolia</i>	31
28	Coast Live oak	<i>Quercus agrifolia</i>	45
29	Coast Live oak	<i>Quercus agrifolia</i>	43
30	Coast Live oak	<i>Quercus agrifolia</i>	31
31	Black Cottonwood	<i>Populus trichocarpa</i>	36
32	Black Cottonwood	<i>Populus trichocarpa</i>	30

APPENDIX C

AQUATIC RESOURCES DELINEATION

Aquatic Resources Delineation Report Badger Park Project Healdsburg, California



Prepared for

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April 2024

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Citation: Huffman-Broadway Group, Inc. 2024. *Aquatic Resource Delineation Report*, Badger Park Project, Healdsburg, California. April. 18 pages plus Appendices. Prepared for Raney Planning & Management, Inc., Sacramento, California. April 2024.

EXECUTIVE SUMMARY

At the request of Raney Planning & Management, Inc (Applicant), Huffman-Broadway Group, Inc. (HBG) conducted an Aquatic Resources Delineation (ARD) within the Badger Park Project development area in Healdsburg, California (ARD “Review Area”). The purpose of this ARD is to provide technical information for the Corps to determine if the aquatic resources delineated within the Review Area are potentially subject to: (1) US Army Corps of Engineers (Corps) and US Environmental Protection Agency (US EPA) jurisdiction under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) based on consistency with the August 29, 2023 WOTUS Rule, and (2) Corps jurisdiction under the Rivers and Harbors Act of 1899 (RHA) (33 U.S.C. Sec. 401 et seq.).

Data collection, analysis, identification, and delineation of aquatic resources potentially subject to CWA was conducted consistent with the August 29, 2023 WOTUS Rule and supporting Corps and US EPA guidance document including the *Corps’ 1987 Wetlands Delineation Manual* (Corps Delineation Manual), the *Corps’ 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Regional Supplement), and the *OHWM Field Guide* (Lichvar and McColley 2008), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (Gabrielle, et al., 2022).

Aquatic resources in the form of wetlands and tributaries (streams with an OHWM) were found within the Review Area. Appendix A, Figure 6 shows the aquatic resources identified and delineated which are potentially subject to Corps and USEPA Section 404 CWA jurisdiction.

The portion of the Russian River that is within and adjacent to the Review Area has been determined not to be subject to RHA jurisdiction by the San Francisco District.

1.0 INTRODUCTION

1.1 Background

At the request of Raney Planning & Management, Inc. (Applicant), Huffman-Broadway Group, Inc. (HBG) conducted an Aquatic Resources Delineation (ARD) within the Badger Park Project development area in Healdsburg, California (ARD “Review Area”). The purpose of this ARD is to provide technical information for the Corps to determine if the aquatic resources delineated within the Review Area are potentially subject to: (1) US Army Corps of Engineers (Corps) and US Environmental Protection Agency (US EPA) jurisdiction under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) based on consistency with the August 29, 2023 WOTUS Rule, and (2) Corps jurisdiction under the Rivers and Harbors Act of 1899 (RHA) (33 U.S.C. Sec. 401 et seq.).

1.2 Review Area Location

The Review Area for the ARD is east of Highway 101 (Appendix A, Figures 1 - 3). The northeastern portion of the Review Area is accessible from Heron Drive. The approximate center point of the 18.78-acre Review Area is Latitude 38.609038° north and Longitude 122.857856° west.

1.3 Directions to the Review Area

See Appendix B for driving directions.

1.4 Contact Information

Applicant	Wetland Consultants
<p>RANEY PLANNING & MANAGEMENT, INC. Contact: Nick Pappani 1501 Sports Drive, Suite A Sacramento, CA 95834 Telephone: 916.372.6100 Email: npappani@raneymanagement.com</p>	<p>Huffman-Broadway Group, Inc. ATTN: Greg Huffman 523 4th St., Suite 224 San Rafael, California 94901 Telephone: 415.999.0802 Email: ghuffman@h-bgroup.com</p>

1.5 Environmental Setting

This section presents background environmental information on the Review Area from published sources, which is augmented with observations made during the initial site reconnaissance.

1.5.1 Land Use

The Review Area consists of a public park and undeveloped lands (Appendix A, Figure 3).

1.5.2 Topography

The topographic relief on the majority of the Review Area is relatively flat with gently rolling landscapes, ranging between 78 and 100 feet MSL¹ with slopes ranging between 0 and 5 percent (USGS

¹ MSL = Mean Sea Level.

7.5' Healdsburg Quadrangle).

1.5.3 Geology

The Review Area consists of a mosaic of alluvial fans and terraces derived from alluvium derived from sedimentary rock; and flood plains composed of sandy and gravelly alluvium (NRCS 2023).

1.5.4 Vegetation

Valley Foothill Riparian

Structure. Mature riparian ecosystems include canopy trees with a canopy cover of 20 to 80 percent, a subcanopy tree layer and an understory shrub layer. Generally, the understory is impenetrable and includes fallen limbs and other debris. In the CDFW List of Natural Communities the area mapped as Valley Foothill Riparian within the floodplain of the Russian River and dominated by willow trees would be referred to as North Coast Riparian Scrub.

Composition. The Valley Foothill Riparian habitat on the Project Site consists of the forested area between the developed portion of Badger Park and the Russian River. Dominant species in the canopy layer of the on-site riparian habitat include arroyo willow (*Salix lasiolepis*), black cottonwood (*Populus trichocarpa*), box elder (*Acer negundo*), and a lesser number of other native trees such as California bay (*Umbellularia californica*), Coast live oak (*Quercus agrifolia*), and blue elderberry (*Sambucus cerulea*). The canopy layer of this habitat on the project site also includes a considerable number of non-native tree privet (*Ligustrum lucidum*) and a single Canary Island palm (*Phoenix canariensis*).

The understory of the extensive Valley Foothill Riparian habitat within the park is thick growth of mostly non-native plants that includes species such as greater periwinkle (*Vinca major*), English ivy (*Hedera helix*), poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), giant reed (*Arundo donax*), blue lilly (*Agapanthus praecox*), purple dead nettle (*Lamium purpureum*), curly dock (*Rumex crispus*), and sour grass (*Oxalis pes-caprae*), but also native species such as California blackberry (*Rubus ursinus*), common bedstraw (*Gallium aparine*), California bee plant (*Scrophularia californica*), and water sedge (*Carex aquatilis*). Plant species growing along the edge of the riparian habitat closest to the mowed play fields included fruit trees (*Prunus* sp.), tree privet, French broom (*Genista monspessulana*), California blackberry, and lemon balm (*Melissa officinalis*).

An unnamed creek runs along the northern border of Badger Park (between Badger Park and Heron Drive), enters the site near the northwest corner of the site, and traverses south through the Coastal Oak Woodland and Valley Foothill Riparian areas of the site before emptying into the Russian River near a large clump of arroyo willows. The tree canopy within and along the banks of this stream is mainly arroyo willow, tree privet, blue elderberry, Coast live oak, a few valley oak (*Quercus lobata*), and an understory consisting mainly of California blackberry.

Coastal Oak Woodland

Structure. The overstory of Coastal Oak Woodlands consists of deciduous and evergreen hardwoods (mostly oaks), sometimes mixed with scattered conifers. In mesic sites, the trees are dense and form a closed canopy. In drier sites, the trees are widely spaced, forming an open woodland or savannah. The understory is equally variable. In some instances, it is composed of shrubs from adjacent chaparral or

coastal scrub which forms a dense, almost impenetrable, understory. More commonly, shrubs are scattered under and between trees. Where trees form a closed canopy, the understory varies from a lush cover of shade-tolerant shrubs, ferns, and herbs to sparse cover with a thick carpet of litter. When trees are scattered and form an open woodland, the understory is grassland, sometimes with scattered shrubs. The interrelationships of slope, soil, precipitation, moisture availability, and air temperature cause variations in structure of Coastal Oak Woodlands. These factors vary along the latitudinal, longitudinal and elevational gradients over which Coastal Oak Woodlands are found.

Composition. The Coastal Oak Woodland on the Project Site is continuous with the Valley Foothill Riparian habitat but is found further inland from the Russian River. Tree canopy composition of Coastal Oak Woodlands on the Project Site is dominated by Coast live oak (*Quercus agrifolia*), with several California buckeye (*Aesculus californica*), and a large numbers of non-native tree privet are also present. Typical understory plants in the onsite Coast Live Oak Woodlands include California blackberry, English ivy, elderberries, poison oak (*Toxicodendron diversiloba*), and multiflora rose (*Rosa multiflora*), among others.

Urban

Structure. The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves, common in city parks, green belts, and cemeteries, vary in height, tree spacing, crown shape, and understory conditions, depending upon the species planted and the planting design. The juxtaposition of urban vegetation types within cities produces a rich mosaic with considerable edge areas. The overall mosaic may be more valuable as wildlife habitat than the individual units in that mosaic.

Composition. The Urban habitat on the Project Site consists primarily of the developed portions of the Project Site (including the play fields, tot-lot, parking lot and other amenities where some remnant native trees may be present but where most vegetation consists of non-native species or plants used in landscaping), the community garden, and an adjacent small field of non-native grasses and herbaceous species that is considered a ruderal habitat. The composition of the vegetation within the Urban habitat is discussed below, however, note that investigators did not attempt to catalog vegetation within the community garden as the Project proposes no change to the community garden.

The area of the parking lot is mostly paved, but trees are planted within islands and medians consisting mostly of common hackberry (*Celtis occidentalis*) and with Empress tree (*Paulownia tomentosa*) planted along the edge of the dog park. Several Coast redwood trees (*Sequoia sempervirens*) have been planted in the southeast corner of the parking lot. The tot-lot was apparently constructed in a small area of native Valley oaks as tree canopy in this area consists of several remnant valley oak trees. Other landscaping in this area includes attractive species such as Chinese fringe flower (*Loropetalum chinense*). The Urban habitat also includes the grassy fields that are mowed and used as play fields and the dog park. These areas were freshly mowed at the time of the field reviews, but grasses and herbaceous plants identifiable along the edges of these areas revealed that vegetation is non-native grass species such as wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), perennial ryegrass (*Festuca perennis*), and Kentucky bluegrass (*Poa pratensis*), and common non-native herbaceous species (or forbs) such as spring vetch (*Vicia sativa*), redstem filaree (*Erodium*

cicutarium), cut-leaf geranium (*Geranium dissectum*), dandelion (*Taraxicum officinale*), bristly Ox-tongue (*Helminthotheca echioides*), bull mallow (*Malva nicaeensis*), bur clover (*Medicago polymorpha*), and white clover (*Trifolium repens*).

The Urban habitat also includes a ruderal field vegetated primarily with non-native weedy species in the northeast portion of the project area between the community garden and the forest habitat along the river. This ruderal field is not mowed. Vegetation includes the non-native grasses and forbs found in the play fields such as wild oat, riggut brome, foxtail barley, spring vetch, dandelion, and cut-leaf geranium, but also species such as curly dock, greater periwinkle, bedstraw, wild radish (*Raphanus sativa*), pennyroyal (*Mentha spicata*), and Himalaya berry (*Rubus armeniacus*), and other larger plants such as non-native sweet fennel (*Foeniculum vulgare*) and native California blackberry.

Riverine (adjacent area of the Russian River)

Structure. Intermittent or continually running water distinguishes rivers and streams. A stream originates at some elevated source, such as a spring or lake, and flows downward at a rate relative to slope or gradient and the volume of surface runoff or discharge. Velocity generally declines at progressively lower altitudes, and the volume of water increases until the enlarged stream finally becomes sluggish. Over this transition from a rapid, surging stream to a slow, sluggish river, water temperature and turbidity will tend to increase, dissolved oxygen will decrease, and the bottom will change from rocky to muddy. Riverine systems are often lacking in vegetation.

1.5.5 Soils

Soil survey information for the Review Area was obtained from the National Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2022) (Appendix C). Four (4) different soil types (Pleasanton loam, 0 to 2 percent slopes, Pleasanton gravelly loam, 2 to 5 percent slopes; Flood plains / Sandy and gravelly alluvium; and Yolo sandy loam, 0 to 2 percent slopes) are mapped by NRCS within the Review Area as described in Appendix C, Table 1. The table summarizes the soil units and soil associations, together with their physical and hydrologic characteristics that were identified as being present based on a *Natural Resources Conservation Service Custom Soil Resources Report* prepared for the Review Area.

1.5.6 Climate.

Based on WETS Station "HEALDSBURG, CA" precipitation and temperature data for the period of record (1971 – 2022), the average annual precipitation amount received approximately 6.5 miles from the site is 41.67 inches received as rainfall and 0.00 inches received as snow. The average minimum and maximum precipitation amount ranges between 0.05 and 8.08 inches. The wettest months, in which average monthly rainfall exceeds 7.00 inches, are January, February, and December (8.01, 7.78, and 8.08 inches) with the lowest average amount occurring in July and August (0.05 and 0.09 inches). Record data also indicates that the annual average daily temperature is 60.6 ° F. Average high and low temperatures range between 74.1 ° F and 47.0 ° F with the coldest months typically including January and December where temperatures are in the upper 30s and the hottest months being July and August where temperatures are in the lower 70s. The annual growing season with a 50% probability of having days above 32° F is 302 days (February 7 to December 6), and, with a 70% probability of having days above 32° F, is 321 days (January 29 to December 16) (Appendix D).

1.5.7 Hydrology

Watersheds. A review of the US Geological Survey (USGS) National Hydrography Dataset (NHD) Hydrologic Unit Code (HUC) data shows that the Review Area lies within the 8-digit HUC (18010110) “Russian” subbasin and the 12-digit HUC (180101100605) “Brooks Creek-Russian River” subwatershed.

Direction of Surface Water Flow. Surface water that flows within the Review Area is the direct result of precipitation and associated stormwater runoff. This stormwater is collected by an incised natural drainage which directs flows to the southern edge of the Review Area. Streamflow from the Project Site stream travels south southwesterly towards and into the Russian River. Russian River surface flows run into the Pacific Ocean (Appendix F).

1.5.8 FEMA Flood Zone

FEMA Flood Insurance Rate Map for “Sonoma County” 06097C0551E (Effective Date: 12/2/2008) indicates the Project Site is within of FEMA zoning associated with an annual chance flood hazard (AE: 1% Annual Chance Flood Hazard; and Regulatory Floodway) (Appendix A, Figure 4).

1.5.9 Aquatic Resources

National Wetlands Inventory. Appendix A, Figure 5a, U.S. Fish and Wildlife Service National Wetlands Inventory Mapping, shows Palustrine, Emergent Persistent, Seasonally Flooded (PEM1C) and Riverine Lower Perennial, Unconsolidated Bottom, Permanently Flooded (R2UBH) wetlands within the Review Area.

1.6 Disclaimer

Huffman-Broadway Group, Inc., on behalf of the Applicant, has made a good-faith effort herein to thoroughly describe and document the presence of potential factors that the Corps may consider in asserting jurisdiction pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Nevertheless, the Applicant reserves the right to challenge or seek revision to any areas over which the Corps may assert such jurisdiction, should such jurisdiction be further clarified or altered through formal guidance, assertions, or disclaimers of jurisdiction over other properties, court decisions, or other relevant actions.

2.0 DELINEATION METHODS

2.1 Overview

HBG's investigation focused on the identification and delineation of aquatic resource areas that potentially meet:

1. the definition of Waters of the US (33 CFR 328.3 (a)(1)-(5)) as wetlands or in the absence of wetlands have an Ordinary High Water Mark (OHWM).
2. the definition of Navigable Waters (33 CFR 329.4) by having an OHWM or Mean High Tide Line.

2.2 Preparation

In preparation for detailed field investigations, HBG identified existing landforms within the Review Area that would likely contain aquatic resources that may potentially meet the definition of WOTUS (wetlands and non-wetlands) and/or Navigable Waters by reviewing available online information sources to include: Google Earth Pro and ESRI most current and historical aerial photography and imagery; USGS National Hydrography Dataset watershed mapping; FEMA mapping; National Wetlands Inventory mapping; a NRCS Custom Soil Resources Report; and most current and historical USGS topographic mapping. Review Area-specific LIDAR topographic mapping was also reviewed.

2.3 Field Investigations

HBG conducted field investigations on February 27, 2024 to:

1. Determine the presence or absence of hydrophytic vegetation, hydric soil, and wetland hydrology indicators and document the indicators observed and their location.
2. Determine if the wetland field indicators observed may be "significantly disturbed" or "naturally problematic."
3. Determine within any drainage and depressional area found if a high water mark is present and document the type of water mark indicators observed and location.

2.3.1 CWA Wetlands Definition and Delineation Methodology

Wetlands are defined at 33 CFR § 328.3 (c)(1) as:

The term wetlands means 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. Wetlands generally include swamps, marshes, bogs, and similar areas.

The methodology described in the Corps' Delineation Manual, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Regional Supplement), was followed to determine the presence or absence of vegetation, soil, and hydrology indicators. If there

was uncertainty regarding application of the delineation methodology or interpretation of field data, the Corps' 1987 Delineation Manual was referred to.

Vegetation, soil, and hydrology observations were made at sampling locations determined to be representative of landform areas where the soils may potentially flood, pond, and/or saturate. Vegetation was sampled first. Soil, vegetation, and hydrology observations were recorded on Corps data forms (*Wetland Determination Data Form – Arid West Region; Version 2.0*) (Appendix E). Sample point locations were documented as polygonal and point features, respectfully using ESRI Apps (Field Maps) in conjunction with a Trimble DA2 Global Positioning System (GPS) receiver with sub-meter accuracy after geo-processing. The data collected was incorporated into the Project database using GIS software.

2.3.2 CWA OTHER WATERS DEFINITION AND DELINEATION METHODOLOGY

Other types of CWA WOTUS aquatic resources that are not wetlands as defined at 33 CFR § 328.3 (a) have the following limits of jurisdiction as:

- (a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR § 329.12)
- (b) Tidal waters of the United States. The landward limits of jurisdiction in tidal waters:
 - (1) Extends to the high tide line, or
 - (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
- (c) Non-tidal waters of the United States. The limits of jurisdiction in non-tidal waters:
 - (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
 - (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
 - (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

The meaning of adjacent, high tide line, ordinary high water mark, and tidal waters as described above are defined by 33 CFR § 328.3 (c) follows:

Adjacent means having a continuous surface connection. 33 CFR § 328.3 (c)(2)

High tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm. 33 CFR § 328.3 (c)(3)

Ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. 33 CFR§ 328.3 (c)(4)

Tidal waters means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects. 33 CFR§ 328.3 (c)(5)

Field observations of physical features such as those described above which are indicative of a WOTUS Ordinary High Water (OHW) were recorded, if present, on the Corps' *Rapid Ordinary High Water Mark (OHWM) Field Identification Data Sheet* (ENG Form 6250, Aug 2021) data form. The methodology used to identify and define an OHWM, if present, was based on the OHWM Field Guide (Lichvar and McColley 2008) and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (Gabrielle, et al., 2022). Given the Review Area is an inland desert, no observations were made to determine the presence/absence of indicators of an HTL. If present, OHWM sample point locations were documented as point features, respectfully using ESRI Apps (Field Maps) in conjunction with a Trimble DA2 Global Positioning System (GPS) receiver with sub-meter accuracy after geo-processing. The data collected was incorporated into the Project database using GIS software.

2.3.3 RHA NAVIGABLE WATERS DEFINITION AND DELINEATION METHODOLOGY

Navigable Waters as defined at 33 CFR § 329.4 have the following limits of jurisdiction as:

Non-Tidal Waters

.... 1. The "ordinary high water mark" on non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas. 33 CFR § 329.11 (Geographic and Jurisdictional Limits of Rivers and Lakes)...

Corps wetland determination data forms were used to record field observations of physical features indicative of ordinary high water marks (Wetland Determination Data Form – Arid West Region; Version 2.0) (Appendix E).

Navigable Water such as those described above which indicate the presence of a non-tidal Ordinary High Water (OHW) were recorded, if present, on Corps' *Rapid Ordinary High Water Mark (OHWM) Field Identification Data Sheet* (ENG Form 6250, Aug 2021) data form. OHWM sample point locations were documented as point features using ESRI Apps (Field Maps) in conjunction with a Trimble DA2 Global Positioning System (GPS) receiver with sub-meter accuracy after geo-processing. The data

collected was incorporated into the Project database using GIS software.

2.4 Rainfall Analysis

The Corps' Antecedent Precipitation Tool (APT) was used to assess precipitation conditions within the Review Area 90 days prior to field investigations. The rainfall analysis followed the latest Corps guidance. The purpose of the antecedent precipitation analysis was to aid in: (1) determining if the climatic/hydrologic conditions observed on the site are typical for the time of year in which field investigations were conducted (e.g., rainy season versus dry season); and (2) establishing whether observations made of surface and near-surface hydrology indicators or the lack thereof are the result of naturally problematic hydrology conditions (e.g., drought year, extreme precipitation/stormwater runoff event) preceding the field investigations. The APT assesses the presence of drought conditions and facilitates the comparison of recent rainfall conditions for a given location to the range of normal rainfall conditions that occurred during the preceding 30 years.

2.5 Mapping

2.5.1 CWA Wetland and Other Waters Observations

The GPS data collected during field sampling were incorporated into an HBG Project database using Geographic Information System (GIS) software and were geo-referenced in overlay fashion onto a digital topographic base map (LIDAR) and an orthorectified digital aerial photograph following national mapping standards. Data overlays of indicator observations were mapped to assist in the analysis to determine if areas meet the Corps' WOTUS definition. The geographic extent of areas identified as being potential wetlands or other waters were mapped and classified to the class level using the US Fish and Wildlife Service's Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979).

2.5.2 RHA Navigable Waters Observations

The GPS data collected during field sampling were incorporated into an HBG Project database using Geographic Information System (GIS) software and were geo-referenced in overlay fashion onto a digital topographic base map (LIDAR) and an orthorectified digital aerial photograph following national mapping standards. Data overlays of indicator observations were mapped to assist in the analysis to determine if areas meet the Corps' Navigable Waters definition. The geographic extent of areas identified as being potential Navigable Waters were mapped and classified to the class level using the US Fish and Wildlife Service's Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979).

3.0 TECHNICAL FINDINGS

Section 3.1 provides the technical findings regarding an analysis of whether climatic/hydrologic conditions within the Review Area are typical for the time of year in which field studies were conducted. Section 3.2 provides the results of an analysis to determine if normal circumstances occur in the Review Area. Section 3.3 provides technical findings regarding the presence or absence of wetland hydrophytic, hydric soil, and wetland hydrology indicators observed in aquatic resource areas within the Review Area. Section 3.4 describes technical findings regarding the presence of an Ordinary High Water Mark (OHWM) observed in aquatic resources within the Review Area.

3.1. Precipitation Analysis

According to APT analysis results, the February 2024 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the wet season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions (Appendix D).

3.2 Normal Circumstances Analysis

An analysis was conducted to determine if "Normal Circumstances" are present in the Review Area. The following information was considered during the analysis:

The Corps' Delineation Manual interprets "normal circumstances" as:

.... the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed [7 CFR 12.31(b)(2)(i)] [Manual page 71].

The expired Corps Regulatory Guidance Letter (RGL 90-07) states:

.... 4. The primary consideration in determining whether a disturbed area qualifies as a Section 404 wetland under "normal circumstances" involves an evaluation of the extent and relative permanence of the physical alteration of wetlands hydrology and hydro-phytic vegetation. In addition, consideration is given to the purpose and cause of the physical alterations to hydrology and vegetation. For example, we have always maintained that areas where individuals have destroyed hydrophytic vegetation in an attempt to eliminate the regulatory requirements of Section 404 remain part of the overall aquatic system and are subject to regulation under Section 404. In such a case, where the Corps can determine or reasonably infer that the purpose of the physical disturbance to hydrophytic vegetation was to avoid regulation, the Corps will continue to assert Section 404 jurisdictions.

Detailed review of Google Earth Pro aerial photography and imagery from December 1985 to April 2023 shows that land use in the Review Area consists of undeveloped lands.

Based on consideration of the above, normal circumstances are determined to be present given the long-standing nature of the land use.

3.3 Wetland Aquatic Resources

3.3.1 Field Indicators of Wetland Vegetation

Significantly Disturbed Hydrophytic Vegetation Analysis and Determination: Detailed review of Google Earth Pro aerial imagery of the Review Area and onsite inspection (see Appendix G) indicated

vegetation conditions are not significantly disturbed².

Naturally Problematic Hydrophytic Vegetation Analysis and Determination: Vegetation was determined not to be naturally problematic.³

Presence of Hydrophytic Vegetation Indicators. Forested wetland areas were dominated by patches of the following facultative wetland species: Box elder (*Acer negundo*). The facultative species California blackberry (*Rubus ursinus*) was occasionally present⁴.

3.3.2 Field Indicators of Hydric Soils

Significantly Disturbed Soil Analysis and Determination. A detailed review of Google Earth Pro aerial photography and imagery of the Review Area and onsite inspection (see Appendix G) indicated soil conditions are not significantly disturbed.

Naturally Problematic Soil Analysis and Determination. The NRCS Custom Soil Resources Report in Appendix C provides detailed soil mapping and descriptions for the Review Area. Onsite examination of soils found that the NRCS soil mapping provided in the report is relatively accurate and the soils examined were determined not naturally problematic.

Presence of Hydric Soil Indicators. Hydric soil indicator F3 (Depleted matrix) was observed during the field survey.

3.3.3 Field Indicators of Wetland Hydrology

Significantly Disturbed Hydrology Analysis and Determination. A detailed review of Google Earth Pro aerial photography and imagery of the Review Area and onsite inspection (see Appendix G) indicated that hydrology conditions are not significantly disturbed.

Naturally Problematic Hydrology Analysis and Determination. Based on a review of April 20, 2023 aerial imagery (Appendix A, Figure 3) and onsite APT analysis data (Appendix D), field indicators of wetland hydrology conditions were determined to not be naturally problematic. Based on the APT analysis, wetter than normal precipitation conditions occurred within the Review Area before site investigations.

Presence of Wetland Hydrology Indicators. Wetland hydrology indicators (B1 – Water Marks; B2 - Sediment Deposits; B3 – Drift Deposits; and B10 – Drainage Patterns) were found within the Review Area in the stream channels.

3.3.4 Wetland Aquatic Resources Identified and Delineated

A dominance of hydrophytic vegetation or hydric soils was found. Aquatic resources meeting the CWA Section 404 definition of wetlands as provided in Section 4.1(4), below were found based on the collective presence of wetland vegetation, hydric soil, and wetland hydrology indicators.

² Disturbed areas consist of sites where vegetation, soil, or hydrology indicators may be impacted (obscured or absent) due to recent human activities or natural events.

³ Naturally problematic refers to problem areas that are naturally occurring wetland types that lack indicators of hydrophytic vegetation, hydric soil, or wetland hydrology periodically due to normal seasonal or annual variability, or permanently due to the nature of the soils or plant species on the site.

⁴ https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html

3.4 Aquatic Resources with a High Water Mark

3.4.1 Field Indicators of Ordinary High Water

The following describes indicators of an OHWM in stream channels within the Review Area.

Observable Physical Features. OHWMs were observed within streams in the Review Area (Appendix A, Figure). Physically, streams exhibited bed and bank characteristics. Appendix A, Figure 6 shows locations where streams having an OHWM were identified and measured. Flow indicators within these streams included at least two or more of the following: sand & gravel bars; cut banks; drift: organic; headcuts; rills; scour; vegetation-channel alignment; water level marks; and wrack: woody. Appendix E provides field data sheets. Appendix E provides OHWM widths and latitude/longitude locations where OHWM determinations were made within the Review Area. Appendix G provides representative photographs of stream channel features within the Review Area.

3.4.2 Formation

A detailed review of December 1985 to April 2023 Google Earth Pro historical aerial imagery and onsite inspection indicates the stream channels within the Review Area are naturally formed.

3.4.3 Flow Characteristics

Flow. Online USGS National Hydrography Dataset mapping indicates surface water flow patterns within stream channels are in a southwesterly direction.⁵ The Review Area is within the USGS HUC 8 Russian (18010110) subbasin. Appendix A, Figures 1 and 2 show the Review Area location within the USGS HUC 12 Brooks Creek-Russian River (180101100605) subwatersheds. The majority of surface water that flows within the Review Area to the Russian River is the direct result of precipitation. These flows are conveyed by several intermittent tributaries (Appendix A, Figure 6, see stream segments R2 – R7). The Russian River has a perennial surface flow to the Pacific Ocean (Appendix F).⁶

3.4.4 Aquatic Resources Having a High Water Mark Identified and Delineated

Non-tidal aquatic resource areas consisting of stream channels with OHWMs were observed within the Review Area (Appendix E).

⁵ <http://nhd.usgs.gov>

⁶ <http://nhd.usgs.gov>

4.0 POTENTIAL WATERS OF THE US (WOTUS)

This section identifies and delineates the geographic extent of aquatic resources found which meet the Clean Water Act (CWA) Section 404 definition of Waters of the US (WOTUS) (33 CFR 328.3 (a)(1)-(5)) based on the technical findings provided in Sections 3.3 and 3.4.

4.1 Definition of WOTUS

33 CFR 328.3 (a)(1)-(5) defines WOTUS as:

- (1) Waters which are:
 - (i) 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; (ii) The territorial seas; or (iii) Interstate waters;
- (2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;
- (3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;
- (4) Wetlands adjacent to the following waters: (i) Waters identified in paragraph (a)(1) of this section; or (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;
- (5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

4.2 Geographical Limits of WOTUS

The geographical limit of federal jurisdiction as applies to WOTUS under Section 404 of the CWA are defined at 33 CFR Part 328.4 in the following manner:

- (a) *Territorial Seas*. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)
- (b) *Tidal waters of the United States*. The landward limits of jurisdiction in tidal waters: (1) Extends to the high tide line, or (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
- (c) *Non-tidal waters of the United States*. The limits of jurisdiction in non-tidal waters: (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands, or (3) When the water of the United States consists only of wetlands jurisdiction extends to the limit of the wetlands.

33 CFR 328.3(c) provides the following relevant definitions regarding the above-defined geographical limits of federal jurisdiction:

- (1) *Wetlands* means those areas that are inundated or saturated by surface or ground water at a frequency

4.0 Aquatic Resources Potentially Subject to CWA Federal Jurisdiction

and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

- (2) *Adjacent* means having a continuous surface connection.
- (3) *High tide line* means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.
- (4) *Ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
- (5) *Tidal waters* means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

4.3 Aquatic Resources within the Review Area

4.3.1 Wetlands

Based on analysis of the technical findings in Section 3.3.3, aquatic resource areas were identified and delineated within the Review Area that meet the above CWA Section 404 definition of wetlands. This analysis consisted of determining whether at a given location there was a collective presence of hydric soil, wetland hydrology, and hydrophytic vegetation field indicators as required by the 1987 Corps Delineation Manual criteria. Appendix A, Figure 6 shows the locations of wetlands that are potentially subject to Corps and USEPA Section 404 CWA jurisdiction as WOTUS.

4.3.2 Aquatic Resources with An Ordinary High Water Mark

Intermittent streams having an OHWM were identified and delineated within the Review Area (Section 3.4.4). The intermittent stream channels within the Review Area direct surface water flows to the Russian River (Appendix F). The Russian River was also identified to have an OHWM. Appendix A, Figure 6 shows other waters (streams/tributaries) that are potentially subject to Corps and USEPA Section 404 CWA jurisdiction as WOTUS.

4.4 Conclusions

Aquatic resources are present which consist of wetlands as defined by 33 CFR 328.3 (a)(4) and tributaries as defined by 33 CFR 328.3 (a)(3). Appendix A, Figure 6 shows the aquatic resources identified and delineated which are potentially subject to Corps and USEPA Section 404 CWA jurisdiction.

5.0 POTENTIAL NAVIGABLE WATERS

The portion of the Russian River that is within and adjacent to the Review Area has been determined not to be subject to RHA jurisdiction by the San Francisco District⁷.

⁷ <https://www.spn.usace.army.mil/Portals/68/docs/regulatory/1%20-%20Sect10waters.pdf>

6.0 REFERENCES

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Appendix A

Figures



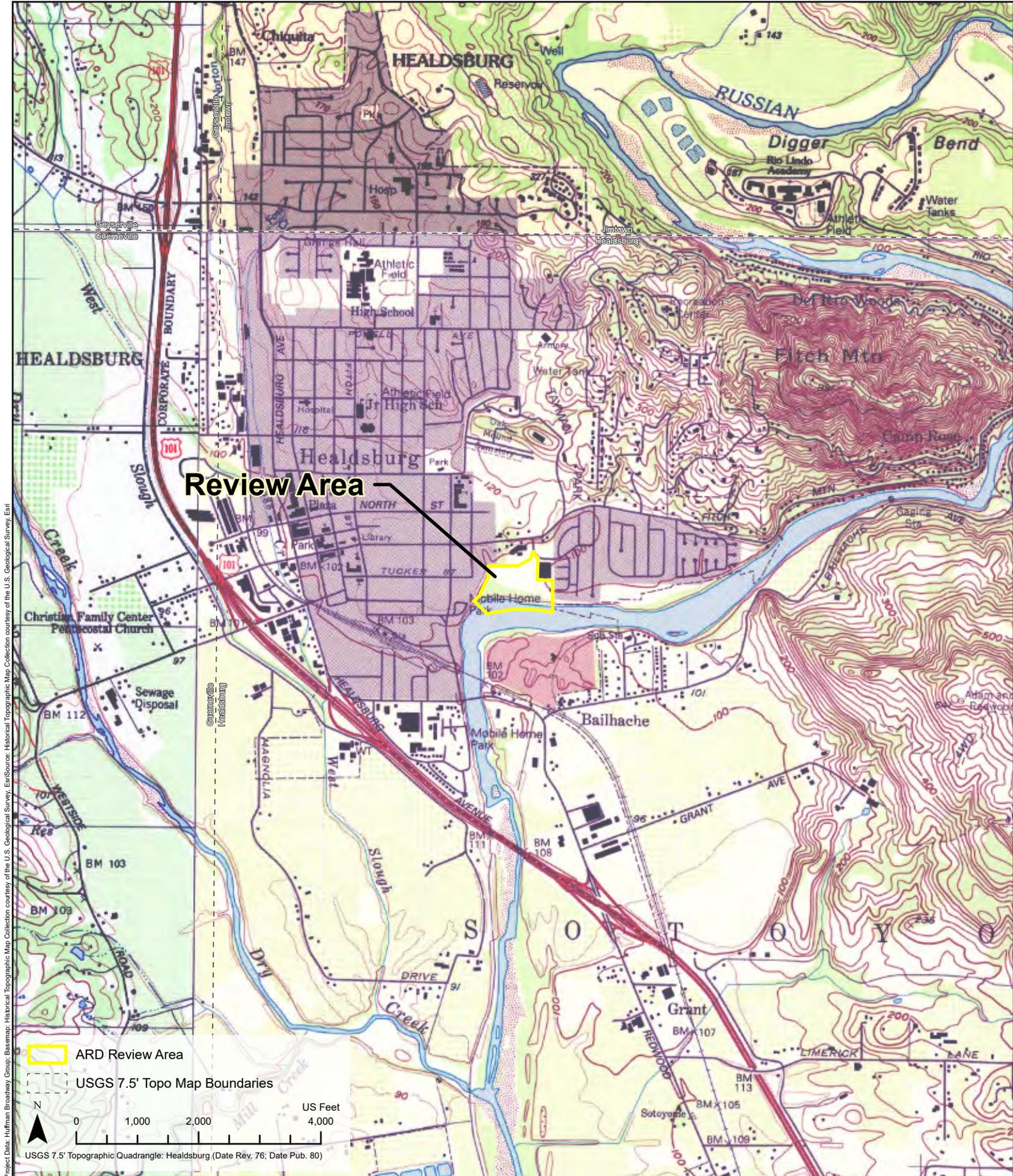
Figure 1. Review Area Location

Badger Park Project
 Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
 Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
 Scale: 1:50,000
 Date Map Created: 3/12/2024
 HBG GIS Analyst: Agie Gilmore & Deland Wing
 HBG PM: Terry Huffman, PhD; Greg Huffman

Project Data: Huffman Broadway Group; Basemap: California State Parks, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METINASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS



Project Data: Huffman Broadway Group; Basemap: Haberial Topographic Map Collection courtesy of the U.S. Geological Survey, Esri
 Project Data: Huffman Broadway Group; Basemap: Haberial Topographic Map Collection courtesy of the U.S. Geological Survey, Esri

Figure 2. USGS Topographic Map of the Review Area Huffman-Broadway Group, Inc.

Badger Park Project
 Healdsburg, Sonoma County, California

ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
 Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
 Scale: 1:24,000
 Date Map Created: 3/12/2024
 HBG GIS Analyst: Agie Gilmore & Deland Wing
 HBG PM: Terry Huffman, PhD; Greg Huffman

Project Data: Huffman Broadway Group; Basemap: © OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ANSA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS; Aerial Imagery: Google Earth, Imagery Date 4/20/2023



Figure 3. Aerial Image of the Review Area
Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:2,000
Date Map Created: 4/22/2024
HBG GIS Analyst: Age Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

Project Data: HBG; Base map Imagery Credits: California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/WASA, USGS Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Pictometry International, Maxar; Flood Zone Data: FEMA National Flood Hazard Layers (NFHL) - https://hazards.fema.gov/femaportal/wsportal/nfhl/mms

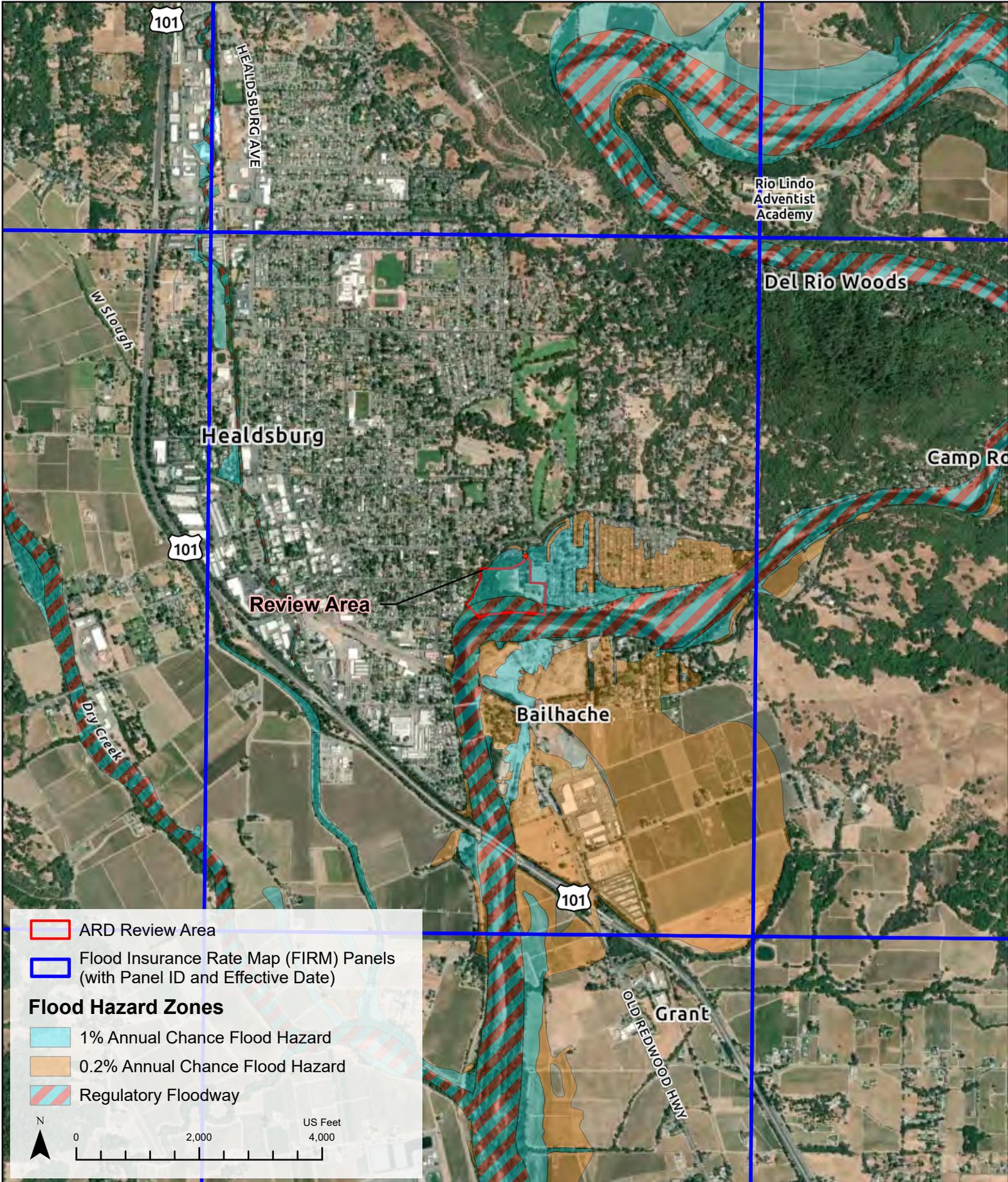
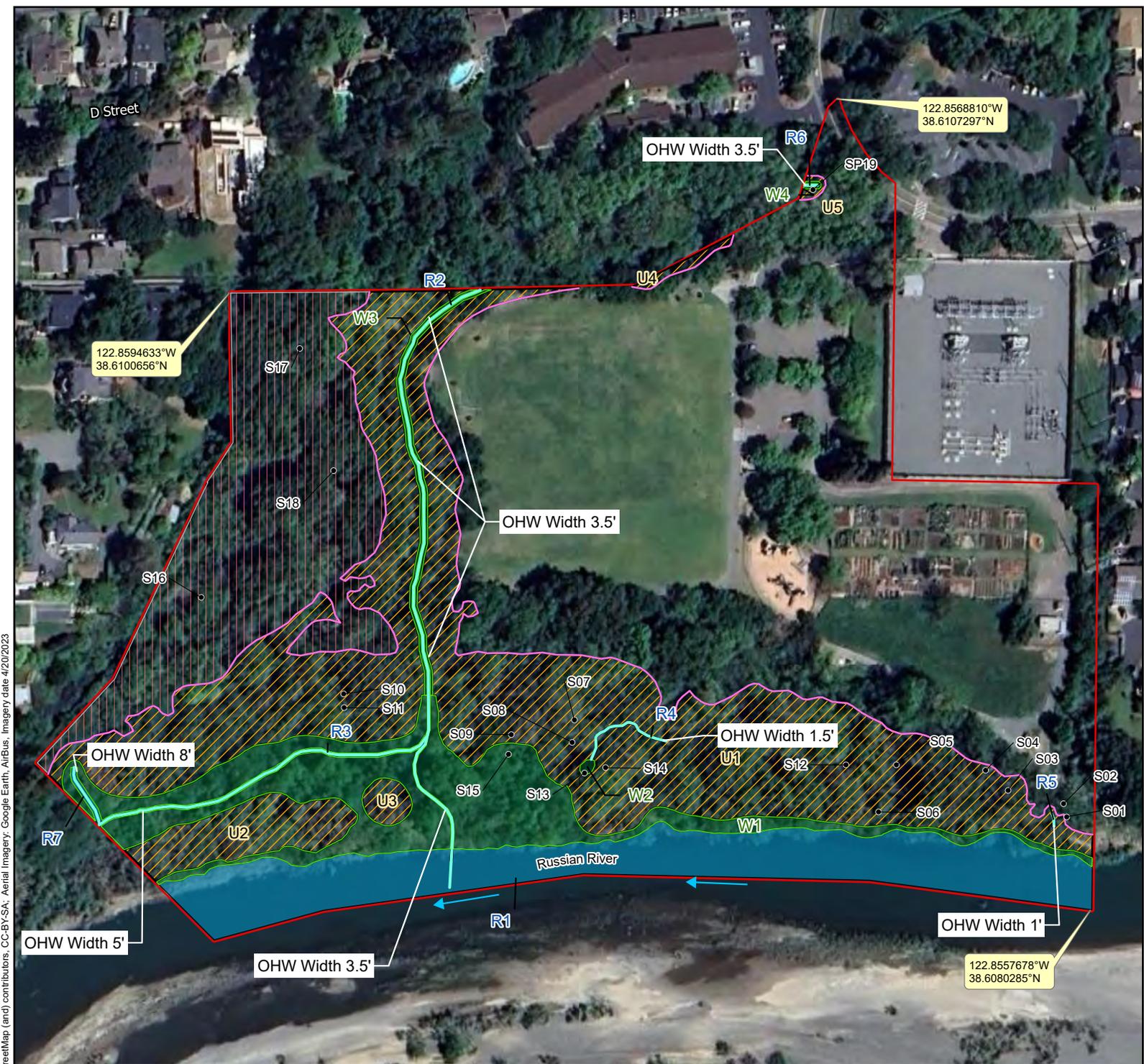


Figure 4. FEMA Flood Zone Mapping

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:24,000
Date Map Created: 3/12/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman



Project Data: Huffman Broadway Group; Basemap: OpenStreetMap (and) contributors, CC-BY-SA; Aerial Imagery: Google Earth, AirBus; Imagery date 4/20/2023

Aquatic Resources Subject to CWA Jurisdiction:

Other Waters:

- Sample Point
- Aquatic Resources Review Area / Project Site (18.64 ac)
- Ordinary High Water (OHW) 94 ft. NAVD88
- Upland Areas Above Ordinary High Water (OHW) 94 ft. NAVD88
- Riverine Intermittent (CWA Section 404 WOTUS) (0.14 ac)
- Riverine Lower Perennial (CWA Section 404 WOTUS) (1.51 ac)
- Upland Areas Below Ordinary High Water (OHW) 94 ft. NAVD88 (4.82 ac)
- Palustrine Forrested (CWA Section 404, WOTUS Jurisdiction Extends to Edge of Uplands) (1.42 ac)

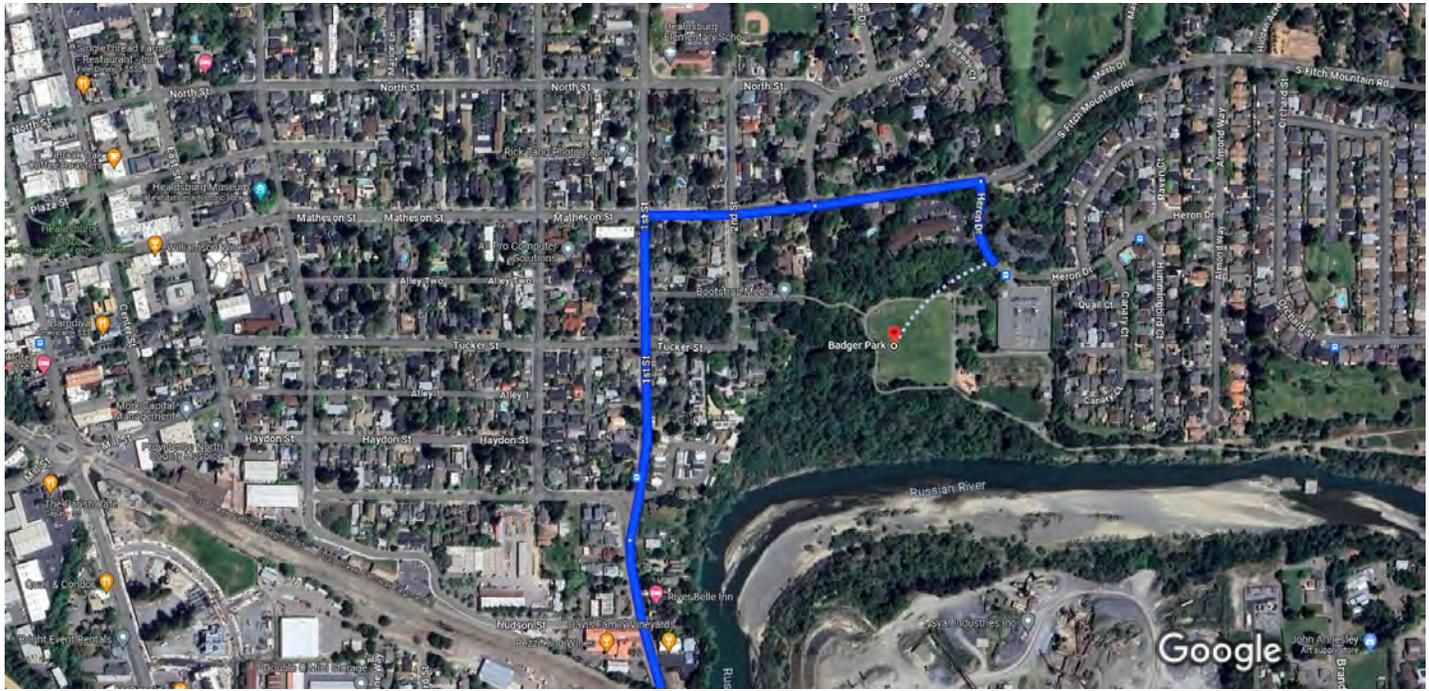
Figure 6. CWA Aquatic Resource Delineation

Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:2,010
Date Map Created: 4/22/2024
HBG GIS Analyst: Age Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

Appendix B
Driving Directions



Imagery ©2024 Airbus, CNES / Airbus, Maxar Technologies, Map data ©2024 200 ft

US Army Corps of Engineers
450 Golden Gate Ave 4th floor, San Francisco, CA 94102

Take Franklin St and Lombard St to US-101/Presidio Pkwy

- 12 min (2.9 mi)
↑ 1. Head west on Turk St toward Polk St
0.2 mi
- ↷ 2. Turn right at the 3rd cross street onto Franklin St
i Pass by Wheel Works (on the left in 0.4 mi)
1.4 mi
- ↶ 3. Use the left 2 lanes to turn left onto Lombard St
1.0 mi
- ↑ 4. Continue onto Richardson Ave
0.3 mi

Follow US-101 to Healdsburg Ave in Healdsburg. Take exit 502 from US-101

- 1 hr 2 min (64.4 mi)
↑ 5. Continue onto US-101/Presidio Pkwy
i Continue to follow US-101
64.2 mi

↪ 6. Take exit 502 for Healdsburg Ave
_____ 0.2 mi

Continue on Healdsburg Ave. Drive to Heron Dr

_____ 4 min (1.7 mi)

↪ 7. Turn right onto Healdsburg Ave
_____ 0.8 mi

↪ 8. Turn right onto Front St
_____ 0.2 mi

↑ 9. Continue onto 1st St
_____ 0.3 mi

↪ 10. Turn right onto Matheson St
_____ 0.1 mi

↑ 11. Continue onto S Fitch Mountain Rd
_____ 0.1 mi

↪ 12. Turn right onto Heron Dr
_____ 344 ft

Badger Park

750 Heron Dr, Healdsburg, CA 95448

Appendix C
NRCS Custom Soil Resource Report



United States
Department of
Agriculture

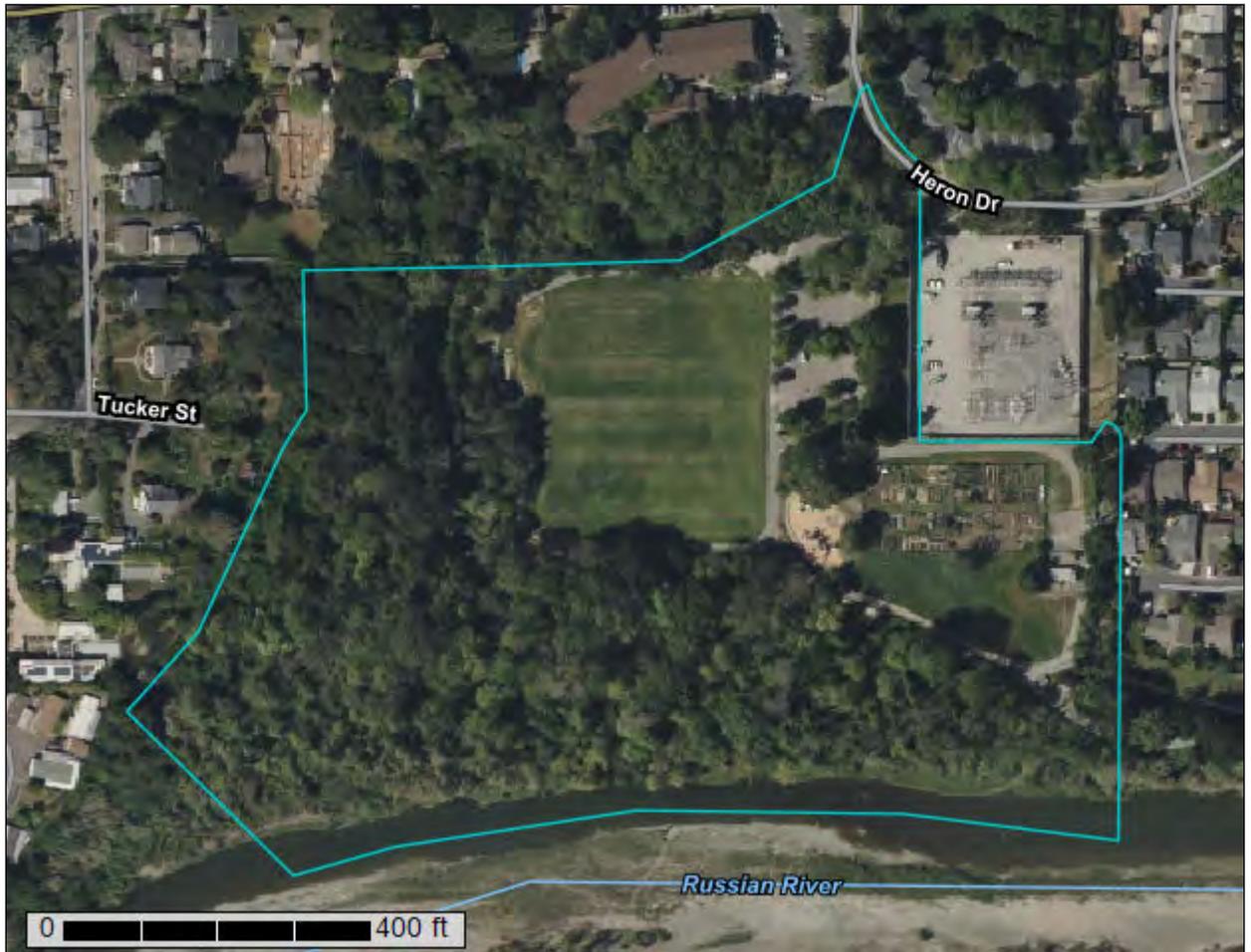
NRCS

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 Sonoma County, California

Badger Park Project



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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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



Soil Map may not be valid at this scale.

Map Scale: 1:2,660 if printed on A landscape (11" x 8.5") sheet.

0 35 70 140 210 Meters

0 100 200 400 600 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N 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 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Sonoma County, California
 Survey Area Data: Version 17, Sep 11, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

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
PeA	Pleasanton loam, 0 to 2 percent slopes, MLRA 14	0.5	2.6%
PgB	Pleasanton gravelly loam, 2 to 5 percent slopes	0.0	0.0%
RnA	Riverwash	4.2	22.1%
W	Water	2.0	10.6%
YIA	Yolo sandy loam, 0 to 2 percent slopes	12.2	64.7%
Totals for Area of Interest		18.8	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.

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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.

Sonoma County, California

PeA—Pleasanton loam, 0 to 2 percent slopes, MLRA 14

Map Unit Setting

National map unit symbol: 2x52s
Elevation: 60 to 2,070 feet
Mean annual precipitation: 19 to 44 inches
Mean annual air temperature: 58 to 60 degrees F
Frost-free period: 240 to 320 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pleasanton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pleasanton

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 5 inches: loam
A - 5 to 18 inches: loam
Bt1 - 18 to 23 inches: clay loam
Bt2 - 23 to 44 inches: fine gravelly clay loam
Bt3 - 44 to 66 inches: fine gravelly sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R014XG918CA - Loamy Fan
Hydric soil rating: No

Minor Components

Arbuckle

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Yolo

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hillgate

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

San ysidro

Percent of map unit: 3 percent
Landform: Valley floors, alluvial fans, terraces
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Cortina

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

PgB—Pleasanton gravelly loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: hfhp
Elevation: 2,400 feet
Mean annual precipitation: 25 inches
Mean annual air temperature: 59 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pleasanton and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pleasanton

Setting

Landform: Terraces, alluvial fans

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear, convex

Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 27 inches: gravelly loam

H2 - 27 to 72 inches: gravelly clay loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 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: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: R014XG912CA - Loamy Terrace

Hydric soil rating: No

Minor Components

Yolo

Percent of map unit: 4 percent

Hydric soil rating: No

Arbuckle

Percent of map unit: 4 percent

Hydric soil rating: No

Zamora

Percent of map unit: 4 percent

Hydric soil rating: No

Cortina

Percent of map unit: 3 percent

Hydric soil rating: No

RnA—Riverwash

Map Unit Setting

National map unit symbol: hfj7
Elevation: 700 to 2,900 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Riverwash: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting

Landform: Flood plains
Parent material: Sandy and gravelly alluvium

Typical profile

H1 - 0 to 6 inches: very gravelly sand
H2 - 6 to 60 inches: stratified very gravelly coarse sand to very gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
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): 8
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 15 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

YIA—Yolo sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hfkq

Elevation: 30 to 400 feet

Mean annual precipitation: 16 to 22 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 240 to 260 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Yolo and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yolo

Setting

Landform: Alluvial fans

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 15 inches: sandy loam

H2 - 15 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 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 9.0 inches)

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Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R014XG917CA - Dry Loamy Fan
Hydric soil rating: No

Minor Components

Pajaro

Percent of map unit: 5 percent
Hydric soil rating: No

Zamora

Percent of map unit: 5 percent
Hydric soil rating: No

Cortina

Percent of map unit: 5 percent
Hydric soil rating: No

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Table 2. Summary of Pertinent Characteristics of Soils Mapped Onsite by NRCS

Mapunit Name	Soil Series Name	Landform	Parent Material	Typical Profile	% Slope	Drainage Class	Runoff Class	Ksat	Flooding Frequency - Dominant Condition	Ponding Frequency - Presence
Pleasanton gravelly loam, 2 to 5 percent slopes	Pleasanton	terraces, alluvial fans	alluvium derived from sedimentary rock	H1 - 0 to 27 inches: Gravelly loam; H2 - 27 to 72 inches: Gravelly clay loam	2 to 5 percent	Well drained	Low	0.2 to 0.57 in/hr	None	None
Pleasanton loam, 0 to 2 percent slopes, MLRA 14	Pleasanton	alluvial fans	alluvium derived from sedimentary rock	A - 5 to 18 inches: Loam; Ap - 0 to 5 inches: Loam; Bt1 - 18 to 23 inches: Clay loam; Bt2 - 23 to 44 inches: Fine gravelly clay loam; Bt3 - 44 to 66 inches: Fine gravelly sandy clay loam	0 to 2 percent	Well drained		0.2 to 0.6 in/hr	None	None
Riverwash	Riverwash	flood plains	sandy and gravelly alluvium	H1 - 0 to 6 inches: Very gravelly sand; H2 - 6 to 60 inches: Stratified very gravelly coarse sand to very gravelly sand	0 to 2 percent	Excessively drained	Negligible	5.95 to 19.98 in/hr	Frequent	None
Yolo sandy loam, 0 to 2 percent slopes	Yolo	alluvial fans	alluvium derived from sedimentary rock	H1 - 0 to 15 inches: Sandy loam; H2 - 15 to 60 inches: Loam	0 to 2 percent	Well drained	Low	0.57 to 1.98 in/hr	None	None

Appendix D
Precipitation Analysis

WETS Table

WETS Station: HEALDSBURG, CA								
Requested years: 1971 - 2022								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	58.3	39.4	48.8	8.01	3.52	9.77	9	0.0
Feb	62.8	41.3	52.1	7.78	2.61	9.32	8	0.0
Mar	66.5	43.2	54.9	5.90	2.41	7.17	8	0.0
Apr	72.5	45.5	59.0	2.44	1.03	2.97	4	0.0
May	79.5	49.6	64.5	1.26	0.25	1.13	2	0.0
Jun	85.8	53.5	69.7	0.16	0.00	0.11	0	0.0
Jul	89.2	54.3	71.8	0.05	0.00	0.00	0	0.0
Aug	88.6	53.9	71.3	0.09	0.00	0.00	0	0.0
Sep	85.5	52.9	69.2	0.41	0.00	0.27	1	0.0
Oct	77.7	48.7	63.2	2.29	0.86	2.58	3	0.0
Nov	65.6	42.9	54.2	5.20	2.03	6.19	6	0.0
Dec	57.9	38.9	48.4	8.08	4.11	9.78	9	0.0
Annual:					30.94	47.59		
Average	74.1	47.0	60.6	-	-	-	-	-
Total	-	-	-	41.67			51	0.0

GROWING SEASON DATES

Years with missing data:	24 deg = 11	28 deg = 11	32 deg = 10
Years with no occurrence:	24 deg = 41	28 deg = 16	32 deg = 0
Data years used:	24 deg = 41	28 deg = 41	32 deg = 42
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	12/30 to 1/9: 375 days	2/7 to 12/6: 302 days
70 percent *	No occurrence	No occurrence	1/29 to 12/16: 321 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1893		7.62		M3.31	1.02	0.00	0.00	0.00	1.37	0.42	5.56	3.50	22.80
1894	12.21	6.08	1.93	1.88	2.17	1.73		0.00	1.15	2.43	1.10	M11.78	42.46
1895	27.69	3.61	M5.67	1.37	M1.57		0.55				3.30	4.56	48.32
1896	23.01	0.28	4.11	7.10	2.24			0.08	0.38	1.58	8.58	9.54	56.90
1897	5.07	6.83	M5.22	0.11	0.30	1.58				M2.47	2.23	3.01	26.82
1898	1.61	8.71	0.43	0.33	4.07	0.41			0.76	M0.68		1.14	18.14
1899	15.33		M7.27	0.91	2.01	T	0.00	0.11		M5.63	9.88	7.78	48.92
1900	M5.40	1.27	7.01	3.48	0.78	0.13	T		M0.07	4.82	5.14	5.23	33.33

1901	9.46	8.95	0.92	4.20	1.00	0.00	T	0.00	0.	0.	7.78	2.04	36.23
1902	1.72	25.36	5.57	M4.64	2.21	0.00	T	T	0.00	M6.20	9.46	M4.71	59.87
1903	7.55	3.36	M7.15	0.39	T	T	0.00	0.00	0.00	1.00	M14.52	4.64	38.61
1904	2.01	17.60	19.88	M3.30		T	T	T	M4.00	6.92	3.37	4.51	61.59
1905	M12.56	6.43	8.41	2.12	3.69	0.00	0.00	0.00	0.02	0.00			33.23
1906	M15.61	M7.83		0.79	4.34	1.82	0.00	0.00	0.11	0.00	2.74	M11.23	44.47
1907	13.37	4.14	21.07	M0.00		0.73	0.00	0.00	T	1.10	0.11	9.97	50.49
1908	7.55	6.84	1.76	0.28	1.12	0.10	0.00		0.07		3.07	M4.96	25.75
1909	33.68	13.17	4.52	0.00	0.00	0.13	0.00	0.00	M2.34	2.33	2.84	7.51	66.52
1910	6.51	3.88	5.05	0.75	0.06	T	0.00		0.00	1.19	M0.54	1.92	19.90
1911	M11.27	M4.14	6.58		M1.42	0.03	T	0.00	T	0.54	0.71	2.48	27.17
1912	M7.86	M1.22	M5.77	2.72	M3.40	M1.82	T	0.00	M3.57	M2.00	5.33	2.83	36.52
1913	M5.27	0.41	2.66	M3.50	M2.03	T	0.02	T	0.00	0.00	M10.65	M17.23	41.77
1914	20.05	7.01	2.03	2.88	0.72	0.14	0.00	0.00	0.16	2.46	1.98	M9.13	46.56
1915	M11.67	M18.35	M5.96	0.53	M6.72					0.15	2.71	12.32	58.41
1916	M20.21	4.92	3.63	0.39	M0.32	MT	M0.85	0.52	M0.28	0.57	2.03	7.60	41.32
1917	M1.66	M9.90	M1.28	2.38	0.26				M0.08		M2.19	M4.58	22.33
1918	M4.75	M9.68	M5.20	1.03		0.30			2.05	0.50	M5.36	M2.24	31.11
1919	M6.50	M9.32	M3.90	0.64	M0.08				M0.48		M0.48	M6.50	27.90
1920	M0.78	2.23	M3.38	M4.41	M0.70	M0.62	MT		M0.15	M3.58	16.04	M12.37	44.26
1921	M12.27	1.89	M3.19	M0.93	M0.94				M0.29	M1.46	M2.16	M9.82	32.95
1922	M1.68	M7.74	M3.09	M0.33	M0.36	M0.11				M2.18	M5.75	M12.45	33.69
1923	M3.92	M1.39		M5.05	M0.07	M0.28		0.08	M1.41	M0.27	0.41	2.44	15.32
1924	5.51	5.28	M0.89	0.52	0.05		0.00	0.00		M6.80	M4.79	M7.68	31.52
1925	M2.26	14.87	M3.97	M2.82	M6.49	T	MT	0.03	0.96	M0.39	2.47	2.32	36.58
1926	10.14	11.50	0.21	7.40	0.42	0.00	0.00	0.02	T	1.89	15.36	5.40	52.34
1927	8.48	M4.34	2.84	4.88	M0.32	0.67		0.06	0.00	2.09	9.46	4.20	37.34
1928	4.72		8.14	2.80	0.29	0.00	0.00	0.00	0.00	0.29	6.55	6.61	29.40
1929	1.81	3.73	2.36	1.45	T		0.00	0.00	0.00	0.04	0.00	17.97	27.36
1930	7.02	6.59	3.76	2.15	0.79		0.00		0.49	0.63	1.87	2.37	25.67
1931	10.31	1.96	2.92	0.45	1.40	1.76	0.00	0.00	0.00	1.89	3.19	15.61	39.49
1932	3.07	1.91	1.14	1.71	1.83	0.03	0.00	0.00	0.00	0.05	2.60	4.81	17.15
1933	9.37	1.39	5.65	0.16	2.43	0.00	0.00	0.00	0.21	2.07	0.00	14.67	35.95
1934	1.42	8.14	1.20	0.92	1.57	1.12	0.00	0.00	0.08	4.07	7.17	3.71	29.40

1935	12.07	4.80	8.23	5.28	0.03	0.00	0.00	0.03	0.17	1.44	1.83	5.19	39.07
1936	8.59	13.54	1.76	2.58	1.05	1.34	0.12	T	0.00	0.27	0.03	4.48	33.76
1937	5.19	11.86	8.45	1.73	0.15	1.77	0.00	0.00	T	1.34	9.74	9.49	49.72
1938	8.14	13.47	10.67	2.79	0.03	0.00	0.01	0.00	0.41	2.74	2.55	1.85	42.66
1939	5.20	1.87	3.00	0.22	1.79	T	0.00	T	0.05	0.23	0.72	7.07	20.15
1940	17.12	20.68	7.07	1.88	1.84	T	0.02	T	0.42	2.85	3.15	21.35	76.38
1941	15.15	12.70	6.89	7.60	1.82	0.60	T	0.04	0.04	2.54	5.14	12.38	64.90
1942	10.42	10.11	4.01	7.05	3.12	0.00	0.00	T	0.10	1.20	5.49	7.52	49.02
1943	13.29	3.54	3.75	3.67	T	0.01	T	0.00	0.00	1.43	1.68	3.43	30.80
1944	7.56	8.90	2.87	2.90	2.83	0.21	0.00	0.00	0.02	3.19	7.48	4.97	40.93
1945	3.82	6.05	7.02	0.53	1.53	0.00	0.00	0.00	M0.00	6.71	6.70	14.84	47.20
1946	2.49	4.06	1.89	0.10	0.50	0.00	0.18	0.00	0.07	0.14	5.23	3.29	17.95
1947	0.96	5.54	7.94	0.12	0.68	1.92	0.00	0.00	0.00	6.54	1.06	2.11	26.87
1948	3.75	1.55	6.43	12.93	1.23	0.42	0.00	0.00	0.09	1.03	1.69	4.93	34.05
1949	1.81	4.61	13.38	0.04	0.37	0.00	0.18	T	0.00	0.07	2.48	2.87	25.81
1950	10.49	8.49	2.98	1.75	0.69	0.28	0.00	0.00	T	6.04	8.13	10.73	49.58
1951	6.20	3.86	1.23	1.33	2.55	0.00	0.00	T	0.01	2.76	8.82	13.69	40.45
1952	13.41	3.92	6.17	1.69	0.39	1.97	0.00	0.00	0.00	0.07	3.70	19.93	51.25
1953	10.97	0.10	4.23	4.77	1.25	0.66	0.00	0.45	0.00	1.54	6.85	1.00	31.82
1954	12.28	5.13	6.88	4.61	0.05	0.42	M0.07	3.17	0.00	1.45	8.44	7.61	50.11
1955	3.84	1.33	0.62	5.76	0.00	0.01	0.00	0.00	0.33	0.47	4.58	M21.91	38.85
1956	16.62	9.05	0.31	2.90	0.84	0.05	0.00	0.00	0.12	2.86	0.31	0.57	33.63
1957	6.96	8.55	3.00	3.32	4.36	0.40	0.00	0.00	4.09	8.77	1.17	5.28	45.90
1958	10.04	23.34	9.64	6.50	0.30	0.85	0.09	0.00	T	0.09	0.27	2.12	53.24
1959	15.66	9.15	1.44	0.42	0.13	0.00	0.00	0.00	4.52	T	T	2.04	33.36
1960	9.27	10.45	5.95	1.49	1.12	0.00	0.00	0.00	0.00	1.21	6.72	7.64	43.85
1961	7.64	4.17	5.79	1.64	0.41	0.08	0.00	0.21	0.56	0.29	6.80	3.79	31.38
1962	1.88	16.91	7.13	0.40	0.14	0.00	T	0.30	0.26	10.83	2.06	6.40	46.31
1963	10.75	3.99	7.74	6.85	1.14	0.00	0.00	T	0.01	3.14	12.09	1.26	46.97
1964	5.74	0.22	2.68	0.26	0.62	0.46	0.03	0.00	T	3.50	9.14	15.07	37.72
1965	10.46	1.94	1.58	5.75	T	0.00	0.04	0.49	0.00	0.11	12.42	6.61	39.40
1966	11.33	6.29	1.34	1.25	0.13	0.05	T	0.11	0.11	T	13.20	10.12	43.93
1967	16.37	0.41	8.60	6.49	0.17	2.17	0.00	0.00	0.02	1.14	3.47	5.89	44.73
1968	10.96	6.59	4.89	1.44	0.23	0.00	0.00	0.86	0.03	2.79	4.07	13.47	45.33

1969	20.38	15.50	2.02	3.13	0.03	T	0.00	0.00	0.01	2.71	1.56	18.58	63.92
1970	25.24	5.20	2.63	0.12	0.02	0.45	0.00	0.00	0.00	3.08	11.46	12.23	60.43
1971	4.95	0.16	6.00	1.68	0.28	T	0.00	0.01	0.29	0.43	3.00	7.77	24.57
1972	2.02	2.92	1.23	3.12	0.13	0.06	T	T	0.67	4.17	9.89	5.32	29.53
1973	18.39	9.54	3.83	0.15	0.03	T	0.00	T	0.75	4.79	21.20	6.65	65.33
1974	10.67	5.21	12.17	2.07	0.15	0.00	1.71	T	0.00	1.77	1.96	7.50	43.21
1975	2.72	13.86	11.33	1.73	0.00	0.01	0.21	0.04	T	5.62	1.43	1.92	38.87
1976	0.41	2.93	1.01	3.24	0.00	T	0.03	1.12	0.56	0.42	2.78	1.17	13.67
1977	2.53	2.74	2.38	0.35	1.77	T	T	T	2.78	1.10	8.48	9.00	31.13
1978	19.14	9.79	7.45	4.44	0.15	T	T	0.00	2.21	T	1.49	0.49	45.16
1979	10.99	11.71	3.25	2.39	0.92	0.00	T	0.00	0.11	4.98	7.08	10.75	52.18
1980	8.82	14.61	1.79	3.06	0.36	0.27	0.04	T	T	0.57	0.62	11.23	41.37
1981	10.78	3.92	4.62	0.36	0.62	T	0.07	0.00	0.46	4.66	13.34	13.06	51.89
1982	M9.03	6.51	9.41	7.20	T	0.04	0.00	T	0.87	5.05	9.47	8.58	56.16
1983	15.70	14.84	20.34	6.31	0.86	T	T	1.52	0.59	1.15	17.57	17.37	96.25
1984	0.86	3.07	3.97	1.58	0.20	0.22	T	0.20	0.06	2.37	M15.44	2.43	30.40
1985	1.35	3.40	7.31	0.28	T	T	0.05	T	1.37	1.65	4.92	4.98	25.31
1986	9.89	21.95	9.24	0.98	0.46	T	0.00	0.00	1.95	0.64	0.15	2.95	48.21
1987	6.25	6.47	8.53	0.20	0.10	T	0.00	0.00	0.00	2.65	4.92	11.54	40.66
1988	9.16	M0.65	0.07	2.58	0.75	0.25	MT	0.00	0.00	0.41	5.92	4.53	24.32
1989	1.50	1.21	12.01	1.75	0.19	0.45	0.00	0.00	2.98	4.47	1.97	0.00	26.53
1990	7.08	4.00	1.81	0.21	6.44	T	T	T	0.20	0.77	0.38	1.33	22.22
1991	1.10	5.26	18.35	0.47	0.25	0.63	0.00	0.02	T	0.82	2.03	4.43	33.36
1992	2.83	12.86	5.89	1.84	0.00	0.80	0.00	0.00	T	3.64	0.43	12.25	40.54
1993	15.23	9.43	3.29	2.58	2.31	0.97	0.00	0.00	0.00	0.97	3.42	6.62	44.82
1994	4.39	7.58	0.68	2.43	0.98	0.00	T	0.00	0.00	0.98	9.54	5.36	31.94
1995	29.90	0.36	20.01	3.31	1.54	0.38	0.00	0.00	0.00	0.03	0.40	12.63	68.56
1996	9.97	14.14	3.23	3.34	3.12	0.00	0.00	0.00	0.02	2.29	4.68	17.21	58.00
1997	14.43	0.43	2.46	1.01	0.80	0.59	0.00	1.05	0.40	1.26	11.59	4.09	38.11
1998	15.38	25.41	4.61	3.21	7.52	0.03	0.00	0.00	0.09	1.37	8.88	1.62	68.12
1999		12.88	6.62	2.31	0.04	0.06	0.00	0.00	0.07	1.19	6.98	0.99	31.14
2000	9.61	14.58	3.15	M3.09	1.83	0.26	0.00		0.13	3.44	1.25	1.12	38.46
2001	7.97	9.77	2.94	1.40	0.00	0.04	0.00	0.00	0.21	3.03	M10.44	12.83	48.63
2002	3.08	1.80	M3.46	0.51	1.58	0.00	0.00	0.00	0.00	0.00	5.16	25.21	40.80

2003	6.50	2.80	4.84	6.55	1.19	0.00	0.04	0.00	M0.01		4.06	18.81	44.80
2004	5.75	M12.82	1.79	1.55	0.08	0.00	0.00	0.00	0.05	4.30	2.14	13.38	41.86
2005	6.88	5.42	8.49	2.72	9.54	1.39	0.00	0.00	0.00	1.43	3.36	19.96	59.19
2006	7.66	5.93	M13.24	8.92	0.55	0.00	0.00	0.00	T	0.53	M2.90	7.79	47.52
2007	0.42	12.50	0.25	3.60	0.49	0.00	M0.06	0.00	0.09	5.06	0.36	8.83	31.66
2008	17.04	3.98	0.53	0.23	0.00	0.00	0.00	0.00	0.00	2.01	5.70	3.26	32.75
2009	1.06	12.14	4.87	0.70	3.18	0.00	0.00	0.00	0.14	4.76	1.28	4.04	32.17
2010	16.77	7.54		6.13	2.30	0.00	0.00	0.00	0.01	5.08	3.86	10.79	52.48
2011		M6.27	M12.06	M0.48	M1.40	M1.05		0.00	0.00	M2.86	M3.09	M0.02	27.23
2012	M9.41	M3.40	M9.44	M3.47	0.13	0.02	0.00	0.00					25.87
2013													
2014													
2015													
2016													
2017								M0.00	0.00	0.30	7.24	M0.04	7.58
2018	6.40	M0.00	M4.31	M2.14	0.11	0.00	M0.00	0.00	M0.21	1.34			14.51
2019		23.51	M11.68	4.07	4.72	M0.00	0.00	0.00	0.03	0.00	0.00	12.04	56.05
2020	2.68	0.02	1.57	1.32	2.11	0.00	0.00	0.12	0.00	0.00	1.24	3.46	12.52
2021	6.14	1.67	3.05	0.19	0.00	0.00	0.00	0.00	0.16	11.66	3.32	8.98	35.17
2022	0.98	0.07	1.03	2.18	0.10	0.64	0.00	0.00	1.48	0.02	1.71	11.43	19.64
2023	18.71	3.89	14.11	0.73	1.03	0.01	0.00	0.00	0.22	0.77	2.47	10.43	52.37
2024	11.60	10.65	M1.79										24.04

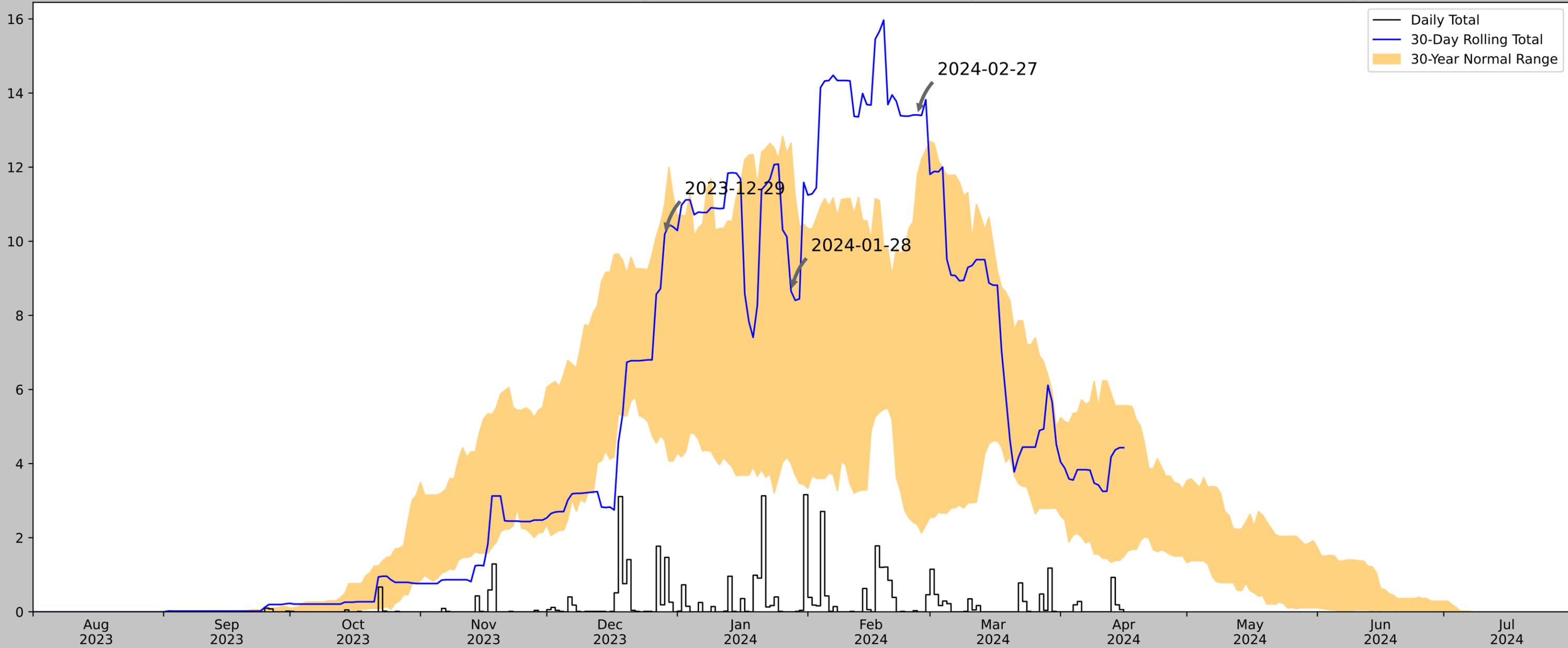
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2024-03-13

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Rainfall (Inches)



Coordinates	38.609038, -122.857856
Observation Date	2024-02-27
Elevation (ft)	95.723
Drought Index (PDSI)	Mild wetness
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-02-27	2.354724	11.78504	13.409449	Wet	3	3	9
2024-01-28	4.007087	12.655512	8.653544	Normal	2	2	4
2023-12-29	4.624803	11.002756	10.188977	Normal	2	1	2
Result							Wetter than Normal - 15

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
HEALDSBURG	38.6294, -122.8664	176.837	1.481	81.114	0.786	8852	90
HEALDSBURG 0.7 NE	38.6259, -122.855	337.927	0.661	161.09	0.404	38	0
HEALDSBURG 0.6 W	38.6179, -122.8731	104.987	0.873	71.85	0.456	105	0
HEALDSBURG 2.9 N	38.6605, -122.8639	176.837	2.153	0.0	0.969	347	0
HEALDSBURG 3.7 WNW	38.6476, -122.9207	142.06	3.189	34.777	1.546	1293	0
HEALDSBURG 4.2 NW	38.6564, -122.923	154.856	3.579	21.981	1.689	2	0
WINDSOR 1.2 NNW	38.5617, -122.8055	154.856	5.718	21.981	2.699	50	0
WINDSOR 1.5 WNW	38.5551, -122.8227	123.031	5.65	53.806	2.847	22	0
WINDSOR 0.6 NNE	38.5534, -122.7929	157.152	6.583	19.685	3.092	524	0
HEALDSBURG 7.5 NW	38.6934, -122.9627	203.084	6.823	26.247	3.249	1	0
WINDSOR 1.4 SE	38.5317, -122.78	140.092	8.206	36.745	3.994	8	0
WARM SPRINGS DAM	38.7161, -122.9975	224.081	9.268	47.244	4.608	2	0
SANTA ROSA SONOMA CO AP	38.5036, -122.8111	119.094	9.191	57.743	4.667	108	0



Figures and tables made by the
Antecedent Precipitation Tool
Version 2.0

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center



Appendix E
Aquatic Resource Field Data

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S01
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60834292 Long: -122.85589168 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>70</u> x 4 = <u>280</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>370</u> (B) Prevalence Index = B/A = <u>3.70</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Galium aparine</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Lolium perenne</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Oxalis corniculata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
4. <u>Vinca major</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Loam	
-								
-								
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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S02
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.6083862 Long: -122.85590522 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.33</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>70</u> x 4 = <u>280</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>370</u> (B) Prevalence Index = B/A = <u>3.70</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Oxalis corniculata</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Galium aparine</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Festuca perenne</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>		% Cover of Biotic Crust _____		
Remarks: _____ _____ _____				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S03
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60843001 Long: -122.85614178 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Rubus armeniacus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Loam	
-								
-								
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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S04
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60849578 Long: -122.85623847 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>100</u> x 4 = <u>400</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>400</u> (B) Prevalence Index = B/A = <u>4.00</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S04

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

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

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S05
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60851168 Long: -122.85661872 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Rubus armeniacus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>		% Cover of Biotic Crust _____		

Remarks: _____

SOIL

Sampling Point: S05

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

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

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S06
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60835309 Long: -122.85669442 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Rubus armeniacus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>		% Cover of Biotic Crust _____		
Remarks: _____ _____ _____				

SOIL

Sampling Point: S06

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

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

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S07
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60865199 Long: -122.85799502 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Rubus armeniacus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S07

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Clay Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S08
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Concave Slope (%): _____
 Subregion (LRR): C 14 Lat: 38.60857642 Long: -122.85800313 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Rubus armeniacus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: S08

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Silty Clay Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S09
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60860108 Long: -122.8582633 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: 	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>0</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>0</u>
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>100</u> % Cover of Biotic Crust _____				

Remarks:
no herb veg; English ivy nearby

SOIL

Sampling Point: S09

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Clay Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S10
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60873176 Long: -122.85898065 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)														
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)														
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)														
4. _____	_____	_____	_____	Prevalence Index worksheet:														
_____ = Total Cover					<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>80</u></td> <td>x 4 = <u>320</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>380</u> (B)</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>80</u>	x 4 = <u>320</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>20</u>	x 3 = <u>60</u>																	
FACU species <u>80</u>	x 4 = <u>320</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>100</u> (A)	<u>380</u> (B)																	
_____ = Total Cover				Prevalence Index = B/A = <u>3.80</u>														
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				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.														
Herb Stratum (Plot size: <u>5 ft</u>) 1. <u>Hedera helix</u> <u>80</u> <input checked="" type="checkbox"/> <u>FACU</u> 2. <u>Rubus armeniacus</u> <u>20</u> <input checked="" type="checkbox"/> <u>FAC</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ _____ = Total Cover																		
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover																		
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____																		
Remarks: _____ _____ _____																		
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>																		

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S11
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.6086855 Long: -122.85897728 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>100</u> x 4 = <u>400</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>400</u> (B) Prevalence Index = B/A = <u>4.00</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>		% Cover of Biotic Crust _____		
Remarks: _____ _____ _____				

SOIL

Sampling Point: S11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

evidence of ponding but no saturation visible, no surface water visible

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S12
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60850968 Long: -122.8568352 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.33</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Carex bolanderi</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Galium aparine</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Silty Clay Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-28
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S13
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60847 Long: -122.857937 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer negundo</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>200</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>2.50</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft r</u>)				
1. <u>Rubus ursinus</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> 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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>80</u> % Cover of Biotic Crust _____				

Remarks:
Bar ground, concave area, evidence of ponding

SOIL

Sampling Point: S13

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/1	95	10YR 4/3	5	C	M	Sandy Clay Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S14
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.608487 Long: -122.857847 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.80</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Rubus ursinus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S14

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Clay Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-28
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S15
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.60853 Long: -122.85826 Datum: NAD83_2011
 Soil Map Unit Name: RnA - Riverwash NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer negundo</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft r</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> 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.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	_____ = Total Cover
% Bare Ground in Herb Stratum <u>100</u> % Cover of Biotic Crust _____				

Remarks:
Bar ground, concave area, evidence of ponding

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S16
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.609045 Long: -122.859579 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Hedera helix</u>	<u>90</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. <u>Rubus ursinus</u>	<u>20</u>	_____	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>110</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 20 x 3 = 60
 FACU species 90 x 4 = 360
 UPL species 0 x 5 = 0
 Column Totals: 110 (A) 420 (B)
 Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:
 ___ Dominance Test is >50%
 ___ Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No

Remarks: _____

SOIL

Sampling Point: S16

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S17
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.609883 Long: -122.859168 Datum: NAD83_2011
 Soil Map Unit Name: PeA - Pleasanton loam, 0 to 2 percent slopes, MLRA 14 NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>100</u> x 4 = <u>400</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>400</u> (B) Prevalence Index = B/A = <u>4.00</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S18
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Undulating Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.609474 Long: -122.859018 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>90</u> x 4 = <u>360</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>390</u> (B) Prevalence Index = B/A = <u>3.90</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <u>Hedera helix</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	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.
2. <u>Vinca major</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Galium aparine</u>	<u>10</u>	_____	<u>FACU</u>	
4. <u>Rubus ursinus</u>	<u>10</u>	_____	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

SOIL

Sampling Point: S18

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Data collection followed an intensive rain and a high water flow period for the Russian River.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Badger Park City/County: Sonoma County Sampling Date: 2024-02-27
 Applicant/Owner: City of Healdsburg State: California Sampling Point: S19
 Investigator(s): Greg Huffman Section, Township, Range: S00 T9N R9W
 Landform (hillslope, terrace, etc.): Alluvial Fan Local relief (concave, convex, none): Convex Slope (%): 1
 Subregion (LRR): C 14 Lat: 38.610431 Long: -122.856985 Datum: NAD83_2011
 Soil Map Unit Name: YIA - Yolo sandy loam, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus ursinus</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 100 x 3 = 300
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 100 (A) 300 (B)
 Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 ___ Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No

Remarks: _____

SOIL

Sampling Point: S19

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 24	10YR 4/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: 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 Soils³:

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

³Indicators 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:

Data collection followed an intensive rain and a high water flow period for the Russian River.

Wetland

Label	Type	Cowardin Code	Acres
W1	Forested	PFO-Forested, Palustrine	1.333
W2	Forested	PFO-Forested, Palustrine	0.006
W3	Forested	PFO-Forested, Palustrine	0.076
W4	Forested	PFO-Forested, Palustrine	0.003
Total			1.418

Other Waters

Label	Type	Length in Feet	Stream Width	Acres	Latitude Start	Longitude Start	Latitude End	Longitude End	Field Comment
R1	Lower Perennial			1.5137					Russian River
R2	Intermittent	810.29	3.5	0.0651	38.610090	-122.858412	38.608086	-122.858521	
R3	Intermittent	432.02	5	0.0496	38.608591	-122.858624	38.608285	-122.860017	
R4	Intermittent	128.09	1.5	0.0044	38.608584	-122.857603	38.608520	-122.857921	
R4	Intermittent	78.96	8	0.0145	38.608477	-122.860127	38.608285	-122.860017	
R5	Intermittent	15.58	1	0.0004	38.608310	-122.855946	38.608352	-122.855954	Small drainage relief area towards river
R6	Intermittent	15.56	3.5	0.0013	38.610451	-122.856980	38.610451	-122.857034	
R7	Intermittent	67.00	8	0.0123	38.608431	-122.860167	38.608271	-122.860051	
Total				1.6612					

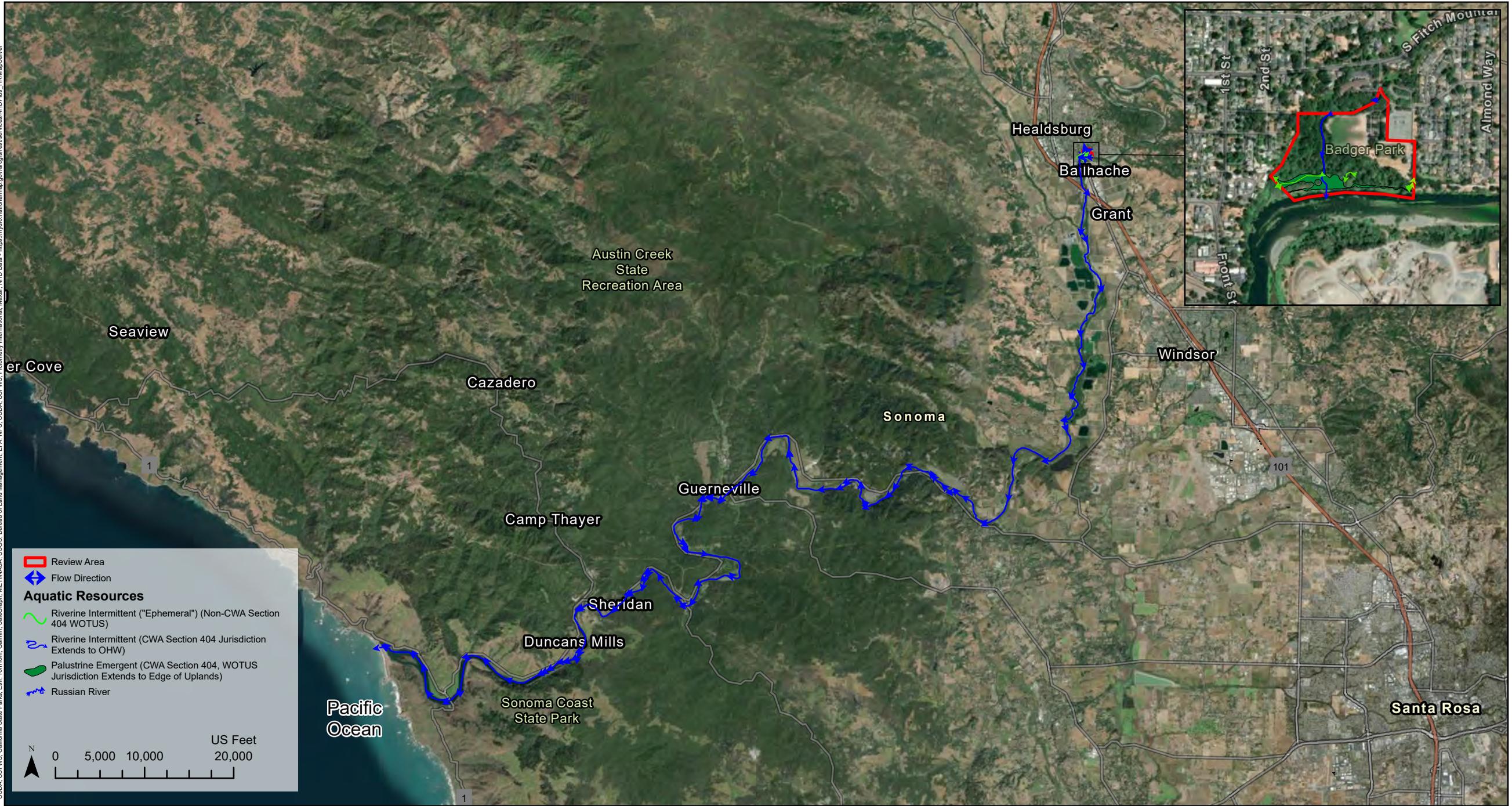
Upland Below OHW

Label	Type	Acres	Note
U1	Riparian	4.36	Upland Riparian Area Below OHWM
U2	Riparian	0.35	Upland Riparian Area Below OHWM
U3	Riparian	0.06	Upland Riparian Area Below OHWM
U4	Riparian	0.03	Upland Riparian Area Below OHWM
Total		4.81	

Appendix F

Potential CWA Section 404 Other Waters of the U.S. Showing Intrastate and Interstate Aquatic Resources

Project Data: HBG; Basemap Layer Credits: Pictometry International, Earthstar Geographics, Esri Community Maps Contributors, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, California State Parks, Esri, TomTom, Garmin, SafeGraph, MET/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Pictometry International, Maxar, NHD Data - https://hydro.nationalmap.gov/catalog/services/NHDPlus_HFR/MapServer



Review Area

Flow Direction

Aquatic Resources

- Riverine Intermittent ("Ephemeral") (Non-CWA Section 404 WOTUS)
- Riverine Intermittent (CWA Section 404 Jurisdiction Extends to OHW)
- Palustrine Emergent (CWA Section 404, WOTUS Jurisdiction Extends to Edge of Uplands)
- Russian River

US Feet

0 5,000 10,000 20,000

Appendix F. Surface Flow Mapping: Review Area Continuous Surface Connection to Traditional Navigable Waters

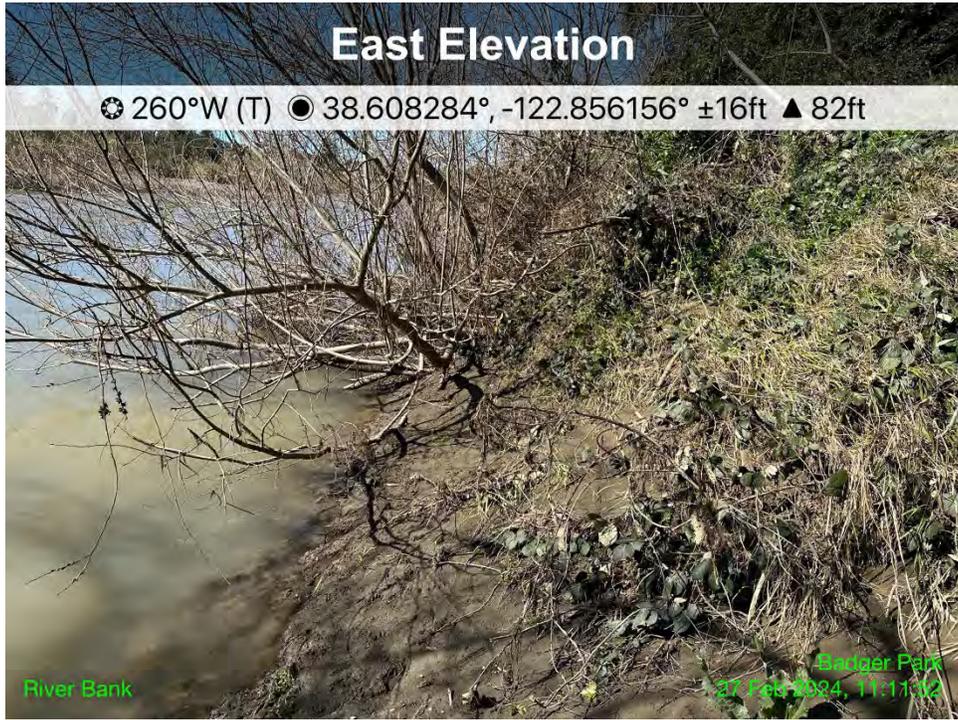
Badger Park Project
Healdsburg, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

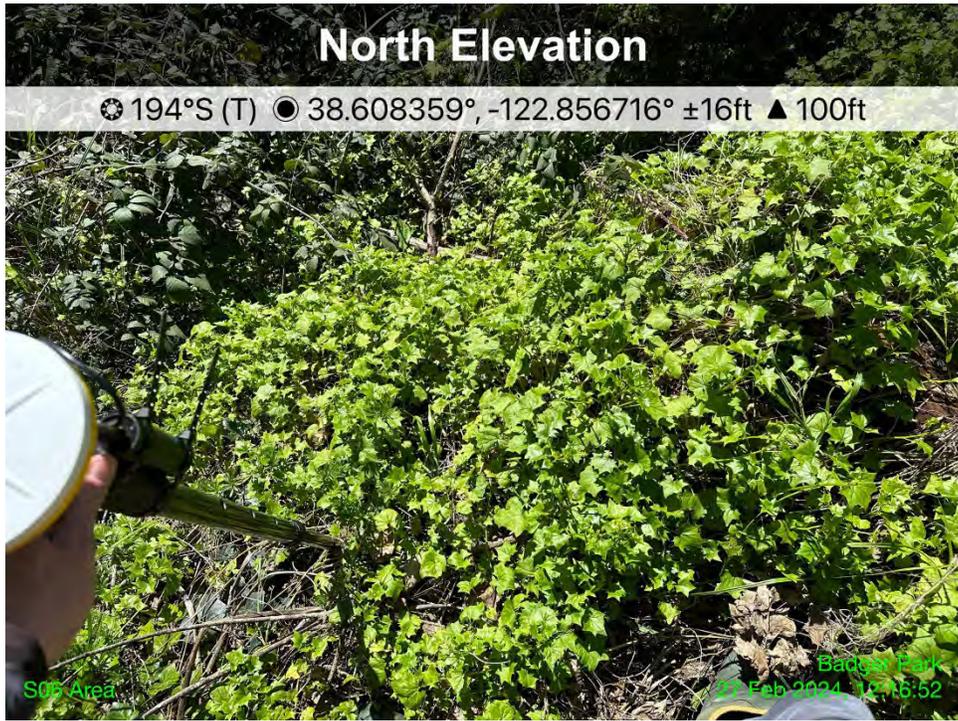
Spatial Reference
Name: NAD 1983 2011 StatePlane California III FIPS 0403 Ft US
Scale: 1:150,000
Date: 4/22/2024
HBG GIS Specialists: Agie Gilmore & Deland Wing
HBG PM: Greg Huffman

Appendix G

Representative Review Area Photographs



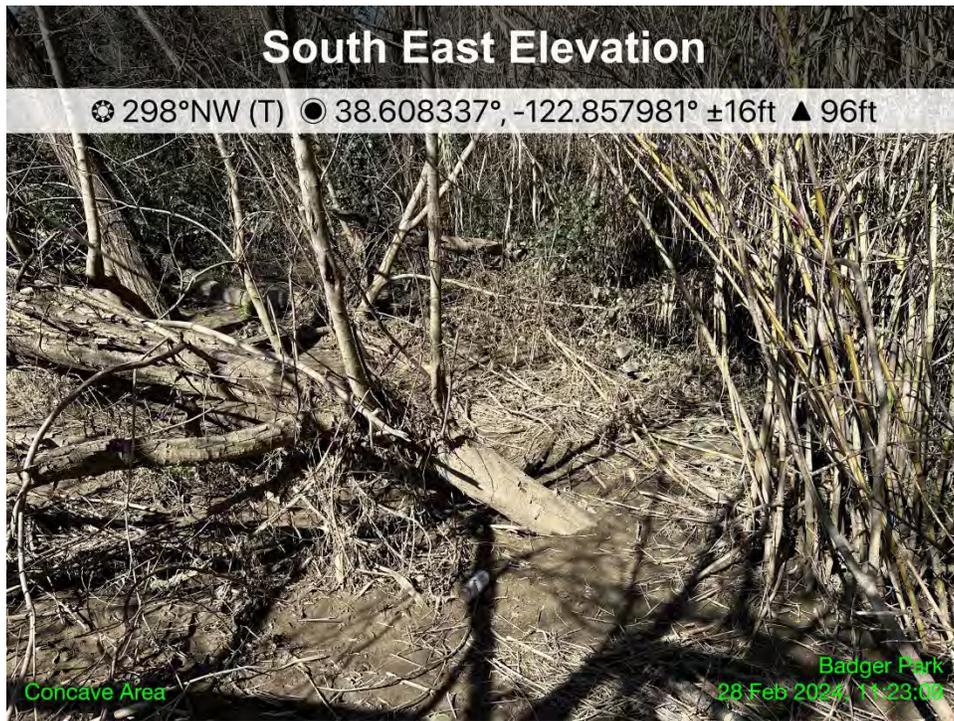
Example Riverbank Area



Example Upland Area (S06)



Example Upland Area (S08)



Example Forested Wetland Area (S13)

APPENDIX D

ENVIRONMENTAL NOISE ASSESSMENT



Environmental Noise Assessment

Badger Park Redevelopment Master Plan

City of Healdsburg, California

July 16, 2024

Project #231203

Prepared for:



Raney Planning & Management, Inc.

1501 Sports Drive, Suite A

Sacramento, CA 95834

Prepared by:

Saxelby Acoustics LLC

A blue ink signature of Luke Saxelby.



Luke Saxelby, INCE Bd. Cert.

Principal Consultant

Board Certified, Institute of Noise Control Engineering (INCE)

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Roseville, CA 95678

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INTRODUCTION

The Badger Park Redevelopment Master Plan project is located in the City of Healdsburg, California. The project will expand and upgrade existing amenities such as the parking lot, play structure, and dog park as well as add new amenities such as sport courts and picnic areas. Sensitive receptors in the vicinity of the project site include single-family residences to the east and west as well as multifamily residences the north. The Russian River borders the southern boundary of the project site.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.



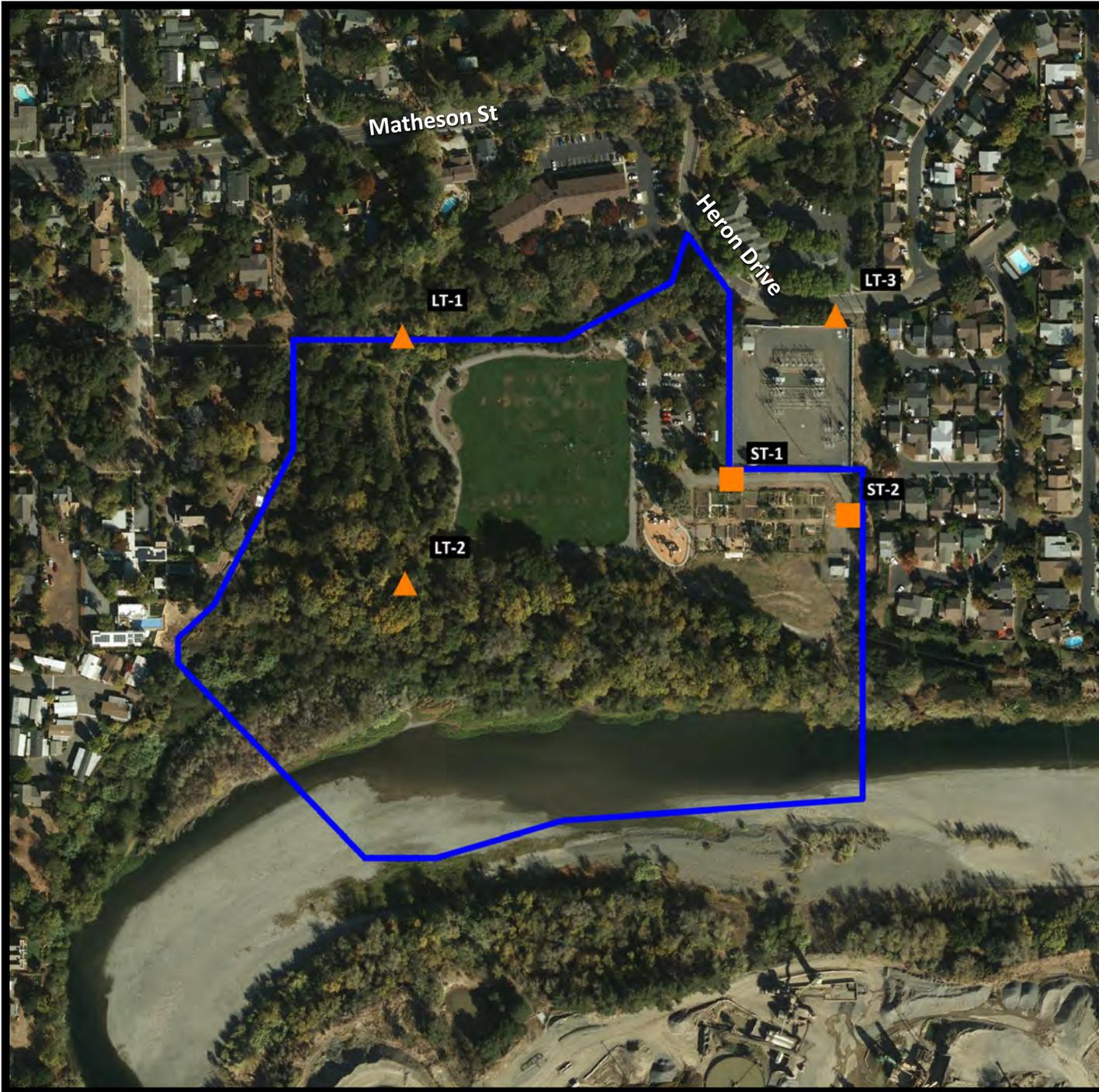
Badger Park Redevelopment Master Plan

City of Healdsburg, California

Figure 1

Project Site Plan





Badger Park Redevelopment Master Plan

City of Healdsburg, California

Figure 2

Noise Measurement Sites

Legend

- Project Site
- ▲ Noise Measurement Site - Long Term
- Noise Measurement Site - Short Term

Projection: UTM Zone 10 / WGS84 / meters
 Rev. Date: 03/20/2024



The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60-dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and shows very good correlation with community response to noise.

The day/night average level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, *Technical Noise Supplement, Traffic Noise Analysis Protocol*. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regards to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise-sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses include existing single-family residential uses to the east and west of the project site and multifamily residential uses to the north of the project site.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing noise environment in the project vicinity is defined by traffic on Matheson Street, activity at the existing park, and natural sounds such as birds and insects. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at three locations on the project site. Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max} , represents the highest noise level measured. The average value, denoted L_{eq} , represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. The 10th percentile value, denoted L_{10} , represents the sound level exceeded 10 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a CAL 200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Location	Date	L _{dn}	Daytime L _{eq}	Daytime L ₁₀	Daytime L _{max}	Nighttime L _{eq}	Nighttime L ₁₀	Nighttime L _{max}
LT-1: Northwestern Project Boundary	Saturday 3/16/24	47	47	48	61	38	39	49
	Sunday 3/17/24	46	45	47	62	38	38	53
	Monday 3/18/24	46	46	46	62	37	38	48
LT-2: Southwest of Proposed Central Lawn	Saturday 3/16/24	47	46	47	61	38	40	50
	Sunday 3/17/24	46	46	47	65	37	37	52
	Monday 3/18/24	46	47	47	65	37	38	48
LT-3: Northeast of the Project Site	Saturday 3/16/24	55	55	57	74	47	44	67
	Sunday 3/17/24	55	54	56	73	47	43	66
	Monday 3/18/24	55	55	57	73	47	43	66

Notes:

- All values shown in dBA
- Daytime hours: 7:00 a.m. to 10:00 p.m.
- Nighttime Hours: 10:00 p.m. to 7:00 a.m.
- Source: Saxelby Acoustics 2024

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

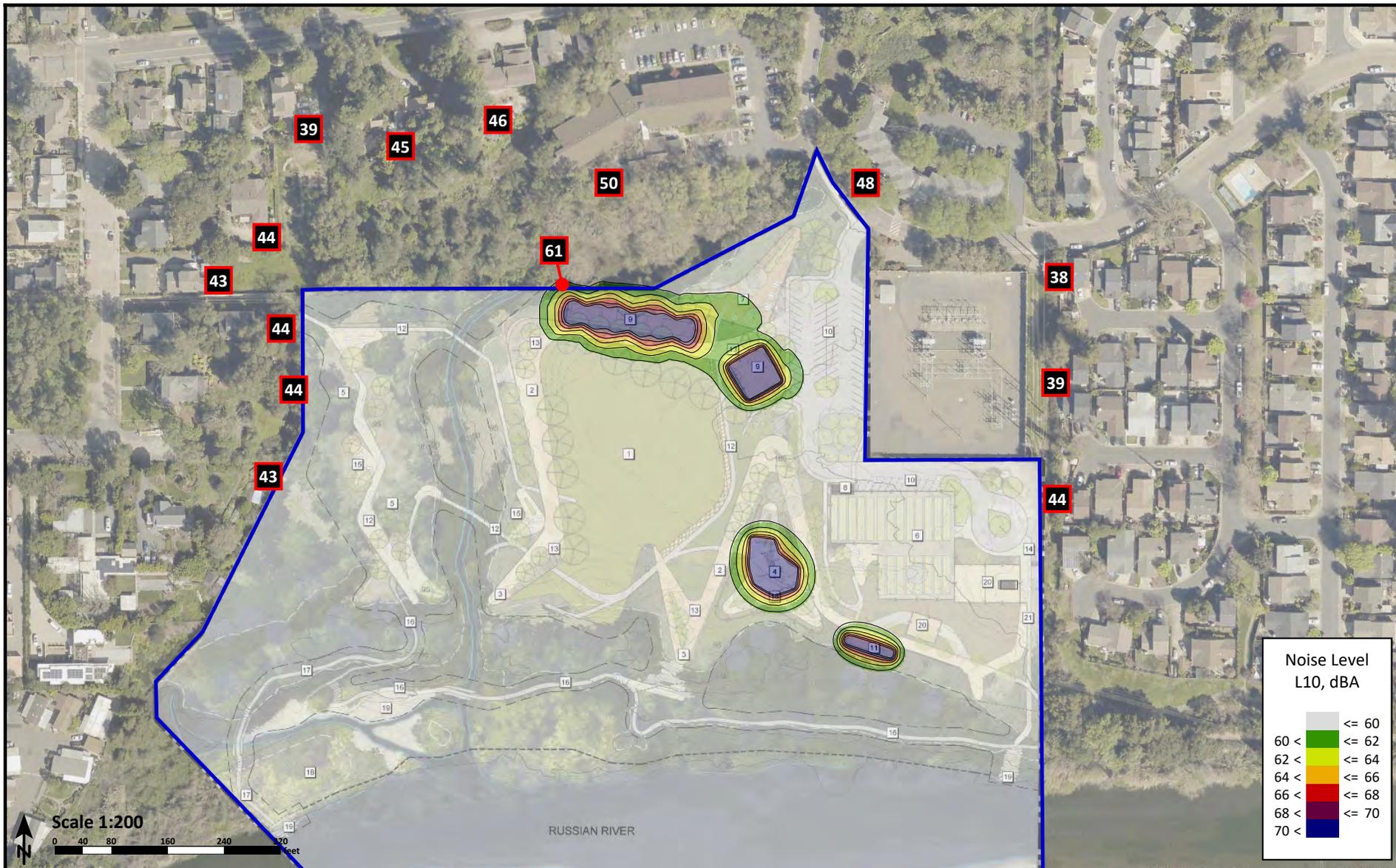
Based upon the analysis conducted by the traffic engineer (W-Trans 2024) the proposed improvement to the existing park is predicted to increase daily project trips by 91 vehicles. The proposed project traffic increases are projected to generate a day/night average level of 38.5 dBA L_{dn} at the existing sensitive receptors along Heron Drive. The existing ambient noise level at these receptors due to traffic along this road was measured to be 55 dBA L_{dn} at 30 feet to the centerline of the roadway. Sensitive receptors are set back 60 feet from the roadway centerline. Therefore, Saxelby Acoustics estimates an existing traffic noise level of 50.5 dBA L_{dn} based upon an assumed -4.5 dBA reduction per doubling of distance from a roadway source. The combined noise level of existing plus project traffic would be 50.8 dBA L_{dn}, resulting in an increase of 0.3 dBA over existing traffic noise levels.

EVALUATION OF PROJECT OPERATIONAL NOISE ON EXISTING SENSITIVE RECEPTORS

Outdoor recreational noise associated with the proposed athletic amenities and parking lot traffic circulation are considered to be the primary noise sources for this project. The following is a list of assumptions used for the noise modeling. Project operational noise is assumed to occur during daytime (7:00 am. to 8:00 p.m.) hours only. The data used is based upon Saxelby Acoustics data from similar operations.

- Tennis/Pickleball Courts: Pickleball gameplay is expected to produce noise levels of approximately 60 dBA L₁₀ at 25 feet from the edge of the end of a single court and 58 dBA L₁₀ at 25 feet from the edge of the side of a single court.
- Basketball Courts: Recreational activity at center of court at 59 dBA L₁₀ at 50 feet. Saxelby Acoustics data.
- Play Area: Recreational activity in center of playground area at 59 dBA L₁₀ at 50 feet. Saxelby Acoustics data.
- Dog Park: Dogs and people entering dog run area at entrance was found to produce noise levels of 54 dBA L₁₀ at 50 feet. Dogs interacting and playing as well as dog owners interacting with each other and their pets produced 54 dBA L₁₀ at rear boundary of dog run area. Saxelby Acoustics data.
- On-Site Circulation: The project is projected to generate up to 91 daily trips with 13 trips (7 in, 6 out) in the evening peak hour (W-Trans 2024). One heavy truck trip was included to account for trash collection. Parking lot movements are predicted to generate a sound exposure level (SEL) of 71 dBA SEL at 50 feet for cars and 85 dBA SEL at 50 feet for trucks. Saxelby Acoustics data.

Saxelby Acoustics used the SoundPLAN noise prediction model. Inputs to the model included sound power levels for the proposed amenities, existing and proposed buildings, terrain type, and locations of sensitive receptors. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). ISO 9613 is the most commonly used method for calculating exterior noise propagation. **Figure 3** shows noise level contours generated by the project during a peak hour of use.



Badger Park Redevelopment

City of Healdsburg, California

Figure 3
Project Noise Levels (dBA, L10)



CONSTRUCTION NOISE ENVIRONMENT

During the construction of the proposed project, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in **Table 3**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 3: CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dBA at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: Roadway Construction Noise Model User's Guide. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 4** shows the typical vibration levels produced by construction equipment.

TABLE 4: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: Transit Noise and Vibration Impact Assessment Guidelines. Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed more below under the Thresholds of Significance section.

State Building Code, Title 24, Part 2 of the State of California Code of Regulations

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations, establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

LOCAL

City of Healdsburg General Plan

Policies

- Policy S-G-1:** New development shall not be approved unless it is generally consistent with the Land Use Compatibility for Community Noise Environments guidelines contained in General Plan Figure 10 and it is demonstrated that the new development will not violate the City's ordinance regulating excessive noise
- Policy S-G-2:** The City will require the inclusion of design techniques in new construction that minimize noise impacts, including building location and orientation, building design features, and placement of noise-tolerant components (i.e., parking, utility areas, and maintenance facilities) between noise sources and the sensitive receptor areas where necessary to meet the Land Use Compatibility for Community Noise Environments guidelines contained in General Plan **Table 7**.

TABLE 5: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

Land Use Category	Community noise Exposure (dBA L _{dn})			
	Normally Acceptable ¹	Conditionally Acceptable ²	Normally Unacceptable ³	Clearly Unacceptable ⁴
Residential - Single-family, duplex, mobile home	≤60 ⁵	55-70	70-78	75+
Residential - Multi-family	≤65 ⁶	60-70	70-75	75+
Residential - Interior	≤45			
Transient lodging - Motel, hotel	<65	60-70	70-80	80+
School, library, church, hospital, nursing home	<70	60-70	70-80	80+
Auditorium		<70	65+	
Sports arena, outdoor spectator sports		<75	70+	
Playgrounds, Neighborhood Parks	<70	--	67.5-75	72.5+
Golf course, cemetery	<75		70-80	80+
Commercial – retail, office, service	<70	67.5-77.5	75+	
Industrial, utility, agriculture	<75	70-80	75+	

Notes: dBA = A-weighted decibels; L_{dn} = day-night average noise level

¹ Specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

² New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and after needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh-air supply systems or air conditioning, will normally suffice.

³ New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

⁴ New construction or development should generally not be undertaken.

⁵ Outdoor private use areas ⁶ Outdoor active use areas, excluding balconies

Policy S-25: Where construction occurs that would result in a potentially-significant impact on noise-sensitive uses, require use of noise-reducing measures that may include the following:

- a. Equip internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and are appropriate for the equipment.
- b. Locate stationary noise-generating equipment as far as possible from sensitive receptors in the vicinity.
- c. Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- d. Erect temporary noise control blanket barriers in a manner to shield noise sensitive uses.
- e. Control noise levels from workers' amplified music so that sounds are not audible sensitive receptors in the vicinity.

- f. Designate a “disturbance coordinator” responsible for responding to complaints about project construction noise and taking reasonable measures to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in any notice sent to neighbors regarding the construction schedule.

City of Healdsburg Municipal Code

9.32.060 Exemptions.

- A. The following activities shall be exempted from the provision of this chapter:
- B. Occasional outdoor gatherings, public dances, shows, sporting and entertainment events, provided such events are conducted pursuant to a permit or license issued by the City relative to the staging of such events.
- C. Any mechanical device, apparatus or equipment used, related to, or connected with any emergency, public land or utility maintenance, or agricultural machinery, vehicle, or seasonal work, such as activities related to grape crush.
- D. A warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within 15 minutes of its being activated. This exemption shall not apply to ongoing land use activities where backup alarm noise is emitted from mobile equipment.
- E. Noise emanating from manned aircraft.
- F. Noise emanating from railroad vehicles.
- G. Noise emanating from delivery vehicles regulated by the PUC and associated loading and unloading of merchandise from these vehicles. (Ord. 1011 § 6, 2003.)

9.32.070 Construction and temporary activities.

- A. Noise sources associated with or vibration created by construction, repair, remodeling, or grading of any real property or during authorized seismic surveys are permitted, provided such activities do not take place between the nighttime hours of 6:00 p.m. and 7:30 a.m. daily, or at any time on Sunday or a legal holiday, and provided the noise level created by such activities and any vibration created does not endanger the public health, welfare, and safety.
- B. Residential gardening activities conducted by the owner/occupants and outside contractors is permitted between the hours of 7:30 a.m. and 9:00 p.m., to include power mowers, pressure washers, and other power apparatus.
- C. Nothing in this section shall be construed to prohibit construction activities that do not exceed the ambient noise level by more than 10 dBA, such as painting or interior work. (Ord. 1011 § 7, 2003.)

9.32.080 Standards for maximum sound levels and determining violations.

- A. Sound Level Standards. It is the objective of the City to require intruding noise levels not to exceed those listed below to determine if a violation exists:

TABLE 6: MUNICIPAL CODE NOISE LIMITS

Receptor Land Use	Daytime Exterior Sound Level dBA L ₁₀	Nighttime Exterior Sound Level dBA L ₁₀
Residential-zoned properties not located adjacent to industrial properties and office-zoned properties:	60	55
Residential-zoned properties located adjacent to industrial-zoned properties:	65	55
Commercial-zoned properties:	65	60
Industrial-zoned properties:	75	70

- B. Daytime shall be considered 7:00 a.m. to 8:00 p.m., and nighttime shall be considered to be 8:00 p.m. to 7:00 a.m.
- C. Where a land use activity is carried out over two of the above receptor land uses, the least restrictive sound level standard shall apply.
- D. Properties that are zoned residential master plan (RMP) or planned development (PD) shall be subject to the sound level standards under this section based upon the corresponding general plan land use designation of residential, office, commercial, or industrial.
- E. Mobile equipment used for ongoing land use activities shall be equipped with radar-activated backup alarms to the extent allowed under applicable state and federal regulations.
- F. The following criteria, at a minimum, shall be applied in addition to the quantitative sound level measurements and standards during an enforcement procedure as set forth in HMC 9.32.100, to assist in a determination of the nature and severity of a potential violation:
 - 1. The intensity of the noise;
 - 2. Whether the origin of the noise is natural or unnatural;
 - 3. The level and intensity of the background noise;
 - 4. The proximity of the noise source to receptors;
 - 5. The time of the day or night the noise occurs;
 - 6. The duration of the noise;
 - 7. Whether the noise is recurrent, intermittent, or constant;
 - 8. Whether the noise is produced by a commercial or noncommercial activity; and
 - 9. Whether the noise is produced by equipment normally required for maintenance of residential properties or for authorized construction projects. (Ord. 1011 § 8, 2003.)

CRITERIA FOR ACCEPTABLE VIBRATION

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 7**, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 7 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 7: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: *Transportation Related Earthborne Vibrations*. Caltrans. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-c]).

Would the project:

- a. Generate 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. Generate 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?

The proposed project is not located within two miles of a public or private airport, therefore item “c” is not discussed any further in this study.

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The California Environmental Quality Act (CEQA) guidelines define a significant impact of a project if it “increases substantially the ambient noise levels for adjoining areas.” Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions. **Table 8** is based upon recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn} .

TABLE 8: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level Without Project, L_{dn}	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON).

Based on the **Table 8** data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn} , or 3 dB or more where existing noise levels are between 60 to 65 dB L_{dn} . Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB L_{dn} . The rationale for the **Table 13** criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

Temporary Construction Noise Impacts

With temporary noise impacts (construction), identification of “substantial increases” depends upon the duration of the impact, the temporal daily nature of the impact, and the absolute change in decibel levels. Per the City of Healdsburg Municipal Code, construction activities operating outside the hours of 7:30 am and 6:00 pm Monday through Saturday and any time on Sunday are prohibited.

The City has not adopted any formal standard for evaluating temporary construction noise which occurs within allowable hours. For short-term noise associated with Project construction, Saxelby Acoustics recommends use of the Caltrans increase criteria of 12 dBA (Caltrans Traffic Noise Protocol, 2020), applied to existing

residential receptors in the project vicinity. This level of increase is approximately equivalent to a doubling of sound energy and has been the standard of significance for Caltrans projects at the state level for many years. Application of this standard to construction activities is considered reasonable considering the temporary nature of construction activities.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 1: *Would the project generate 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?*

Traffic Noise Increases at Off-Site Receptors

The existing ambient noise level in the project vicinity was measured to be 55 dBA L_{dn} . Based upon the **Table 8** criteria, the significance threshold for ambient noise environments less than 60 dBA L_{dn} is +5.0 dBA L_{dn} . Based upon the projected addition of 91 daily project trips, an increase in traffic noise level of 0.3 dB is predicted. This is lower than the minimum threshold for significance. Therefore, impacts resulting from increased traffic noise would be considered **less-than-significant**, and no mitigation is required.

Operational Noise at Existing Sensitive Receptors

Compliance with City Noise Level Standards

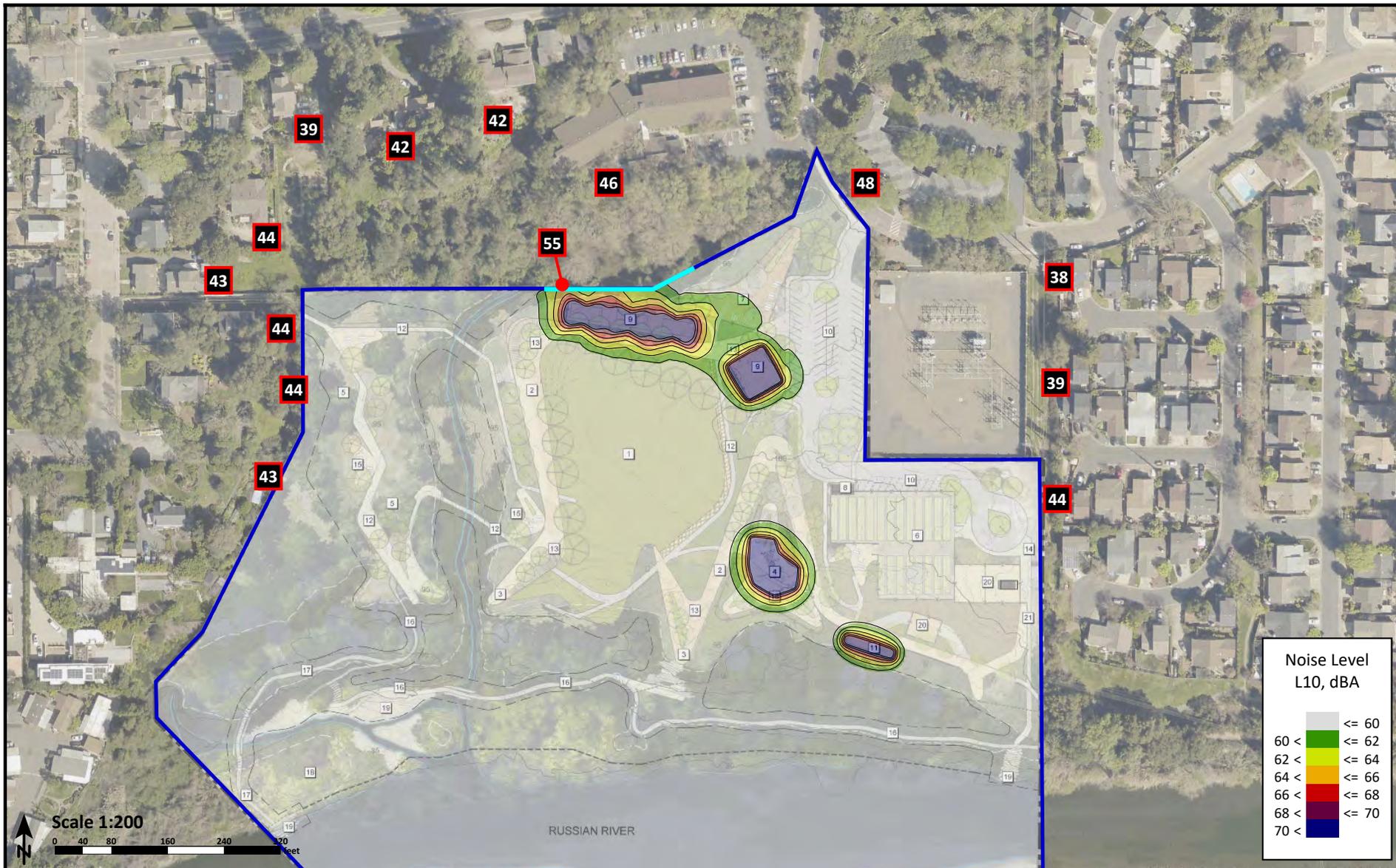
The City of Healdsburg noise level standards require that new projects in the vicinity of existing sensitive receptors generate noise levels no greater than 60 dBA L_{10} during daytime (7:00 a.m. to 10:00 p.m.) hours at residential-zoned properties.

As shown on **Figure 3**, the project is predicted to expose nearby residences to noise levels up to 61 dBA L_{10} at receptors to the north. This would exceed the City's noise level standard. This is a **potentially significant** impact and requires mitigation.

To mitigate this impact, Saxelby Acoustics recommends the construction of a 6-foot-tall sound wall along the northern boundary of the project site. **Figure 4** shows the location of the wall and the resulting noise level contours. With the wall, project noise levels would be reduced from 61 dBA L_{10} to 55 dBA L_{10} at the property boundary, which is less than the City's 60 dBA L_{10} standard. Therefore, mitigation measure 1(a) would reduce this to a **less-than-significant** impact.

Analysis of Long-Term Project-Related Increase Significance

As shown in **Table 2**, the existing ambient noise level at sensitive receptors set back from Heron Drive was measured to be 47 dBA L_{10} during daytime hours. The proposed project is predicted to generate noise levels of up to 46 dBA at the nearest sensitive receptors. The ambient (47 dBA L_{10}) plus project (46 dBA L_{10}) noise level would be 49.5 dBA L_{10} , resulting in an increase of 2.5 dBA L_{10} over the ambient noise levels. At the sensitive receptors along Heron Drive, ambient noise levels were measured to be 57 dBA L_{10} and project noise levels are predicted to be 48 dBA L_{10} , resulting in a combined noise level of 57.5 dBA L_{10} and a 0.5 dBA increase. According to **Table 8**, where noise levels are less than 60 dB, an increase of +5.0 dB or greater would be considered significant. Based on the greatest predicted increase of 2.5 dB, this would be a **less-than-significant** impact.



Badger Park Redevelopment

City of Healdsburg, California

Figure 4
Project Noise Levels with Wall (dBA, L10)



Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in **Table 3**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet. Construction activities would also be temporary in nature and are anticipated to occur during normal daytime working hours.

Caltrans defines a significant increase due to noise as an increase of 12 dBA over existing ambient noise levels; Saxelby Acoustics used this criterion to evaluate increases due to construction noise associated with the project. As shown in **Table 5**, construction equipment is predicted to generate noise levels of up to 90 dBA L_{max} at 50 feet. Construction noise is evaluated as occurring at the center of the site to represent average noise levels generated over the duration of construction across the project site. The nearest residential uses are located approximately 450 feet as measured from the center of the project site. At this distance, maximum construction noise levels would be up to 71 dBA. Daytime maximum noise levels in the vicinity of the sensitive receptors were measured to range from 49-71 dBA. Therefore, project construction would not cause an increase of greater than 12 dBA over existing ambient noise levels.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration and would occur during daytime hours.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise could result in sleep interference at existing noise-sensitive land uses in the vicinity of the construction if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered **potentially significant**. Mitigation measure 1(b) would reduce construction noise impacts to **less-than-significant**.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

- 1(a) *The proposed project must include the construction of a 6-foot-tall barrier at the northern boundary of the project site as shown in **Figure 4**. The barrier height shall be relative to the residential building pads or the pickleball courts/dog park, whichever is greater. Noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials that achieve the required total height. Wood is not recommended due to eventual warping and degradation of acoustical performance. These requirements shall be included in the improvement plans prior to their approval by the City.*
- 1(b) The City shall establish the following as conditions of approval for any permit that results in the use of construction equipment:
 - Construction shall be limited to 7:30 a.m. to 6:00 p.m. Monday through Saturday.
 - All construction equipment powered by internal combustion engines shall be properly muffled and maintained.

- Quiet construction equipment, particularly air compressors, are to be selected whenever possible.
- All stationary noise-generating construction equipment such as generators or air compressors are to be located as far as is practical from existing residences. In addition, the project contractor shall place such stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
- Unnecessary idling of internal combustion engines is prohibited.
- The construction contractor shall, to the maximum extent practical, locate on-site equipment staging areas to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

Timing/Implementation: Implemented prior to approval of grading and/or building permits

Enforcement/Monitoring: City of Healdsburg

Implementation of mitigation measures 1(a) would help to reduce construction-generated noise levels. With mitigation, this impact would be considered **less-than-significant**.

Transportation Noise on Project Site (Non-CEQA Issue)

Exterior Transportation Noise

Compliance with City's standards on new noise-sensitive receptors is not a CEQA consideration. However, this information is provided here so that a determination can be made regarding the ability of the proposed project to meet the requirements of the City of Healdsburg for exterior noise levels at new uses proposed under the project.

As indicated in **Table 2**, noise levels measured at various locations along the project site ranged from 46 dBA L_{dn} to 55 dBA L_{dn} . This would fall under the "Normally Acceptable" range of less than 70 dBA L_{dn} established by the City of Healdsburg General Plan (see **Table 7**). Therefore, the proposed use is compatible with the existing environment and no noise control measures are required.

Impact 2: Would the project generate excessive groundborne vibration or groundborne noise levels?

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

The **Table 4** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located further than 26 feet from typical construction activities. At distances greater than 26 feet construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

This is a **less-than-significant** impact and no mitigation is required.

Impact 3: *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?*

There are no airports within two miles of the project vicinity. Therefore, this impact is not applicable to the proposed project.



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Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B: Continuous and Short-Term Ambient Noise Measurement Results



Appendix B1a: Continuous Noise Monitoring Results

Site: LT-1

Project: Bader Park Redevelopment

Meter: LDL 820-3

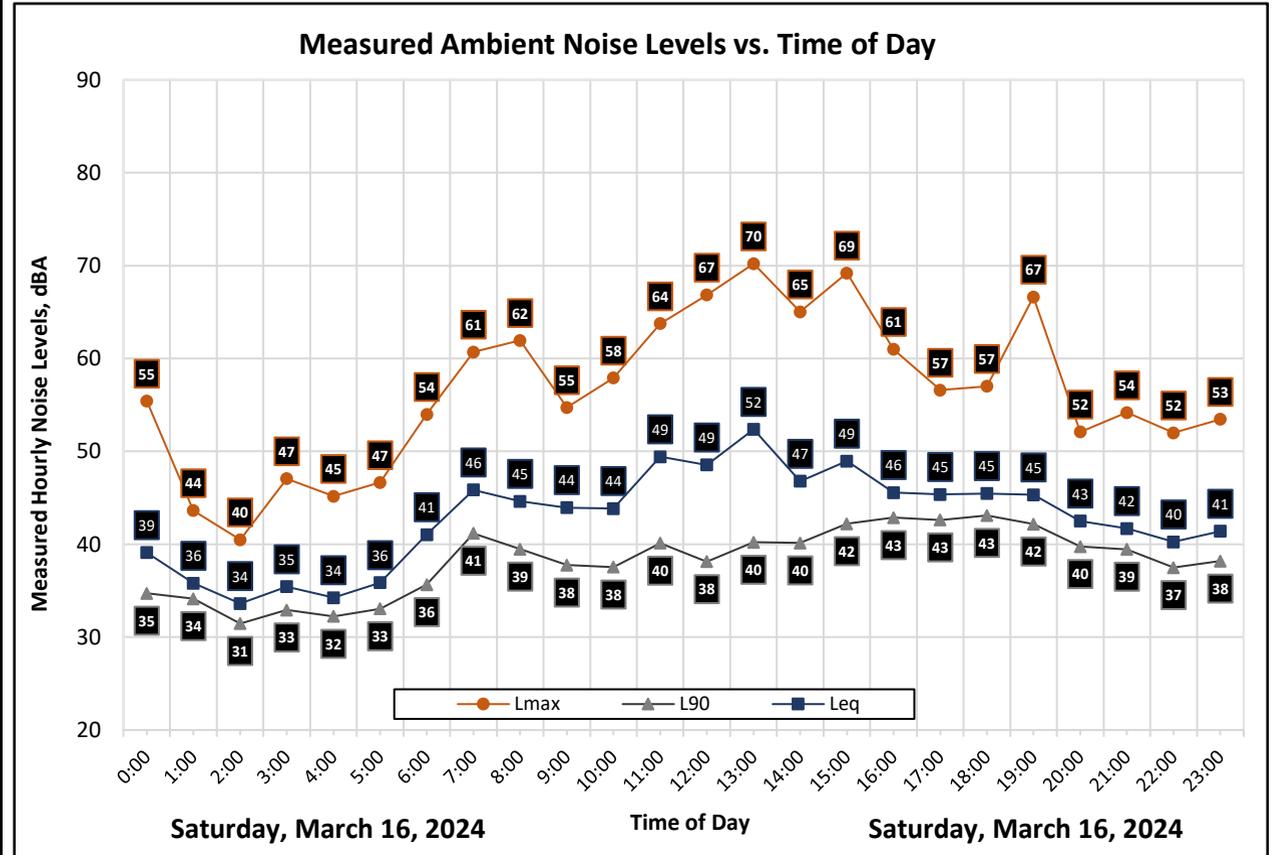
Location: Northern Project Boundary

Calibrator: CAL200

Coordinates: (38.6101406, -122.8587589)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Saturday, March 16, 2024	0:00	39	55	40	35
Saturday, March 16, 2024	1:00	36	44	37	34
Saturday, March 16, 2024	2:00	34	40	35	31
Saturday, March 16, 2024	3:00	35	47	37	33
Saturday, March 16, 2024	4:00	34	45	36	32
Saturday, March 16, 2024	5:00	36	47	38	33
Saturday, March 16, 2024	6:00	41	54	44	36
Saturday, March 16, 2024	7:00	46	61	48	41
Saturday, March 16, 2024	8:00	45	62	46	39
Saturday, March 16, 2024	9:00	44	55	48	38
Saturday, March 16, 2024	10:00	44	58	46	38
Saturday, March 16, 2024	11:00	49	64	54	40
Saturday, March 16, 2024	12:00	49	67	53	38
Saturday, March 16, 2024	13:00	52	70	55	40
Saturday, March 16, 2024	14:00	47	65	48	40
Saturday, March 16, 2024	15:00	49	69	48	42
Saturday, March 16, 2024	16:00	46	61	48	43
Saturday, March 16, 2024	17:00	45	57	47	43
Saturday, March 16, 2024	18:00	45	57	47	43
Saturday, March 16, 2024	19:00	45	67	47	42
Saturday, March 16, 2024	20:00	43	52	44	40
Saturday, March 16, 2024	21:00	42	54	43	39
Saturday, March 16, 2024	22:00	40	52	42	37
Saturday, March 16, 2024	23:00	41	53	43	38

Statistics	Leq	Lmax	L10	L90
Day Average	47	61	48	40
Night Average	38	49	39	34
Day Low	42	52	43	38
Day High	52	70	55	43
Night Low	34	40	35	31
Night High	41	55	44	38
Ldn	47	Day %		94
CNEL	48	Night %		6



Appendix B1b: Continuous Noise Monitoring Results

Site: LT-1

Project: Bader Park Redevelopment

Meter: LDL 820-3

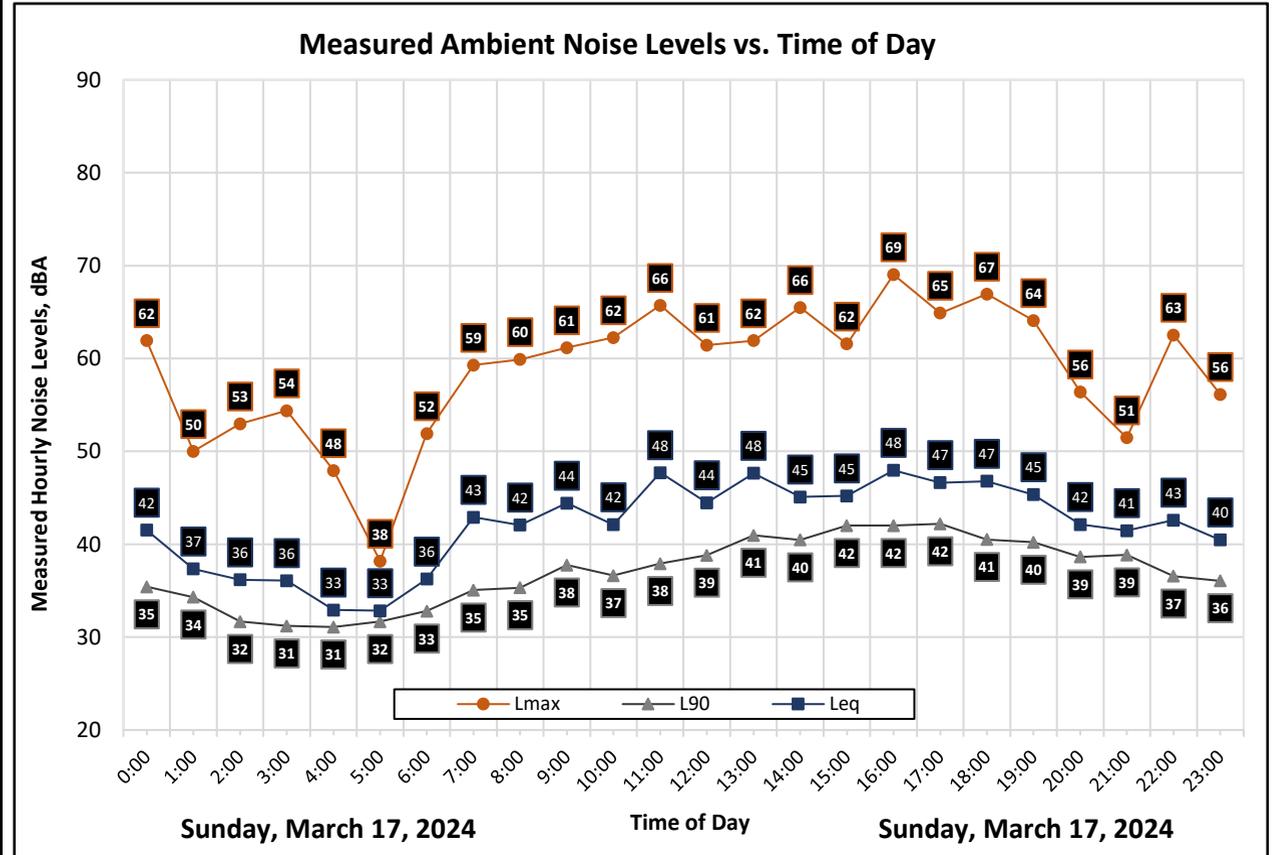
Location: Northern Project Boundary

Calibrator: CAL200

Coordinates: (38.6101406, -122.8587589)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Sunday, March 17, 2024	0:00	42	62	41	35
Sunday, March 17, 2024	1:00	37	50	39	34
Sunday, March 17, 2024	2:00	36	53	38	32
Sunday, March 17, 2024	3:00	36	54	34	31
Sunday, March 17, 2024	4:00	33	48	33	31
Sunday, March 17, 2024	5:00	33	38	34	32
Sunday, March 17, 2024	6:00	36	52	38	33
Sunday, March 17, 2024	7:00	43	59	47	35
Sunday, March 17, 2024	8:00	42	60	44	35
Sunday, March 17, 2024	9:00	44	61	48	38
Sunday, March 17, 2024	10:00	42	62	44	37
Sunday, March 17, 2024	11:00	48	66	50	38
Sunday, March 17, 2024	12:00	44	61	47	39
Sunday, March 17, 2024	13:00	48	62	51	41
Sunday, March 17, 2024	14:00	45	66	46	40
Sunday, March 17, 2024	15:00	45	62	47	42
Sunday, March 17, 2024	16:00	48	69	49	42
Sunday, March 17, 2024	17:00	47	65	48	42
Sunday, March 17, 2024	18:00	47	67	47	41
Sunday, March 17, 2024	19:00	45	64	46	40
Sunday, March 17, 2024	20:00	42	56	44	39
Sunday, March 17, 2024	21:00	41	51	43	39
Sunday, March 17, 2024	22:00	43	63	41	37
Sunday, March 17, 2024	23:00	40	56	42	36

Statistics	Leq	Lmax	L10	L90
Day Average	45	62	47	39
Night Average	38	53	38	33
Day Low	41	51	43	35
Day High	48	69	51	42
Night Low	33	38	33	31
Night High	42	63	42	37
Ldn	46	Day %		92
CNEL	47	Night %		8



Appendix B1c: Continuous Noise Monitoring Results

Site: LT-1

Project: Bader Park Redevelopment

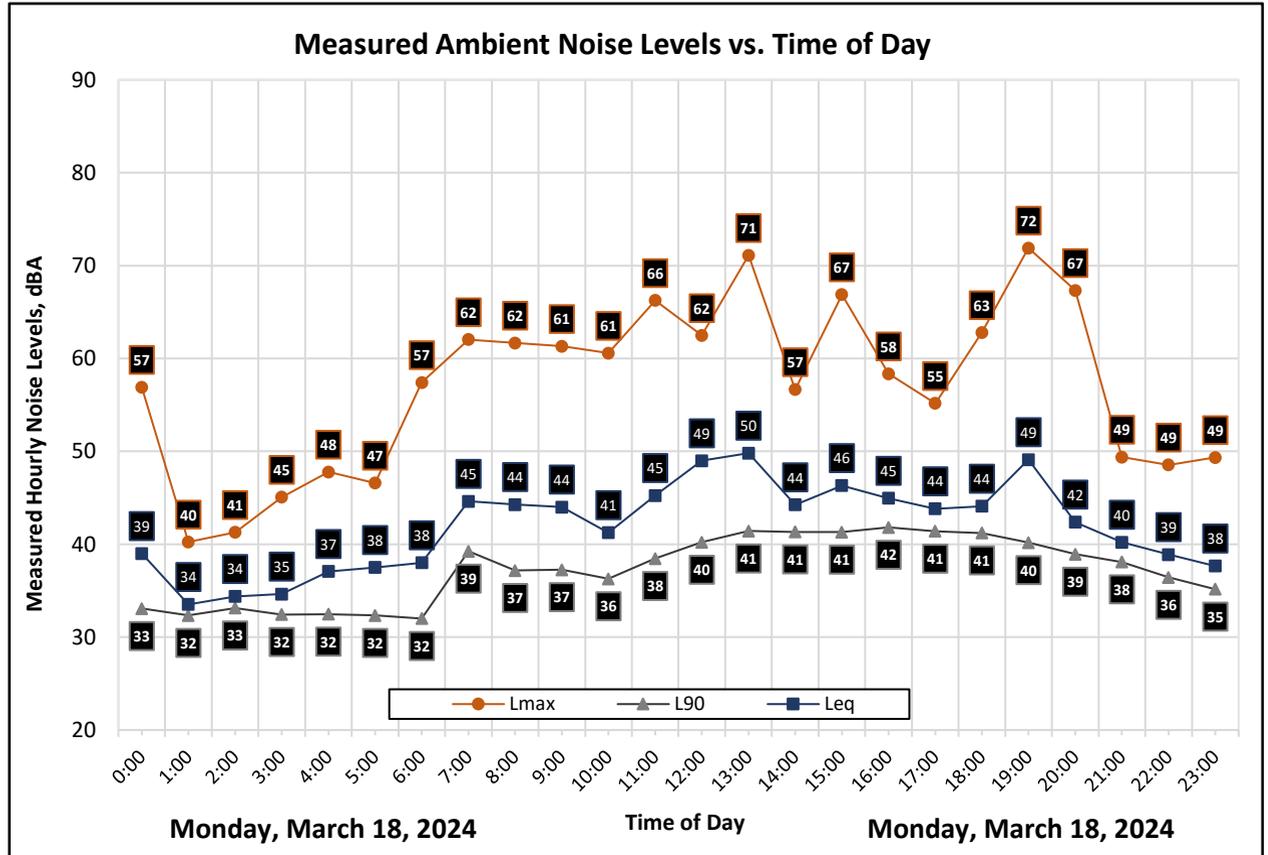
Meter: LDL 820-3

Location: Northern Project Boundary

Calibrator: CAL200

Coordinates: (38.6101406, -122.8587589)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Monday, March 18, 2024	0:00	39	57	38	33
Monday, March 18, 2024	1:00	34	40	35	32
Monday, March 18, 2024	2:00	34	41	36	33
Monday, March 18, 2024	3:00	35	45	36	32
Monday, March 18, 2024	4:00	37	48	40	32
Monday, March 18, 2024	5:00	38	47	41	32
Monday, March 18, 2024	6:00	38	57	40	32
Monday, March 18, 2024	7:00	45	62	47	39
Monday, March 18, 2024	8:00	44	62	47	37
Monday, March 18, 2024	9:00	44	61	45	37
Monday, March 18, 2024	10:00	41	61	43	36
Monday, March 18, 2024	11:00	45	66	48	38
Monday, March 18, 2024	12:00	49	62	53	40
Monday, March 18, 2024	13:00	50	71	49	41
Monday, March 18, 2024	14:00	44	57	47	41
Monday, March 18, 2024	15:00	46	67	47	41
Monday, March 18, 2024	16:00	45	58	47	42
Monday, March 18, 2024	17:00	44	55	46	41
Monday, March 18, 2024	18:00	44	63	45	41
Monday, March 18, 2024	19:00	49	72	45	40
Monday, March 18, 2024	20:00	42	67	43	39
Monday, March 18, 2024	21:00	40	49	42	38
Monday, March 18, 2024	22:00	39	49	41	36
Monday, March 18, 2024	23:00	38	49	40	35



Statistics	Leq	Lmax	L10	L90
Day Average	46	62	46	40
Night Average	37	48	38	33
Day Low	40	49	42	36
Day High	50	72	53	42
Night Low	34	40	35	32
Night High	39	57	41	36
Ldn	46	Day %		94
CNEL	47	Night %		6



Appendix B2a: Continuous Noise Monitoring Results

Site: LT-2

Project: Bader Park Redevelopment

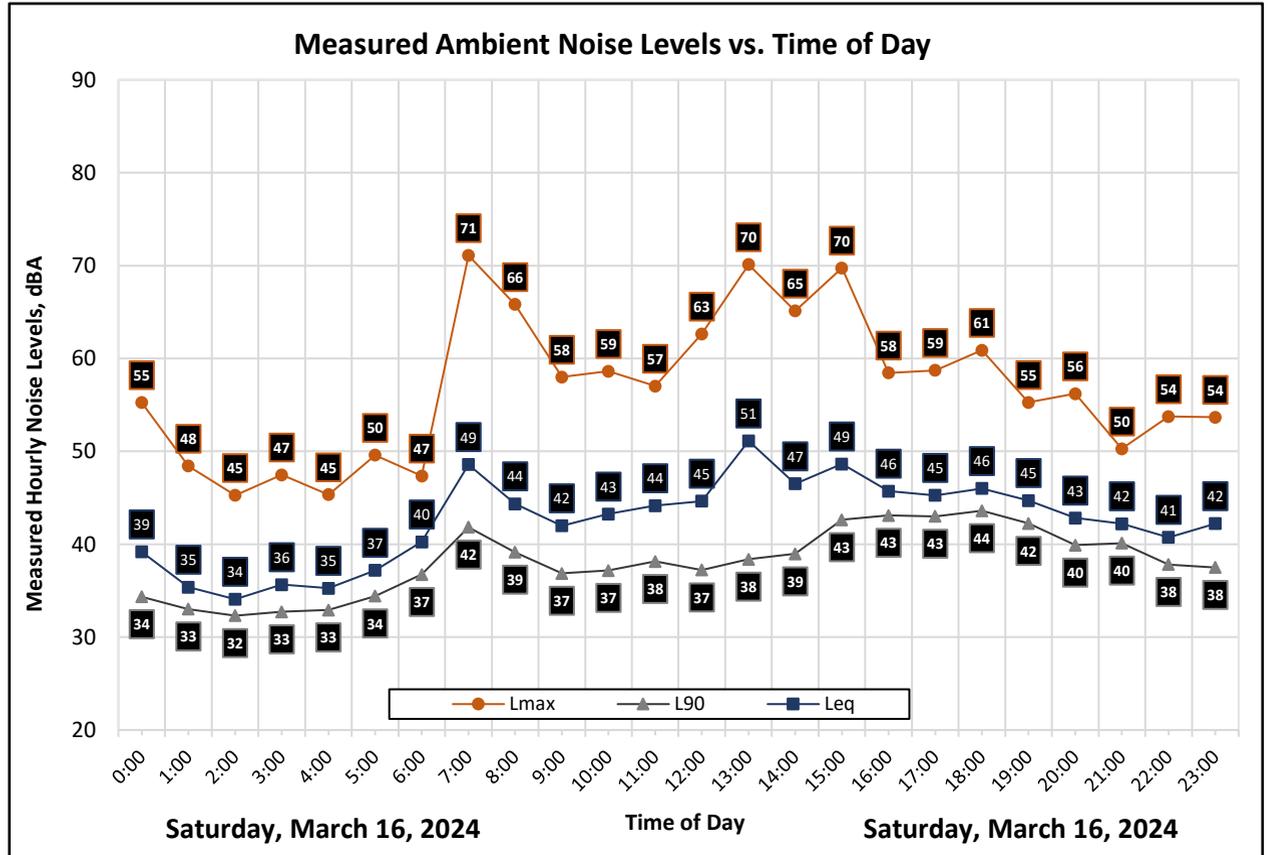
Meter: LDL 820-1

Location: South West of Proposed Central Lawn

Calibrator: CAL200

Coordinates: (38.6088969, -122.8587439)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Saturday, March 16, 2024	0:00	39	55	41	34
Saturday, March 16, 2024	1:00	35	48	37	33
Saturday, March 16, 2024	2:00	34	45	36	32
Saturday, March 16, 2024	3:00	36	47	38	33
Saturday, March 16, 2024	4:00	35	45	37	33
Saturday, March 16, 2024	5:00	37	50	39	34
Saturday, March 16, 2024	6:00	40	47	43	37
Saturday, March 16, 2024	7:00	49	71	50	42
Saturday, March 16, 2024	8:00	44	66	46	39
Saturday, March 16, 2024	9:00	42	58	44	37
Saturday, March 16, 2024	10:00	43	59	45	37
Saturday, March 16, 2024	11:00	44	57	47	38
Saturday, March 16, 2024	12:00	45	63	47	37
Saturday, March 16, 2024	13:00	51	70	52	38
Saturday, March 16, 2024	14:00	47	65	48	39
Saturday, March 16, 2024	15:00	49	70	48	43
Saturday, March 16, 2024	16:00	46	58	48	43
Saturday, March 16, 2024	17:00	45	59	47	43
Saturday, March 16, 2024	18:00	46	61	48	44
Saturday, March 16, 2024	19:00	45	55	46	42
Saturday, March 16, 2024	20:00	43	56	45	40
Saturday, March 16, 2024	21:00	42	50	44	40
Saturday, March 16, 2024	22:00	41	54	43	38
Saturday, March 16, 2024	23:00	42	54	45	38



Statistics	Leq	Lmax	L10	L90
Day Average	46	61	47	40
Night Average	38	50	40	35
Day Low	42	50	44	37
Day High	51	71	52	44
Night Low	34	45	36	32
Night High	42	55	45	38
Ldn	47	Day %		92
CNEL	47	Night %		8



Appendix B2b: Continuous Noise Monitoring Results

Site: LT-2

Project: Bader Park Redevelopment

Meter: LDL 820-1

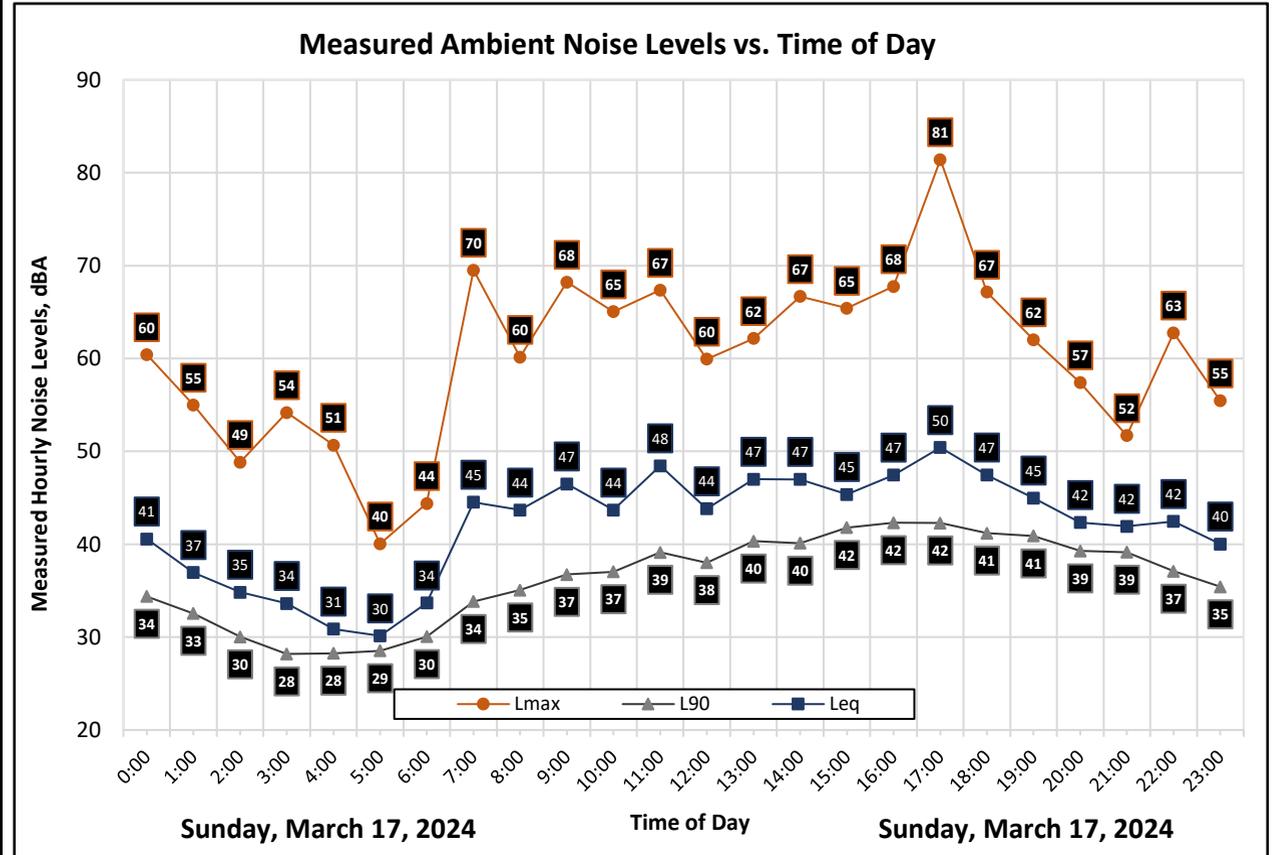
Location: South West of Proposed Central Lawn

Calibrator: CAL200

Coordinates: (38.6088969, -122.8587439)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Sunday, March 17, 2024	0:00	41	60	41	34
Sunday, March 17, 2024	1:00	37	55	39	33
Sunday, March 17, 2024	2:00	35	49	37	30
Sunday, March 17, 2024	3:00	34	54	32	28
Sunday, March 17, 2024	4:00	31	51	32	28
Sunday, March 17, 2024	5:00	30	40	32	29
Sunday, March 17, 2024	6:00	34	44	36	30
Sunday, March 17, 2024	7:00	45	70	46	34
Sunday, March 17, 2024	8:00	44	60	47	35
Sunday, March 17, 2024	9:00	47	68	48	37
Sunday, March 17, 2024	10:00	44	65	46	37
Sunday, March 17, 2024	11:00	48	67	51	39
Sunday, March 17, 2024	12:00	44	60	46	38
Sunday, March 17, 2024	13:00	47	62	50	40
Sunday, March 17, 2024	14:00	47	67	47	40
Sunday, March 17, 2024	15:00	45	65	47	42
Sunday, March 17, 2024	16:00	47	68	48	42
Sunday, March 17, 2024	17:00	50	81	48	42
Sunday, March 17, 2024	18:00	47	67	47	41
Sunday, March 17, 2024	19:00	45	62	46	41
Sunday, March 17, 2024	20:00	42	57	44	39
Sunday, March 17, 2024	21:00	42	52	44	39
Sunday, March 17, 2024	22:00	42	63	42	37
Sunday, March 17, 2024	23:00	40	55	42	35

Statistics	Leq	Lmax	L10	L90
Day Average	46	65	47	39
Night Average	37	52	37	32
Day Low	42	52	44	34
Day High	50	81	51	42
Night Low	30	40	32	28
Night High	41	63	42	37
Ldn	46	Day %		95
CNEL	47	Night %		5



Appendix B2c: Continuous Noise Monitoring Results

Site: LT-2

Project: Bader Park Redevelopment

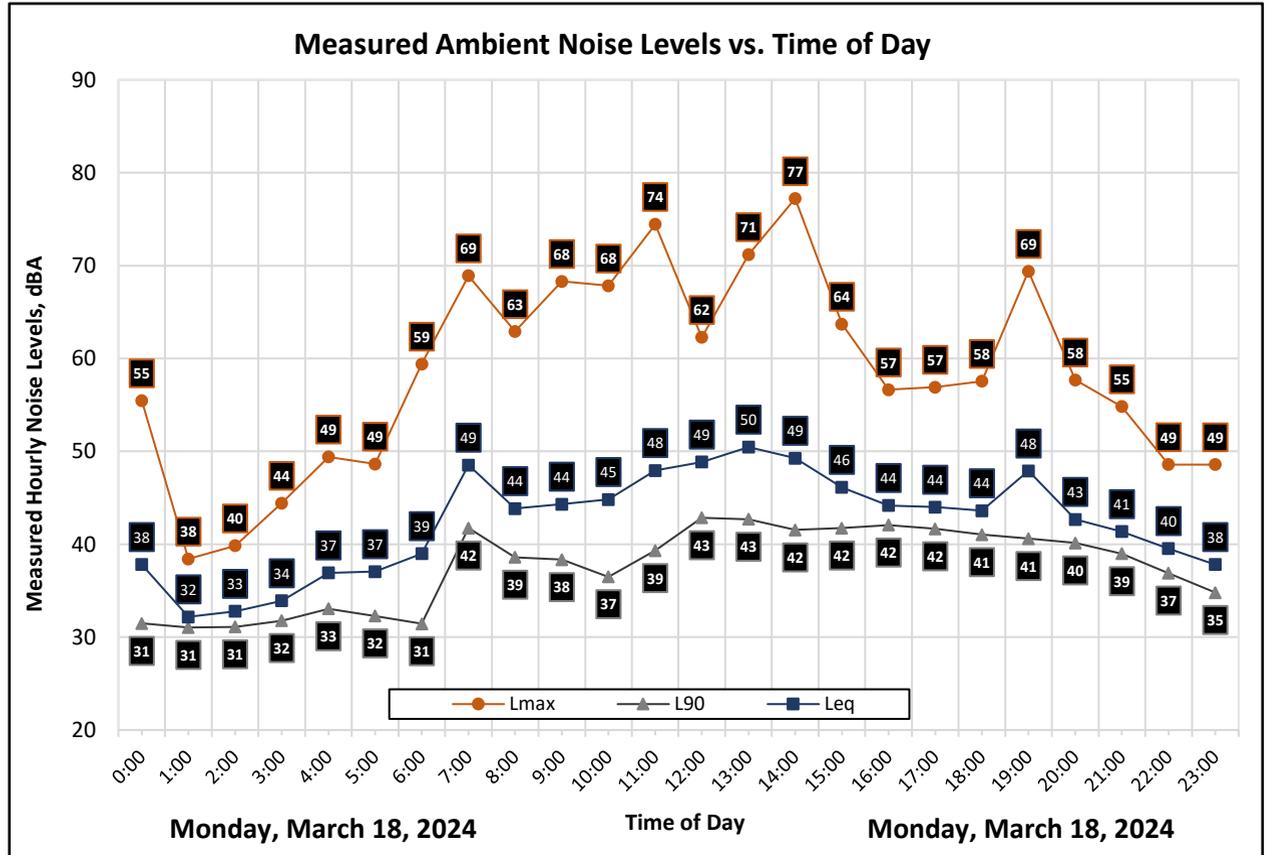
Meter: LDL 820-1

Location: South West of Proposed Central Lawn

Calibrator: CAL200

Coordinates: (38.6088969, -122.8587439)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Monday, March 18, 2024	0:00	38	55	37	31
Monday, March 18, 2024	1:00	32	38	33	31
Monday, March 18, 2024	2:00	33	40	34	31
Monday, March 18, 2024	3:00	34	44	36	32
Monday, March 18, 2024	4:00	37	49	40	33
Monday, March 18, 2024	5:00	37	49	41	32
Monday, March 18, 2024	6:00	39	59	42	31
Monday, March 18, 2024	7:00	49	69	51	42
Monday, March 18, 2024	8:00	44	63	47	39
Monday, March 18, 2024	9:00	44	68	46	38
Monday, March 18, 2024	10:00	45	68	47	37
Monday, March 18, 2024	11:00	48	74	50	39
Monday, March 18, 2024	12:00	49	62	52	43
Monday, March 18, 2024	13:00	50	71	50	43
Monday, March 18, 2024	14:00	49	77	49	42
Monday, March 18, 2024	15:00	46	64	47	42
Monday, March 18, 2024	16:00	44	57	46	42
Monday, March 18, 2024	17:00	44	57	46	42
Monday, March 18, 2024	18:00	44	58	45	41
Monday, March 18, 2024	19:00	48	69	45	41
Monday, March 18, 2024	20:00	43	58	44	40
Monday, March 18, 2024	21:00	41	55	43	39
Monday, March 18, 2024	22:00	40	49	42	37
Monday, March 18, 2024	23:00	38	49	40	35



Statistics	Leq	Lmax	L10	L90
Day Average	47	65	47	41
Night Average	37	48	38	33
Day Low	41	55	43	37
Day High	50	77	52	43
Night Low	32	38	33	31
Night High	39	59	42	37
Ldn	46	Day %		95
CNEL	47	Night %		5



Appendix B3a: Continuous Noise Monitoring Results

Site: LT-3

Project: Bader Park Redevelopment

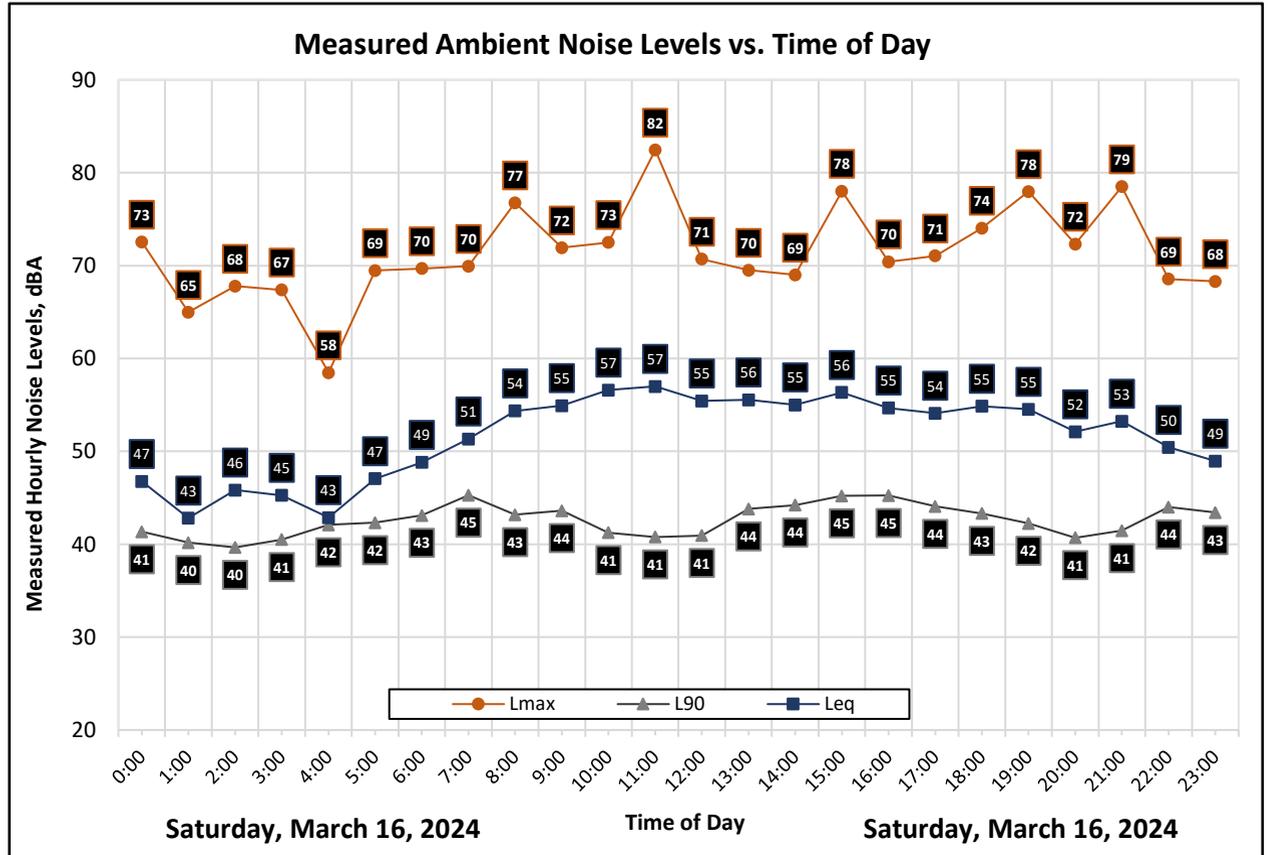
Meter: LDL 820-5

Location: North East of the Project Site

Calibrator: CAL200

Coordinates: (38.6102396, -122.8559775)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Saturday, March 16, 2024	0:00	47	73	44	41
Saturday, March 16, 2024	1:00	43	65	42	40
Saturday, March 16, 2024	2:00	46	68	42	40
Saturday, March 16, 2024	3:00	45	67	43	41
Saturday, March 16, 2024	4:00	43	58	44	42
Saturday, March 16, 2024	5:00	47	69	45	42
Saturday, March 16, 2024	6:00	49	70	47	43
Saturday, March 16, 2024	7:00	51	70	50	45
Saturday, March 16, 2024	8:00	54	77	56	43
Saturday, March 16, 2024	9:00	55	72	59	44
Saturday, March 16, 2024	10:00	57	73	61	41
Saturday, March 16, 2024	11:00	57	82	61	41
Saturday, March 16, 2024	12:00	55	71	60	41
Saturday, March 16, 2024	13:00	56	70	60	44
Saturday, March 16, 2024	14:00	55	69	59	44
Saturday, March 16, 2024	15:00	56	78	60	45
Saturday, March 16, 2024	16:00	55	70	58	45
Saturday, March 16, 2024	17:00	54	71	58	44
Saturday, March 16, 2024	18:00	55	74	58	43
Saturday, March 16, 2024	19:00	55	78	58	42
Saturday, March 16, 2024	20:00	52	72	53	41
Saturday, March 16, 2024	21:00	53	79	47	41
Saturday, March 16, 2024	22:00	50	69	47	44
Saturday, March 16, 2024	23:00	49	68	46	43



Statistics	Leq	Lmax	L10	L90
Day Average	55	74	57	43
Night Average	47	67	44	42
Day Low	51	69	47	41
Day High	57	82	61	45
Night Low	43	58	42	40
Night High	49	73	47	44
Ldn	55	Day %		93
CNEL	56	Night %		7



Appendix B3b: Continuous Noise Monitoring Results

Site: LT-3

Project: Bader Park Redevelopment

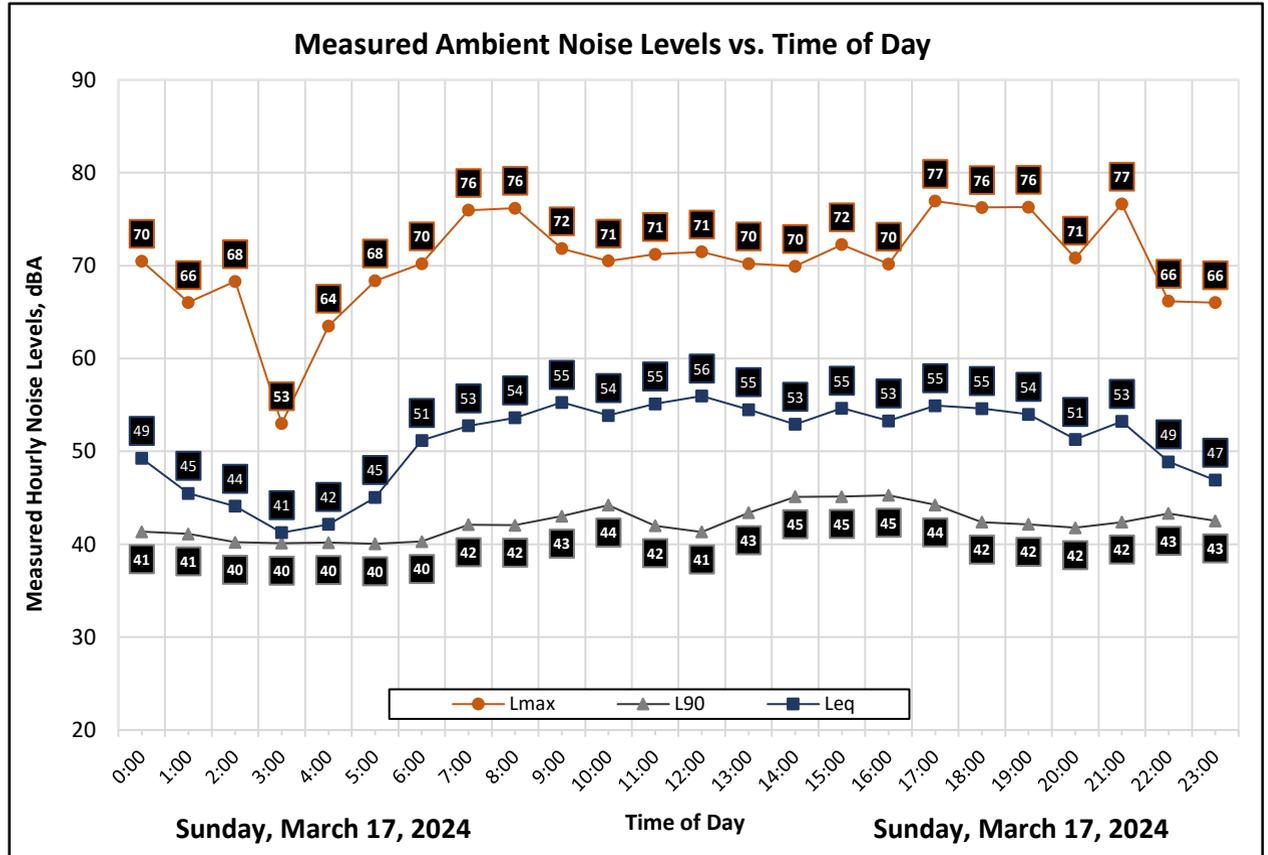
Meter: LDL 820-5

Location: North East of the Project Site

Calibrator: CAL200

Coordinates: (38.6102396, -122.8559775)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Sunday, March 17, 2024	0:00	49	70	45	41
Sunday, March 17, 2024	1:00	45	66	43	41
Sunday, March 17, 2024	2:00	44	68	42	40
Sunday, March 17, 2024	3:00	41	53	42	40
Sunday, March 17, 2024	4:00	42	64	42	40
Sunday, March 17, 2024	5:00	45	68	42	40
Sunday, March 17, 2024	6:00	51	70	45	40
Sunday, March 17, 2024	7:00	53	76	51	42
Sunday, March 17, 2024	8:00	54	76	53	42
Sunday, March 17, 2024	9:00	55	72	59	43
Sunday, March 17, 2024	10:00	54	71	56	44
Sunday, March 17, 2024	11:00	55	71	59	42
Sunday, March 17, 2024	12:00	56	71	61	41
Sunday, March 17, 2024	13:00	55	70	58	43
Sunday, March 17, 2024	14:00	53	70	55	45
Sunday, March 17, 2024	15:00	55	72	58	45
Sunday, March 17, 2024	16:00	53	70	56	45
Sunday, March 17, 2024	17:00	55	77	58	44
Sunday, March 17, 2024	18:00	55	76	57	42
Sunday, March 17, 2024	19:00	54	76	55	42
Sunday, March 17, 2024	20:00	51	71	50	42
Sunday, March 17, 2024	21:00	53	77	48	42
Sunday, March 17, 2024	22:00	49	66	45	43
Sunday, March 17, 2024	23:00	47	66	45	43



Statistics	L _{eq}	L _{max}	L ₁₀	L ₉₀
Day Average	54	73	56	43
Night Average	47	66	43	41
Day Low	51	70	48	41
Day High	56	77	61	45
Night Low	41	53	42	40
Night High	51	70	45	43
L _{dn}	55	Day %		91
CNEL	56	Night %		9



Appendix B3c: Continuous Noise Monitoring Results

Site: LT-3

Project: Bader Park Redevelopment

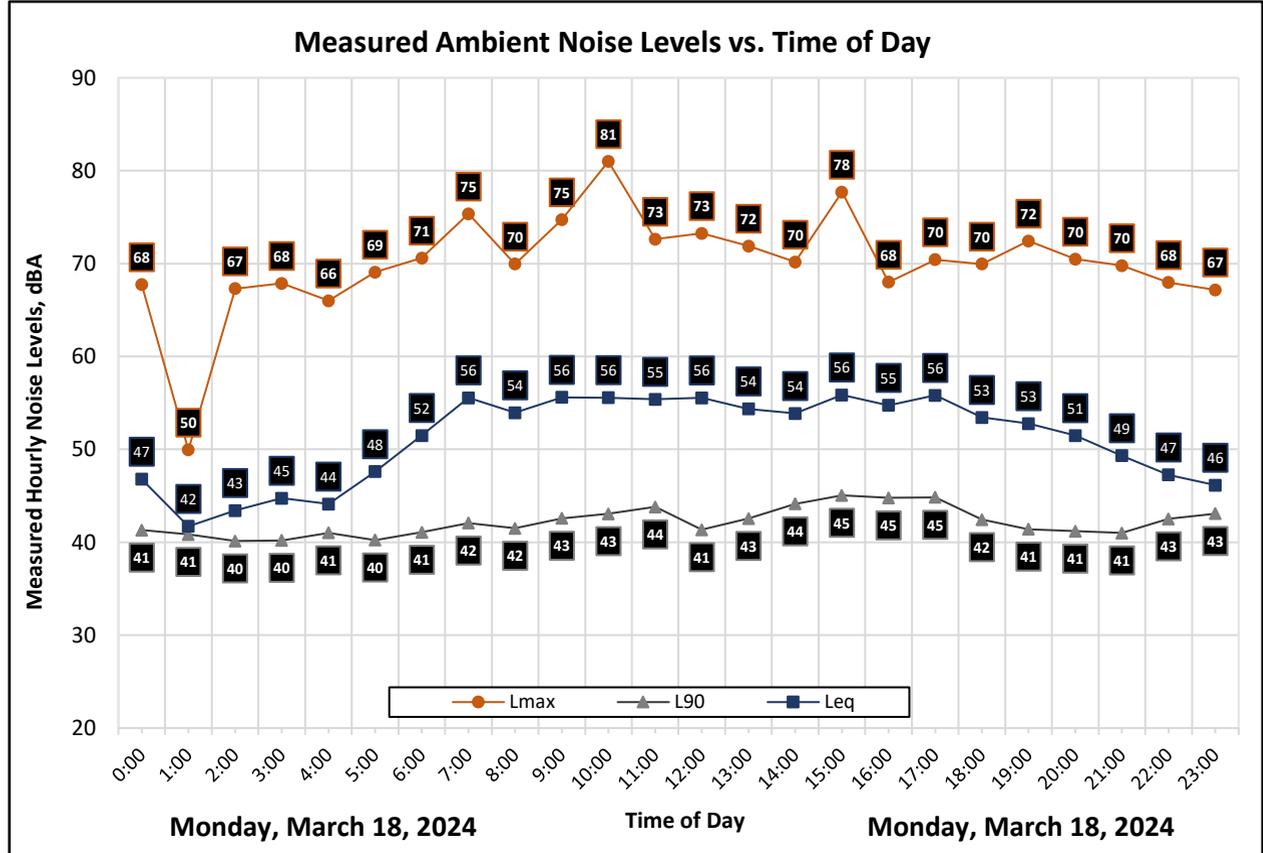
Meter: LDL 820-5

Location: North East of the Project Site

Calibrator: CAL200

Coordinates: (38.6102396, -122.8559775)

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₁₀	L ₉₀
Monday, March 18, 2024	0:00	47	68	44	41
Monday, March 18, 2024	1:00	42	50	43	41
Monday, March 18, 2024	2:00	43	67	42	40
Monday, March 18, 2024	3:00	45	68	42	40
Monday, March 18, 2024	4:00	44	66	43	41
Monday, March 18, 2024	5:00	48	69	42	40
Monday, March 18, 2024	6:00	52	71	46	41
Monday, March 18, 2024	7:00	56	75	58	42
Monday, March 18, 2024	8:00	54	70	57	42
Monday, March 18, 2024	9:00	56	75	59	43
Monday, March 18, 2024	10:00	56	81	58	43
Monday, March 18, 2024	11:00	55	73	59	44
Monday, March 18, 2024	12:00	56	73	59	41
Monday, March 18, 2024	13:00	54	72	57	43
Monday, March 18, 2024	14:00	54	70	57	44
Monday, March 18, 2024	15:00	56	78	59	45
Monday, March 18, 2024	16:00	55	68	59	45
Monday, March 18, 2024	17:00	56	70	60	45
Monday, March 18, 2024	18:00	53	70	57	42
Monday, March 18, 2024	19:00	53	72	53	41
Monday, March 18, 2024	20:00	51	70	51	41
Monday, March 18, 2024	21:00	49	70	44	41
Monday, March 18, 2024	22:00	47	68	45	43
Monday, March 18, 2024	23:00	46	67	44	43



Statistics	Leq	Lmax	L10	L90
Day Average	55	73	57	43
Night Average	47	66	43	41
Day Low	49	68	44	41
Day High	56	81	60	45
Night Low	42	50	42	40
Night High	52	71	46	43
Ldn	55	Day %		92
CNEL	56	Night %		8



Appendix C: Traffic Noise Calculation Inputs and Results



Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 231203

Description: Project Traffic Increases

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset			Level, dBA
												60 dBA	65 dBA	70 dBA	
1	Heron Drive	South of S Fitch Mountain Road	91	92	0	8	0.0%	1.0%	25	60	0	2	1	0	38.5

APPENDIX E

TRANSPORTATION INITIAL STUDY CHECKLIST

Transportation

The CEQA criteria evaluated are as follows. Would the project:

- a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
- b. Conflict or be inconsistent with CEQA Guidelines § 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?

Project Profile

The Master Plan includes a number of improvements to Badger Park that would enhance its interface with the Russian River and increase its use. The existing playground would be expanded and upgraded, with new play structures and amenities. The dog park would be relocated, remaining approximately the same size but with new amenities. The community garden would approximately double in size. New sports courts would be constructed; none would be intended for league play and they would not be lit. Three new picnic areas with tables are also proposed. Two overlook structures would be constructed at existing promontories on the Russian River and pedestrian trails would be expanded and enhanced. A new restroom building would be added in place of the existing portable toilet. Though Badger Park at one time hosted soccer practices and games, this practice was discontinued in 2021 and is not proposed to be reinitiated. The parking supply would be increased by 21 spaces from the current supply of 46 spaces to 67 spaces.

Transportation Setting

Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby generators. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, it consists of the project frontage.

Consideration was given to the project's potential trip generation during the a.m. and p.m. peak periods. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Policies and Standards

The *Healdsburg 2030 General Plan* includes numerous goals, policies and implementation measures that are related to transportation facilities, as follows.

Goal T-B. Minimal traffic accidents and hazards.

Goal T-D. Bicycle and pedestrian routes and facilities that provide safe and convenient access and an alternative to the use of motor vehicles.

Policy T-B-2. Special attention will be given to providing adequate corner sight distances at intersections and private access drives and roadways.

Policy T-D-1. The use of alternative transportation modes shall be encouraged by establishing a safe and convenient bicycle and pedestrian network interconnecting residential areas with recreation, shopping and employment areas.

Policy T-D-3. The City shall develop a citywide system of safe and convenient designated bikeways that serves both experienced and casual bicyclists, and which maximizes bicycle use for commuting, recreation, and local transportation.

Policy PS-28. Complete gaps in the pedestrian and bicycle systems.

Policy PS-29. Maintain the pedestrian and bicycle systems in good condition.

Implementation Measure T-12. Implement the Bicycle & Pedestrian Master Plan as opportunities arise and require development projects to dedicate land and/or construct/install bicycle and pedestrian facilities in coordination with the Plan.

Implementation Measure T-13. Designate and establish specific east-west and north-south bicycle routes through the downtown area where feasible.

Implementation Measure T-14. Continue to place bicycle racks as requested by property owners and demand grows at public destinations.

Implementation Measure T-15. Continue to improve the pedestrian network interconnecting residential areas with recreation, shopping and employment as opportunities arise, including as part of development projects.

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021, for Tennis Courts (LU #490), as this description most closely matches the changes the project proposes to the existing park facilities. The trip rate does not include an a.m. peak hour rate, but as traffic during the morning peak hour is typically lower, the p.m. peak hour was considered as the most critical. There is also not an in-out percentage provided for the p.m. peak hour so data for Public Parks (LU #411), 55 percent of trips inbound and 45 percent of outbound, was used as the project would likely have similar travel patterns. Based on the application of these rates, the proposed project is expected to generate an average of 91 additional trip per day, with 13 trips added during the p.m. peak hour. This information is summarized in Table 1.

Table 1 – Trip Generation Summary

Land Use	Units	Daily		PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out
Tennis Court	3 Courts	30.32	91	4.21	13	7	6

Circulation System

This section addresses the first transportation bullet point on the CEQA checklist, which relates to the potential for a project to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Pedestrian Facilities

Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks, crosswalks, and curb ramps provide access for pedestrians in the vicinity of the proposed project site.

- **Heron Drive** – Sidewalk coverage is provided on Heron Drive with sidewalks on the south side for its entire length and on the north side from 400 feet south of the intersection of South Fitch Mountain Road/Heron Drive to the eastern terminus of Heron Drive. Sidewalks are provided along developed property frontages. Curb ramps and crosswalks at side street approaches but lack truncated domes. Lighting is intermittently provided by overhead, pedestrian-scale streetlights.
- **South Fitch Mountain Road** – Continuous sidewalks are provided on the south side of South Fitch Mountain Road between its western terminus and Orangewood Drive. Sidewalks are not provided on the north side of the street. Vehicle-scale lighting is provided intermittently along the street.
- Continuous sidewalks are present along one side of the entire length Falcon Way, Heron Court, Raven Court, Almond Way, Hummingbird Court, Quail Court, Canary Court, Sparrow Court, and Crane Court as well as the streets to the west of Heron Drive within the study area.
- No sidewalks are present along the streets east of Almond Way. These streets are local streets that provide access to residences on both sides. Sidewalks are generally not provided along these local streets.

No new pedestrian facilities are planned in the study area according to the *Healdsburg Bicycle & Pedestrian Master Plan*, Sonoma County Transportation Authority, 2013, nor are any off-site facilities planned as part of the project. The project would, however, provide additional trails through the park and connecting to the Russian River.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians. Collision records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports were reviewed for the most current five-year period available, which was October 1, 2018, through September 30, 2023, at the time of the analysis. During the five-year study period, there were no reported collisions involving pedestrians along Heron Drive and South Fitch Mountain Road.

Project Impacts on Pedestrian Facilities

Given the proximity of residential land uses to the north, east, and west of the site, it is reasonable to assume that some project patrons will want to walk, bicycle, and/or use transit to reach the project site. The project as proposed would improve pedestrian access from 2nd Street. Since the project as proposed would not

change the frontage with Heron Drive and the nearby pedestrian network is already fully connected the project would have a less-than-significant impact on pedestrian facilities.

Finding – The project as proposed would be compliant with City’s pedestrian policies.

Bicycle Facilities

Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2020, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, a Class II bike lane exists on the north side of South Fitch Mountain Road between Greens Street and 650 feet east of Latimer Road. No bicycle facilities are proposed near the project site in the City of Healdsburg’s *Healdsburg Bicycle & Pedestrian Master Plan*. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area.

Bicyclist Safety

Collision records for the study area were reviewed to determine if there had been any bicyclist-involved crashes. During the five-year study period between October 1, 2015, through September 30, 2020, there was no reported collision involving a bicyclist along Heron Drive or South Fitch Mountain Road

Project Impacts on Bicycle Facilities

The project as proposed would not change any of the streets nor does it front on a street that is planned to have new bicycle facilities. The project would not impact any existing or planned bicycle facilities so the project as proposed would have a less-than-significant impact on bicycle facilities.

Finding – Bicycle facilities serving the project site are compliant with the City’s bicycle policies.

Transit Facilities

Existing Transit Facilities

Sonoma County Transit (SCT) provides fixed-route bus service in Healdsburg. Route 67 provides loop service to destinations throughout the City of Healdsburg and stops adjacent to the project site on Heron Drive and Riverside Club House. Route 67 operates Monday through Saturday from 8:40 a.m. to 4:10 p.m. with headways that range from one hour to one-and-one-half hours.

Two or three bicycles can be carried on most SCT buses. Bike rack space is on a first-come, first-served basis. Riders are responsible for both loading and unloading their bicycles.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SCT Paratransit is designed to serve the needs of individuals with disabilities.

Impact on Transit Facilities

Given the SCT bus route serving the project site and the existing access to the transit stop that is adjacent to the project site, the existing transit route is adequate to accommodate project-generated transit trips. The project as proposed is not expected to increase the use of existing transit facilities as local parks typically serve local residents and is thus expected to have a less-than-significant impact on transit facilities.

Finding – The project as proposed would be compliant with the City's transit policies.

Significance Finding – The proposed project would not conflict with any plans or policies for transportation facilities and would improve pedestrian access from 2nd Street. It would have a less-than-significant impact on these facilities.

Vehicle Miles Traveled (VMT)

The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based on the project's anticipated Vehicle Miles Traveled (VMT) and the City's VMT Policy.

The City of Healdsburg has adopted guidelines for the analysis of vehicle miles traveled (VMT). The City's policy identifies several criteria that may be used to identify certain types of projects that are unlikely to have a VMT impact and can be "screened" from further VMT analysis. One of these screening criteria pertains to small projects, which the City identifies as generating fewer than 110 vehicle trips per day. As shown in Table 1, the proposed project is anticipated to generate approximately one daily vehicle trip, which falls below the City's threshold. As a result, it is reasonable to conclude that the project can be presumed to have a less-than-significant impact on VMT.

Significance Finding – The project would be expected to have a less-than-significant impact in terms of VMT.

Safety Issues

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and the need for turn lanes at the project driveway to accommodate project-generated trips. This section addresses the third transportation bullet on the CEQA checklist which is whether or not the project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Site Access

The project site is currently served by a driveway on Heron Drive and the project would not result in any changes to the driveway or trip generation that affect site access, safety, or sight distance.

Consideration was given to the need for a left-turn lane on Heron Drive at the project entrance. However, as all or nearly all trips to the site are from Matheson Street/South Fitch Mountain Road and result in a right turn into the driveway, the volume would not be sufficient to warrant a turn lane, especially on a street with as low a volume as Heron Drive.

Significance Finding – The project would not result in any design elements or operational changes that would cause a safety concern. The project would therefore have a less-than-significant impact on safety.

Emergency Access

The final transportation bullet on the CEQA checklist requires an evaluation as to whether the project would result in inadequate emergency access or not.

Emergency response vehicles would be able to access the site via the project driveway on Heron Drive. The existing, 27-foot driveway meets the 20-foot driveway access requirement for emergency vehicles in *Ordinance No. 1194*, City of Healdsburg, 2019. The addition of project-generated traffic would have no perceptible effect on traffic operation and would therefore result in no increase in response times.

Significance Finding – The proposed project would have a less-than-significant impact on emergency response.

DRAFT

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE (Civil, Traffic)
Assistant Engineer	William Andrews, EIT
Editing/Formatting	Jessica Bender
Quality Control	Dalene J. Whitlock, PE (Civil, Traffic)

References

2020 Collision Data on California State Highways, California Department of Transportation, 2021
City of Healdsburg Municipal Code, Municipal Code Corporation, 2019
Countywide Bicycle & Pedestrian Master Plan, Sonoma County Transportation Authority (SCTA), 2019
Healdsburg 2030 General Plan Update Final Environmental Impact Report, Christopher A. Joseph & Associates, 2009
Highway Design Manual, 6th Edition, California Department of Transportation, 2017
Ordinance No. 1194, City of Healdsburg, 2019
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Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2021

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